



Marketing opportunities for potential Surinamese wood species

Sietze van Dijk

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Colophon

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FSWPS
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List of abbreviations

AGR	Agrobigi
AJT	Awalupisi / Ajawa-tingimoni
ASTM	American Society for Testing and Materials
BKT	Busi-katun
BRL	Beoordelingsrichtlijn
CE	Conformité Européenne
CELOS	Centrum voor Landbouwkundig Onderzoek in Suriname
CIRAD	Centre de cooperation internationale en recherché agronomique pour le développement
CITES	UN Convention on International Trade in Endangered Species
COC	Chain of Custody
CPF	Caribbean Parquet Flooring Ltd.
DJI	Djindja-udu
DS	Degree of Similarity
EU	European Union
EUTR	EU Timber Regulations
FAO	UN Food and Agriculture Organization
FLEGT	EU Forest Law Enforcement, Governance and Trade programme
FOE	Fungu
FSC	Forest Stewardship Council
FSWPS	Foundation for Sustainable Wood Processing in Suriname
GKW	Gujabakwari
IDB	Inter-American Development Bank
IDH	Initiatief Duurzame Handel
ING	Ingipipa
ISO	International Standards Organization
ISPM (15)	International Phyto-sanitary Measure (15)
ITTO	International Timber Trade Organization
JOK	Jongo Kabbes
LHV	Legal Harvesting Certification
LKS	Lesser Known Species
MC	Moisture Content
MOE	Modus of Elasticity
MOR	Modus of Rupture
NEN-EN	(Nederlandse) Europese Norm
PEFC	Program for the Endorsement of Forest Certification
PHS	Platform Houtsector Suriname
PMS	Pikin-misiki
REMAS	Restauratie Maatschappij Suriname Ltd.
RAMZON	Rampersad & Zoon Ltd.
R&D	Research & Development
RSL	Rode Sali
SBB	Stichting Bosbeheer & Bostoezicht
SFM	Sustainable Forest Management
SKH	Stichting Keuring Hout
SSB	Surinaams Standaarden Bureau

TAA	The Amazon Alternative
TBI	Tropenbos International
TIM	Tingimoni
UN	United Nations
USA	United States of America
VPA	Voluntary Partnership Agreement
VVNH	Vereniging van Nederlandse Houthandelaren
WNK	Wana-kwari
WRH	Wit Riemhout
WSL	Witte Sali
WTO	(Witte bast) Tite-udu

Samenvatting

Republiek Suriname ligt in het noorden van Zuid-Amerika en wordt in het oosten en westen respectievelijk begrensd door Frans Guyana en Guyana. Ten zuiden grenst het land aan Brazilië terwijl de noordgrens wordt gevormd door de mangrovebossen van de Atlantische kust. Het landoppervlakte is ongeveer 163.800 km² groot en het land telt ongeveer 534.500 inwoners. De noordelijke kuststrook, waar het grootste deel van de bevolking woont, bestaat grotendeels uit laaggelegen gecultiveerd land. Het zuidelijk deel van Suriname is bedekt met nog veelal maagdelijk regenwoud met slechts enkele savannes in het verre zuiden. Zij zijn het natuurlijk leefgebied van de in stamverband levende gemeenschappen van Inheemsen en Marrons.

Ongeveer 90% van het land is gedefinieerd als bos (14,8 miljoen ha). Hiermee is Suriname één van de meest bosrijke landen in de wereld. De bossen zijn ingedeeld in drie te onderscheiden typen: zwampbos (1,3 miljoen ha), savannebos (150.000 ha) en hoog drooglandbos (13,4 miljoen ha). De laatste, het regenwoud, wordt vanuit het oogpunt van de commerciële houtwinning als het meest waardevolle gezien.

De meeste houtoogst activiteiten vinden plaats in de zogenaamde bosgordel (ca. 4,5 miljoen ha met een productief areaal van 2,5 miljoen ha) waarvan momenteel iets meer dan 200.000 ha gecertificeerd is conform de FSC duurzaam bosbeheer standaard (FSC: juni 2013). De bosgordel bestaat uit de meest noordelijke en relatief goed toegankelijke bossen. In de periode van 1949 tot 1986 is door zowel 's Landsbosbeheer als de FAO hiervan een totaal areaal van 683.700 ha geïnventariseerd. Gebaseerd op deze inventarisaties zou in deze bossen een marktwaardig houtvolume van 22 - 30 m³/ha kunnen worden geoogst.

Het Nationaal Bosbeleidsplan (2003) gaat uit van een duurzame houtoogst van 1,0 tot 1,5 miljoen m³ per jaar bij een kapcyclus van 25 jaar en houtkap van 10 tot 15 m³/ha waarbij naast de oogst van 'traditionele' soorten ook de minder bekende boomsoorten worden geoogst. Meer conservatieve ramingen gaan uit van een jaarlijks duurzaam oogstvolume tussen 555.000 en 937.000 m³, nog steeds aanzienlijk meer dan de huidige jaarlijkse houtkap: in 2010 was deze 247.000 m³, in 2011 werd 366.000 m³ geoogst en in 2012: 436.000 m³. Bij een verdere verantwoorde groei van de bosbouwsector zal naast de oogst van de meest bekende soorten zoals Basralocus (*Dicorynia guianensis*), Kopi (*Goupia glabra*), Wana (*Ocotea rubra*) and Gronfolo (*Qualea* spp., *Ruizterania* spp.) ook aandacht moeten zijn voor de oogst en het vermarkten van soorten welke tot nu toe niet of nauwelijks op de markt worden gebracht: de zogenaamde 'Lesser Known Species' (LKS). Aanhoudende focus op de oogst van slechts een beperkt aantal bekende boomsoorten zal op termijn leiden tot uitputting ervan, een veranderende bossamenstelling en het verlies van biodiversiteit. Het duurzaam beheer van natuurlijke bossen zal zich dan ook moeten richten op de oogst van een groter aantal boomsoorten, inclusief de tot heden minder gangbare soorten, de LKS (lesser-known timber species).

Terwijl in de bossen van Suriname honderden verschillende boomsoorten voorkomen, concentreert de houtkap zich op slechts een zeer beperkt aantal hiervan. Bosherstel en hergroei van deze soorten komt hierdoor op termijn in gevaar, met als gevolg dat de economische waarde van deze bossen zal afnemen. Economische (hout)waarde van bossen is echter een voorwaarde om de kosten van duurzaam beheer en certificering te compenseren.

Het oogsten van een groter aantal boomsoorten dan tot nu toe het geval is, is een belangrijk component van het duurzaam bosbeheer. Duurzame houtkap, hoogwaardige houtverwerking en een efficiënte

waardeketen brengen internationale boscertificering binnen bereik. Toenemende waardering voor LKS is hierbij van groot belang. Lokale markten stellen zich steeds meer open voor toepassing van deze 'nieuwe' soorten. Exportmarkten blijven echter vooralsnog traditioneel.

Bewustwording en informatie spelen beiden een belangrijke rol bij de introductie en het gebruik van LKS in diverse toepassingen. Ter vergroting van de bekendheid van LKS, zowel bij de Surinaamse bosexploitatie- en houtverwerkende bedrijven als bij de houthandel en consumenten, heeft Tropenbos International (TBI) Suriname samen met de houtsector een onderzoek gedaan naar de gebruiksmogelijkheden van een aantal LKS, en promotie materialen gemaakt ter ondersteuning van het gebruik ervan.

Terwijl uit de gegevens van de Stichting Bosbeheer en Bostoezicht (SBB) blijkt dat veel van de minder bekende houtsoorten als 'potentieel marktwaardig' worden betiteld, komt uit diverse interviews met actoren in de houtketen naar voren dat zij slechts beperkte informatie hebben over de marktpotenties van deze groep houtsoorten. In veel gevallen blijkt de kennis over deze soorten en hun gebruik wel aanwezig, maar lang niet altijd beschikbaar te zijn. Promotie van deze 'nieuwe' soorten zal dus eerder gebaseerd moeten zijn op actieve marketing.

Uit de gesprekken met betrokkenen in de Surinaamse houtketen blijkt verder dat:

- Er een grote overeenstemming is over de meest bekende en verhandelde houtsoorten maar, gevraagd naar de LKS, hier juist een grote variatie is in de soorten die worden genoemd. Deze verschillen kunnen mede worden teruggevoerd op geografische distributie en voorkomen van deze LKS in de verschillende concessies waar wordt gewerkt en de markten waarin de betrokken bedrijven actief zijn.
- Bosexploitanten en rondhoutzagerijen werken voornamelijk 'vraaggericht' om zodoende er zeker van te zijn dat zij hun product ook daadwerkelijk kunnen afzetten. Houtverwerkende bedrijven echter staan eerder open voor het 'experimenteren' met nieuwe houtsoorten.
- Bij de toepassing van hout in constructies en bouw zijn de houttechnische specificaties van doorslaggevend belang, timmer- en meubelbedrijven staan meer open voor het gebruik van LKS waarbij de bewerkbaarheid en de esthetiek (kleur, structuur, verschijning) de doorslag geven.
- Er is grote behoefte en bereidheid tot het delen van kennis en ervaring rondom het gebruik van nieuwe soorten in diverse toepassingen tussen de bedrijven.

Diverse studies en gevoerde gesprekken, zowel in Suriname als daarbuiten, resulteren in een aantal belangrijke aanbevelingen voor het ontwerpen van een marketingstrategie voor de promotie van Surinaamse LKS, zowel voor de thuishmarkt en de export.

De condities onder welke nieuwe houtsoorten ingang vinden in de markt, met name op de wereldmarkt, is de laatste jaren sterk gewijzigd. De vaak moeizame introductie van nieuwe tropische hardhoutsoorten in internationale markten is in belangrijke mate het gevolg van (1) een gebrek aan betrouwbare informatie over de houteigenschappen in relatie tot het gebruik en (2) het negatieve imago van tropisch hout waarvan niet kan worden aangetoond dat dit uit duurzame exploitaties afkomstig is (certificatie).

Uit het huidige onderzoek komt naar voren dat van de meeste in dit rapport beschreven soorten de houttechnische eigenschappen en de praktische toepassing al eerder zijn onderzocht en dus bekend zijn. Het is dus beter om van 'minder gebruikt' in plaats van 'minder bekend' te spreken. Door het vergelijken

van deze houtkarakteristieken (en vervangen) met traditionele houtsoorten zal de acceptatie van LKS aanzienlijk vergroten.

Daarnaast zal blijvende aandacht voor de internationale certificering van duurzaam bosbeheer, handelsketen en legaliteit, een belangrijke rol blijven spelen in de beeldvorming (het imago) ten aanzien van tropisch hout in het algemeen en nieuwe soorten in het bijzonder.

Continuïteit in beschikbaarheid, zowel in kwaliteit als kwantiteit, is één van de belangrijkste voorwaarden om toe te kunnen treden op de internationale houtmarkt. Productnormering en productstandaarden zijn de meest gangbare methoden voor het borgen van kwaliteit. Deze betreffende ondermeer de maatvoering en tolerantie van gezaagd hout en houtproducten. Afhankelijk van de lokale beschikbaarheid van de betreffende soorten kunnen afspraken gemaakt worden over de volumes die aangeboden kunnen worden op verschillende markten. Het is hierbij van groot belang om inzicht te hebben in de oogstbare volumes per (nieuwe) houtsoort en deze data te delen tussen de diverse schakels in de houtproductieketen. Internetapplicaties, eventueel met gelimiteerde toegang, kunnen hierin een belangrijke bijdrage leveren.

Bij de introductie van nieuwe soorten en het creëren van nieuwe markten wordt gewezen op het belang van samenwerking met onderwijs en onderzoek. Onderzoek naar en kennis van de combinatie van nieuwe soorten en hun praktische toepasbaarheid (R&D) zijn belangrijk in de ontwikkeling van nieuwe producten en de acceptatie van LKS.

Tenslotte is actieve 'promotie' een veelgehoorde succesfactor. Promotie activiteiten moeten doelgroepgericht zijn. Zo zal voor de acceptatie van nieuwe soorten in constructieve toepassingen aanzienlijk eenvoudiger zijn als deze houtsoorten hun toepassing zijn genoemd in de volgende editie van het "Houtvadamecum" (2015), een uitgave van de Stichting Keuringsbureau Hout (SKH). Voorbeeldprojecten zoals constructies, bouw en waterwerken, zijn een andere zeer effectieve manier voor de promotie en acceptatie van nieuwe houtsoorten.

Gebaseerd op resultaten van de onderhavige studie zijn de onderstaande aanbevelingen en vervolgstappen geformuleerd.

Aanbeveling 1: Continuïteit

Voor succesvolle introductie van nieuwe houtsoorten is de geregelde aanvoer van hout van constante kwaliteit van doorslaggevend belang. Hiervoor is het belangrijk om over betrouwbare informatie te verzamelen over de beschikbare volumes van deze soorten. Productstandaarden zijn een belangrijk instrument in het waarborgen van een constante kwaliteit van hout en houttoepassingen. Waar mogelijk dienen deze aan te sluiten bij internationale normering van hout.

Mogelijke vervolgstappen:

- Verzamel data en kennis over de beschikbare LKS houtvolumes gebaseerd op bosinventarisaties;
- Deel deze kennis over beschikbare houtvolumes en creëer een gezamenlijk aanbod om hiermee tegemoet te komen aan de minimale eisen van potentiële markten;
- Maak gebruik van internet applicaties voor het delen van data over beschikbare LKS houtvolumes;
- Vergroot en formaliseer - in samenwerking met het Surinaams Standaarden Bureau (SSB) - het aantal productstandaarden en stimuleer sectorbrede toepassing.

Aanbeveling 2: Houttechnische informatie

Niet van alle nieuw te introduceren houtsoorten zijn de technische data en toepassingsmogelijkheden voldoende bekend. Aanvullend onderzoek is noodzakelijk. Met het beschikbaar stellen van proefzendingen kunnen potentiële handelsrelaties een belangrijke rol spelen in het (praktijk)testen van deze houtsoorten.

Mogelijke vervolgstappen:

- Werk aan duurzame partnerschappen met potentiële handelsrelaties die een belangrijke rol kunnen spelen bij de marktintroductie van nieuwe soorten;
- Maak aanvullend houtonderzoek onderdeel van deze nieuwe vormen van samenwerking.

Aanbeveling 3: Promotie en marketing

Introductie van nieuwe soorten moet ondersteund worden met actieve promotie en marketing. Dit kan op vele manieren. Een eerste stap hierin zijn de 'infosheets' die samen met TBISuriname gemaakt worden. Promotieactiviteiten zouden bij voorkeur op sectorniveau gevoerd moeten worden.

Mogelijke vervolgstappen:

- Gebruik de al bestaande websites van FSWPS/PHS: vertel het verhaal van het belang van de oogst van nieuwe soorten (LKS) in relatie tot duurzaam bosbeheer;
- Maak houtmonsters van deze nieuwe soorten en laat ze opnemen in bestaande houtmonster collecties van het CELOS en SBB;
- Benut de kansen en mogelijkheden van 'free publicity' in vakbladen en overige media;
- Zoek partners in het opzetten van 'voorbeeldprojecten' rondom de toepassing van nieuwe soorten.

Aanbeveling 4: Consolideer de FSWPS samenwerking

De huidige samenwerking binnen het FSWPS is succesvol gebleken en heeft een basis gelegd voor verdere en uitgebreidere vormen van samenwerking tussen bedrijven met een gemeenschappelijk belang. Het identificeren van nieuwe projecten biedt mogelijkheden om de huidige samenwerking te consolideren en te verbreden.

Mogelijke vervolgstappen:

- Verdere samenwerking in het ontwikkelen en introduceren van nieuwe productstandaarden;
- Verbeteren van de bedrijfsvoering door gezamenlijke FSWPS trainingen en de certificatie van bedrijfsprocessen;
- Gezamenlijke promotieactiviteiten rondom nieuwe houtsoorten en hun toepassing;
- Het identificeren van een nieuw FSWPS project met gezamenlijk belang.

Executive Summary

Suriname is a stable democracy situated between French Guiana to the east and Guyana to the west. The southern border is shared with Brazil and the northern border is the Atlantic coast. Suriname is the smallest sovereign state in terms of area and population in South America. Suriname's geographical size is around 163,800 km² and it has an estimated population of about 534,500 people. The country can be divided into two main geographic regions. The northern, lowland coastal area has been cultivated, and most of the population lives here. The southern part consists of tropical rainforest and sparsely inhabited savanna along the border with Brazil, covering about 80% of Suriname's land surface.

Approximately 90% of Suriname's total land area is classified as forest land (14.8 million ha). The vegetation of Suriname has been categorized into three main types: hydrophytic forest (1.3 million ha), xerophytic forest (150,000 ha) and mesophytic forest (13.4 million ha). Commercially the mesophytic forest is seen as the most valuable vegetation.

The logging activities take place in the forest belt (ca. 4.5 million ha with a productive area of 2.5 million ha) of which at present slightly over 200,000 ha is managed under the FSC SFM certificate (FSC: June 2013). This belt is delineated as the northern and easily accessible part of the country. Several inventories, covering a total area of 683,700 ha, have been carried out by the National Forest Service (LBB) and the FAO in the period 1949 till 1986. As an outcome of these inventories an average net commercial volume of 22 to 30 m³/ha has been found.

The National Forest Policy (2003) assumes a potentially annual sustainable cut of 1.0 - 1.5 million m³ based on a cutting cycle of 25 years and a logging intensity of 10 to 15 m³ and if a steady expansion of the package of currently lesser-known species is realized. The precautionous approach suggests an annual allowable cut between 555,000 and 937,000 m³, still far greater than the current annual harvest: in 2010 the production was 247,000 m³, in 2011 this was 366,000 m³ and in 2012: 436,000 m³. Economic growth in the forestry sector however, cannot be sustained with continued sought after a limited number of well-known species like Basralocus (*Dicorynia guianensis*), Kopi (*Goupia glabra*), Wana (*Ocotea rubra*) and Gronfolo (*Qualea* spp., *Ruizterania* spp.). Continued focus on this limited wood species mix will not only threaten availability but may - sooner or later - also lead to an undesired change in forest composition and reduction of biodiversity. Therefore, there is a need to improve the management of natural forests, aiming at a wider range of trees, including lesser known wood species, to be harvested and brought to markets.

Surinamese forests contain hundreds of tree species. Of these only a small percentage is utilized for timber, at the risk of over-exploitation and thus jeopardizing sound recovery of these forest stands. Because of this, these forest stands have reduced economic value, value that would otherwise justify the overcoming of difficulties related to sustainable forest management and certification, both connected to high management costs in an environment where not all concessions are active.

The harvest of a wider range of different species, including LKS, is an important element of sustainable forest management. The use of LKS, in combination with high value processing, certification and access to high value export markets, can make sustainable forest management happen. In recent years, some of the LKS are increasingly used, mainly due to better availability, good workability and nice appearance resulting in their acceptance on domestic markets. However, the selection of timber species at large still depends on tradition and customers demand.

Till now, limited effort has been made by wood processing companies to convince potential customers of the amenities of different LKS, partly due to lack of knowledge themselves. Hence, together with the wood processing industry, Tropenbos International (TBI) Suriname explored the potential of a limited list of LKS and compiled LKS datasheets to promote their harvest and use.

Based on a series of interviews among key-actors within the wood value chain, it becomes clear that they only have limited information on the market potentials of a wide variety of wood species which they consider LKS. Meanwhile, forest legislation - and thus SBB - categorized the majority of the mentioned species as 'marketable'. This may well mean that data on wood properties and timber uses are available, if not for each individual species than most likely for a group of commercial species they compare to. Supporting the marketing of these species may primarily need effort in promotion instead of additional research into wood properties and timber uses.

Besides this industry's perception on the issue of LKS, from the conducted interviews some additional observations can be made:

- Asking for common wood species, all come up with - more or less - the same Top-10 list. Asking for the Top-10 list of LKS, answers differ at large. This may be due to concession location, forest composition and the spatial distribution, abundance (availability) of LKS, and eventually a known market for the species.
- Both, timber harvesting and primary saw mills are very much market oriented, meaning that they mainly produce 'on demand'. To avoid possible risk of being left with logs and sawn wood that cannot be sold easily, they appear reluctant in 'experimenting' with species outside the traditional mix.
- For construction and building the market is limited to a small range of traditional species of which physical and mechanical properties are well known.
- Carpentry and furniture making are more willing to experiment with new species, esthetics and workability is important in this decision.
- There is a need for dialogue and knowledge sharing within the wood based industry as a whole and between companies, all interviewee's express their willingness in sharing information.

From literature and the conducted interviews, both in Suriname and abroad, some 'lessons' may be drawn which, in turn, can be translated in several recommendations for the design of a marketing strategy to support the introduction of LKS species in domestic and overseas markets.

The conditions under which new species are accepted by markets, in particular world markets, have changed significantly over the last decades. Roughly speaking, non-acceptance of LKS can basically be reduced to (1) a lack of reliable information of wood properties and (2) the negative 'image' that associates tropical - lesser known - wood species with unsustainable forest utilization (deforestation and forest degradation).

From this research on potential LKS from Suriname it is clear that of most species the wood properties and technical information, although scattered over literature, is largely available. Therefore, it would be better to speak about 'lesser used' instead of 'lesser known' species. The same count for the end-uses of these wood species, which makes it possible to design a (web-based) application through which they can be compared to commonly known ones, and offer alternatives.

To large extent, forest certification schemes contribute to the market acceptance, consumers 'good feeling' and positive image. Third party verified certification of sustainable forest management, trade chains (CoC) and legality are very much appreciated - if not mandatory - by markets.

Further, supply regularity, regarding both quality and quantity, is much heard as a condition for becoming successful in international markets. Examples of failure because of irregular supply are plenty. Nowadays, product standards are a common tool to secure the quality of sawn timber, dimensions, permitted deviation and tolerance. The regular supply of required volumes largely depends on the availability of species. Knowledge on available volumes may be drawn from stock survey inventories and/or creating ways to share these data among timber harvesting companies, saw mills and traders. A web-based database (possibly with limited access) may be a viable option to support this.

The introduction of new species in new markets should seek for the support of academic, institutional and corporate Research and Development (R&D) programs to create new products and 'solutions' where both product and its application are combined into the product concept.

Finally, active promotion of 'new species' is frequently mentioned as a factor for success. Promotional activities, tools and products should be well chosen in relation to the target group to be addressed. For instance, the introduction and acceptance of new species in 'construction' will benefit from recognition by authorities like SKH and the mention in forthcoming edition (2015) of the 'Houtvadamecum' (Timber handbook). Pilot projects in which new species are shown in practical application like construction, housing, marina's or waterworks, are considered very effective in the promotion and acceptance of new wood species.

Based on the findings of this study the following recommendations and 'next steps' are suggested.

Recommendation 1:

Supply regularity is a key factor in the roadmap leading to successful introduction of new wood species in new markets. This regards both quality and quantity of supply. Therefore, reliable data needs to be available on the volume per species that can be marketed when the focus is only on a limited number of LKS. Second, the quality needs to be secured by continuing the ongoing process of the introduction of product standards. Where applicable, these standards should also meet international standardization.

Next steps:

- Build knowledge on the available volumes of LKS, based on forest stock inventories;
- Share information on available LKS volumes to meet market interest (by volume);
- Explore options to share this information through web-based databases;
- Intensify, expand and formalize the design and introduction of product standards;
- Seek cooperation with the SSB to support the product standardization processes.

Recommendation 2:

Not all technical information is readily available inherent to the nature of 'lesser known species'. Additional lab-testing is needed. This is best done by shipping test-orders to potential buyers who are able to facilitate this additional research.

Next steps:

- Create partnerships with overseas partners to facilitate the market introduction of new species;
- Include additional wood research (and potential uses) in these (new) partnerships.

Recommendation 3:

The introduction of new species needs to be supported by active promotional activities. Many materials can support this. With TBI-Suriname 'glossy' info sheets on eight species will be produced. But there are more, and easy to realize ways to support market introduction of LKS. Active promotion needs adequate and constant attention and can - initially - best be done at a sector level.

Next steps:

- Make use of the FSWPS/PHS website: starting with 'story-telling' and uploading the 'glossies';
- Make wood samples of the new wood species (box) and get them included in CELOS/SBB wood sample collections; aim at categorizing the wood samples boxes:
- Seek 'free publicity' through media attention and professional magazines;
- Create partnerships to establish 'demonstration' pilot projects.

Recommendation 4:

Wood markets are traditional; the introduction of LKS will take time to materialize. Partners within the FSWPS have shown that working together is a successful manner to reach objectives of shared interest. These partnerships under the FSWPS need to be cherished, maintained and - where possible - extended. The implementation of activities that benefit all, or a new FSWPS project, may prove a good way to consolidate this cooperation.

Next steps:

- The introduction and maintenance of product standards;
- Business improvement through combined training and process certification;
- LKS and product promotion (marketing and PR at sector level), and
- Find a new project of mutual interest to consolidate the cooperation within the FSWPS.

1. Introduction

The Foundation for Sustainable Wood Processing in Suriname (FSWPS) with financial support from the IDB has launched its project “Quality Improvement of the Wood Processing Industry in Suriname” (project code ATN/ME-12144-SU), in short: Sustainable Wood Processing Project (SWP Project). It is financed partly by the IDB and partly by the Foundation itself. The project started in 2011 and will end in 2013.

The general goal of the SWP Project is to enhance the competitiveness of Suriname’s wood processing industry by increasing the efficiency of recourse use and the quality of wood processing. The specific goal of the project is to improve existing wood processing practices and promote market opportunities. To reach the specific goal, several components are developed:

1. Monitoring and Technical Improvement;
2. Training and Knowledge Dissemination;
3. Product Development and Marketing.

The current study refers to component 3, of which the specific goal is to support and enhance the marketing of Surinamese wood species and resulting products. Surinamese wood processing companies use a limited list of marketable wood species at the national market, and an even more limited list at the international market, while there are other wood species that have a potential to be introduced in these markets. The current study describes traditional and potential marketable wood species, both for the national and international market. Besides this identification of species, opportunities at national and international markets are identified for these Surinamese wood products in general and the identified Lesser Known Species (LKS) in specific.

Based on the outcome of this study, in a later stage, promotional materials will be developed that can be used by wood companies to promote lesser known species, both at national and international markets.

The main objective of the present assignment is to conduct a study on wood species and market research and opportunities and deliver a report, information sheets and promotional materials on the selected species to support their introduction in both the national and international market.

The assignment was commissioned to Tropenbos International (TBI) Suriname. Because of the international character of the required study, TBI was considered to be best equipped to conduct this research, because of its:

- In depth knowledge on Surinamese forests, forestry and both the national and international timber markets;
- Over 25 years of worldwide experience in forest based research of which over 20 years in both Guyana and Suriname;
- Well known position as an unbiased and independent role as knowledge broker;
- Intention to continue support to the overall objective of the FSWPS to improve the sustainability of both timber harvesting, wood processing and the forest products trade chains.

This intention to continue collaboration with the FSWPS resulted in a partnership agreement in which both parties committed themselves to follow-up activities. It was agreed that this cooperation will result in a series of publications and/or promotional materials to support the marketing of Surinamese lesser known wood species.

Resulting from an analysis of the national statistics of timber production over the last decade and a series of interviews with timber harvesting, wood processing and exporting companies, a list of the 15 most potential lesser known wood species was identified of which the wood characteristics are described in this report. Due to the nature of this study, dealing with lesser known wood species, not all species could be described in full. Additional research on wood characteristics is needed to fill those gaps.

Chapter one presents a brief overview of Suriname's forests and forest management on a national level, in chapter three the current role of the timber harvesting, wood processing and trade companies is described, by which the need to increase both production volumes and the mix of species to be harvested is motivated. This justifies the research into the identification of lesser known wood species and their market potential, both domestic and international.

In chapter four the presently most harvested and (internationally) traded wood species are summarized, illustrating the narrow scope on just a very limited number of species. Chapter five gives an overview of the considered 'most potential wood species' from Suriname's forests, based on both the statistics of the Foundation of Forest Management and Production Control (SBB) and several additional interviews with companies in the wood value chain. From this list a selection of 14 LKS is described in chapter six: characteristics of some LKS.

In the next two chapters the possibilities and limitation of successful marketing of LKS is described. Chapter seven describes some international experiences on the introduction of LKS, policies and market trend, and the impact of certification. Interesting lessons can be learned from these experiences from elsewhere and provide valuable input for a successful market approach to support the introduction of LKS from Suriname. In chapter eight the elements of such an approach are listed. To conclude, in chapter nine some recommendations are given, supported by a number of actions that can be taken on the short-term to follow-up these recommendations.

2. Suriname forests and forest management

Suriname is a stable democracy situated between French Guiana to the east and Guyana to the west. The southern border is shared with Brazil and the northern border is the Atlantic coast. Suriname is the smallest sovereign state in terms of area and population in South America. Suriname's geographical size is around 163,800 km² and it has an estimated population of about 530,000 people. The country can be divided into two main geographic regions. The northern, lowland coastal area has been cultivated, and most of the population lives here. The southern part consists of tropical rainforest and sparsely inhabited savanna along the border with Brazil, covering about 80% of Suriname's land surface.

Approximately 90% of Suriname's total land area is classified as forest land (14.8 million ha). The vegetation of Suriname has been categorized into three main types: hydrophytic forest (1.3 million ha), xerophytic forest (150,000 ha) and mesophytic forest (13.4 million ha). Commercially the mesophytic forest is seen as the most valuable vegetation.

The logging activities take place in the forest belt (ca. 4.5 million ha with a productive area of 2.5 million ha) of which at present slightly over 200,000 ha is managed under the FSC SFM certificate (FSC: June 2013). This belt is delineated as the northern and easily accessible part of the country. Several inventories, covering a total area of 683,700 ha, have been carried out by the National Forest Service (LBB) and the FAO in the period 1949 till 1986. As an outcome of these inventories an average net commercial volume of 22 to 30 m³/ha has been found. The Surinamese forest is characterized by relative high species richness. In accordance with the Constitution of the Republic of Suriname (1987) all forests, except for those on privately owned land, belong to the state. Forest on private land does not cover more than 50,000 ha.

To realize the timber production, the government grants timber concessions and in certain cases short-term incidental woodcutting licenses. In accordance with the Forest Management Act (1992), the concessions are granted varying in size and duration as follows:

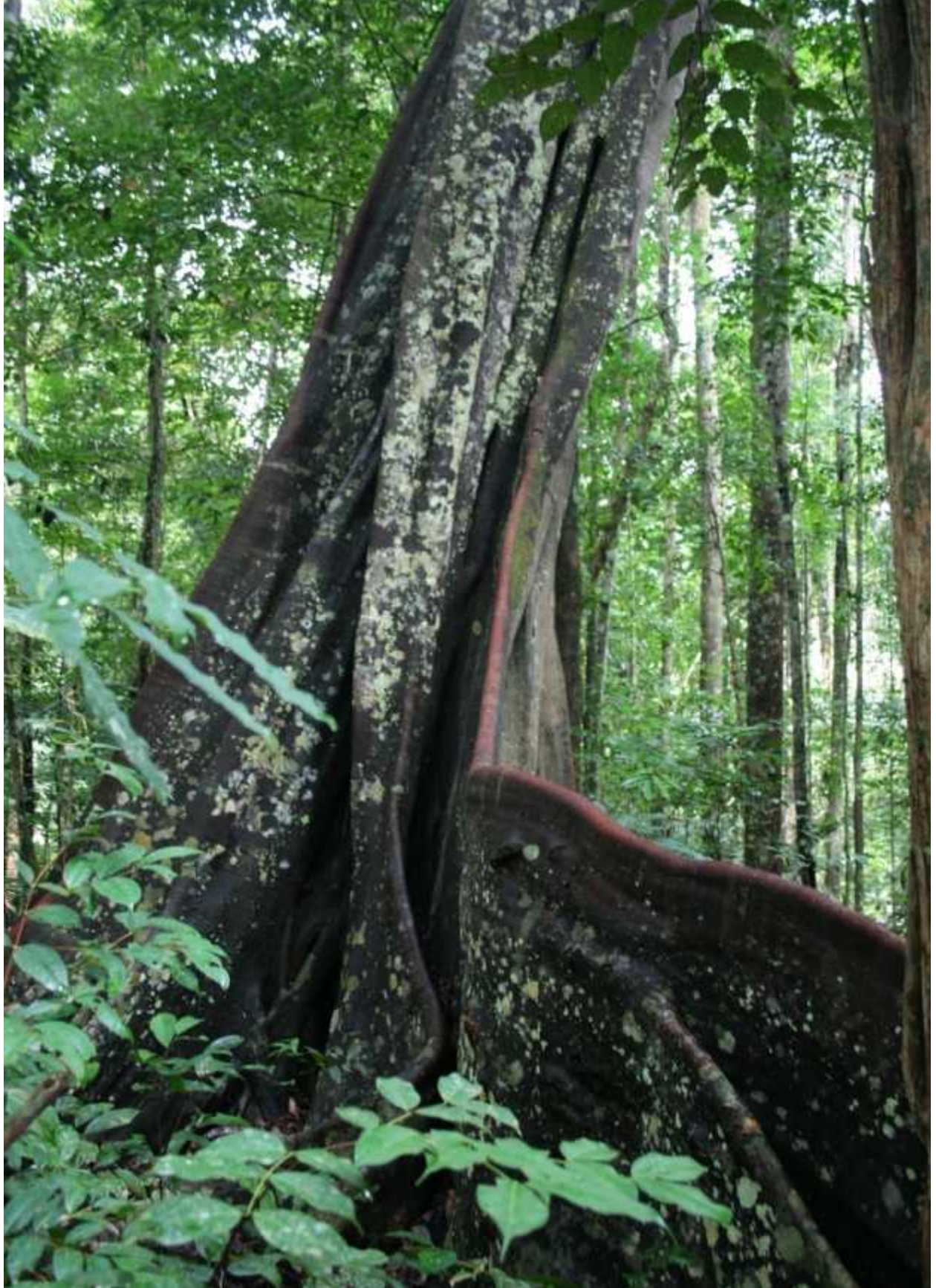
- Short term: < 5,000 ha (1 - 5 years)
- Medium term: 5,001- 50,000 ha (5 - 10 years)
- Long term: 50,001- 150,000 ha (10 - 20 years)

Each of these types of concessions can be extended once for the same duration as the concessions have been granted.

Based on a first estimate, the National Forest Policy (2003) assumes a potentially annual sustainable cut of 1.0 - 1.5 million m³ based on a cutting cycle of 25 years and a logging intensity of 10 to 15 m³ and if a steady expansion of the package of currently lesser-known species is realized. The precautionary approach suggests an annual allowable cut between 555,000 and 937,000 m³, still far greater than the current annual harvest: in 2010 the production was 247,000 m³; in 2011 this was 366,000 m³.

Companies owned by foreign investors account for approximately 15% of that production. An average of 20% of the total processed and unprocessed wood is exported. The export is mainly unprocessed timber. Foreign investments account for 85% of the total export, mainly to the Asian markets.

(www.sbbsur.org)



3. Suriname timber harvesting, processing and trade

According to the 2011 statistics of the Foundation of Forest Management and Production Control (SBB) slightly more than 240,000 ha of forest is managed under various types of legal licenses of which on close to 60,000 ha timber was harvested, both from concessions (29,600 ha), community forests (23,400 ha) and others. The recorded total production (round wood equivalent) was 366,396 m³, corresponding with an average cut of 6.2 m³/ha, which is far below the allowable annual cut assuming a cutting cycle of 25 years. Despite of a total of 90 marketable wood species on the SBB list (Resolution 208; February 17th 2000, Category A) harvesting is focused on a limited number of primary species of which just five make up to 50% of the totally harvested volume, supporting the conception that timber markets are still very traditional.

Around 80% of the overall harvested volume is processed in Suriname in 80 registered mills, including several portable sawmills and one plywood factory. All together in 2011 these mills produced 100,000 m³ sawn timber and 2,500 m³ of plywood. Assuming a recovery rate of 40% these mills operate at an estimated 30% of their combined available capacity.

In 2011 close to 100,000 m³ of round wood equivalents left the country of which 90% as unprocessed logs, mainly to Asian markets, 5% of the exports went to European markets and only 1% to the regional markets of the Caribbean. Contrary to the Asian region, to these latter markets mainly sawn timber and finished product - like flooring and decking - was shipped. In total 70 agencies are engaged in timber exports of which six account for 60% of the overall export volume.

Although the above data show an underutilization in both timber harvesting and wood processing - still leaving plenty room for growth - logging activities shows a gradual increase over the last decade with a steep growth from 2009 onwards. In well managed forests this increase of production may not hamper the natural regeneration of forests and recovery of standing volume. But, if timber harvesting continues to maintain its focus on a limited number of traditional species only, the present availability of these species and the future forest composition may be at threat, thus jeopardizing the concepts of sustainable forest management. This calls for diversification of the harvested species mix and the inclusion of a wider variety of both commercial species and the inclusion of 'lesser known species' (LKS).

Timber markets appear to be traditional in their wood species supply and demand. Over time, markets, producers, traders and users accumulate (positive) experiences with specific wood species, resulting in the use of only a limited list of species. This may - in course of time - result in unbalanced markets in which the supply may not be able to meet demand, resulting not only in deficit in supply and increase of price, but also in loss of biodiversity if these species are harvested from natural forests.

With a less conservative approach, alternatives are numerous, without the need to move into substitute materials like steel, aluminum, concrete and plastics. Alternatives can both be found in the large group of well-known Surinamese wood species as well as within the so-called 'lesser known species' (LKS). A great step in this would be if markets, instead of demanding timber 'by species name' would prescribe in design and construction the use of timber 'fit-for-purpose'. This would allow suppliers a great deal of flexibility in offering wood species with comparable properties, thus reducing 'pressure' on the limited number of well-known species.

Although market operators are obstinate and a 'paradigm shift' may be needed to reach to this point, the Surinamese forest sector contains a fine example that illustrates the introduction of an alternative

wood species in timber industry: Gronfolo (*Qualea spp.*, *Ruizterania spp.*). Before the period of the interior conflict (1986-1992) timber markets were not interested in Gronfolo and, thus, the tree remained mainly untouched. Because of a very limited access to forests and trees during this period of interior conflict, domestic market needs for timber were in part covered by entering earlier logged-over forests that were within 'safe reach'. Large dimensions of Gronfolo could be harvested here and were surprisingly well received by the domestic market. No wonder: the timber is easy to work, moderate durable and can be used in a wide range of uses. It seems it needs a 'conflict' to change people and markets.

Since 2003 Gronfolo is the most harvested species from Suriname's forests, placing Basralocus (*Dicorynia guianensis*) second-best. Meanwhile Basralocus is still the most exported species, indicating that international timber markets remain traditional in demand. However, other reasons may be that Surinamese traders do not even try to enter global markets with Gronfolo because (1) the available volume is easily absorbed by the domestic market which (2) allows them to continue exports of Basralocus as a well-known species to well-known markets and thus (3) they are not being challenged to explore new market opportunities for LKS.

According to the SBB statistics at present the most commonly harvested and traded species from Surinamese forest are Gronfolo (*Qualea spp.*, *Ruizterania spp.*), Basralocus (*Dicorynia guianensis*), Kopi (*Goupiaglabra*), Wana (*Ocotearubra*) and Walaba (*Eperua spp.*), all belonging to the group of so-called 'marketable species' (category A). Starting in 2006, a limited number of the 'potential species' (category B) is being registered in these statistics, of which Kimboto (*Pradosia ptychandra*), Kaw-udu (*Bagassa guianensis*) and Pikin-misiki (*Piptadenia suaveolens*) are logged most, only Kimboto to a volume not inferior to most of the category A species. Additionally, over a range of years significant volumes of Bolletrie (*Manilkara bidentata*), being a protected species (category C), are recorded. For these felling dispensations must be granted by the forest service SBB.

4. Traditionally used primary wood species

Going out in the streets of Paramaribo and asking random people for the most common wood species they know, in ‘one breath’ Gronfolo, Kopi, Wana and Basralocus are mentioned. This is confirmed by all actors within the wood product chain and the SBB statistics. With Gronfolo being a relative ‘new-comer’, these are indeed the most commonly harvested and traded wood species on the local market since decades. However, analyzing the SBB annual statistics, the species mix of exports differs both in composition and ranking. Although since 2003 Gronfolo surpassed Basralocus as being the most harvested, Basralocus still heads the list of the Top-10 most exported species.

TABLE 1: Top-10 list of the most harvested and exported primary Surinamese wood species, ranked by volume*

Top-10 list of most harvested species		Top-10 list of most exported species	
01	Gronfolo spp. (A)	01	Basralocus (A)
02	Basralocus (A)	02	Purperhart (A)**
03	Purperhart (A)**	03	Gele Kabbes (A)
04	Kopi (A)	04	Bolletrie (C)
05	Wana (A)	04	Kimbotto (B)***
06	Bolletrie (C)	06	Walaba (A)
07	Walaba (A)	07	Bosmahonie (A)
08	Gele Kabbes (A)	08	Gindyaudu (A)
09	Kwari spp. (A)	09	Makagrín (A)
10	Bruinhart (A)	10	Rode Locus (A)

* SBB statistics 2004-2011

** Ranking this high in SBB statistics because of an incidental large export order in 2011

*** SBB annual statistics are not always consistent in its classification of species

A Marketable species

B Potential marketable species

C Protected species

A limited survey amongst a group of 10 companies operating within the wood chain was conducted. Asking them for the most important commonly harvested, processed and traded species, their overall list shows great similarity with the national statistics: only Bolletrie and Bruinhart are replaced by Zwarte Kabbes and Groenhart now. Although already included in the survey amongst 10, if we separate the FSWPS partners (CPF, REMAS and RAMZON) three more species enter the Top-10: Rode Locus, Ceder and Pikin-misiki, the latter formally not being classified is a common (category A) species.

An overview of the Top-10 commonly used species according to SBB statistics, the interviews and the FSWPS partners is presented in the table below. A way to select the wood species to be included in the next phase of this research can be based on this overview, realizing that the FSWPS have double weight. Because SBB statistics are based on overall national production data, it is suggested to double this weight as well. By doing so the result of this approach is given in the last column of the next table.

Local Name	SBB 2004-2011	Interviews (10)	FSWPS (3)	Selection
Gronfolo (A)				
Basralocus (A)				
Purperhart (A)*				
Kopi (A)				
Wana (A)				
Bolletrie (C)				
Walaba (A)				
Gele Kabbes (A)				
Kwari spp. (A)				
Bruinhart (A)				
Rode Locus (A)				
Zwarte Kabbes (A)				
Groenhart (A)				
Pikin-misiki(B)**				
Ceder (A)				

* Ranking this high in SBB statistics because of an incidental large export order in 2011

** Also companies are not always consistent in the classification of species

A Marketable species

B Potential marketable species

C Protected species

Local Name	SBB 2004-2011	Interviews (10)	FSWPS (3)	Selection
Gronfolo (A)	2	1	1	✓ 4
Basralocus (A)	2	1	1	✓ 4
Purperhart (A)*	2	1		✓ 3
Kopi (A)	2	1	1	✓ 4
Wana (A)	2	1	1	✓ 4
Bolletrie (C)	2			2
Walaba (A)	2	1		✓ 3
Gele Kabbes (A)	2	1	1	✓ 4
Kwari spp. (A)	2	1		✓ 3
Bruinhart (A)	2			2
Rode Locus (A)			1	1
Zwarte Kabbes (A)		1	1	2
Groenhart (A)		1	1	2
Pikin-misiki (B)**			1	1
Ceder (A)			1	1

5. Promising secondary 'lesser known' wood species

When being asked to mention the ten most important lesser known wood species, this question seems to be more difficult to answer, in part due to unclear definitions of what LKS are. The definition used in SBB statistics is based on Resolution 208 (February 17th 2000) which lists 90 marketable wood species (category 'A'), all others being 'potentially commercial' (category 'B') or protected (category 'C').

This, however, does not mean that all 90 category 'A' wood species are perceived by local industry as being 'known to markets' and easy to sell. This is clearly reflected by the list below. With the exception of Kimboto and Pikin-misiki, all mentioned LKS during the interviews are on the SBB 'A' list already, thus defined as marketable. Outside the Top-10 of LKS only Tite-udu en Fungu are mentioned from the category 'B' list were mentioned in the interviews.

Based on these observations it becomes clear that the various actors in the Surinamese wood based product chain have limited information on the market potentials of a wide variety of wood species which they consider LKS. Meanwhile, forest legislation - and thus SBB - categorized the majority of these species as 'marketable'. This may well mean that data on wood properties and timber uses are available, if not for each individual species than most likely for a group of commercial species they compare to. Supporting the marketing of these species may primarily need effort in promotion instead of additional research into wood properties and timber uses.

Besides this industry's perception on the issue of LKS, from the conducted interviews some additional observations can be made:

- Asking for common wood species, all come up with - more or less - the same Top-10 list. Asking for the Top-10 list of LKS, answers differ at large. This may be due to concession location, forest composition and the spatial distribution, abundance (availability) of LKS, and eventually a known market for the species.
- Both, timber harvesting and primary saw mills are very much market oriented, meaning that they mainly produce 'on demand'. To avoid possible risk of being left with logs and sawn wood that cannot be sold easily, they appear reluctant in 'experimenting' with species outside the traditional mix.
- For construction and building the market is limited to a small range of traditional species of which physical and mechanical properties are well-known.
- Carpentry and furniture making are more willing to experiment with new species, esthetics and workability is important in this decision.
- There is a need for dialogue and knowledge sharing within the wood based industry as a whole and between companies. This can be illustrated by the following two examples:
 - From the interviews it became clear that some companies have a lot of detailed information on wood properties and market opportunities, also in regard to LKS. One of the interviewed companies got a list of 35 wood species and the practical use, on which basis these species can be sold to Cuban markets. Another company holds a file in which close to 50 well-known species are described. Surinamese wood species with similar properties are linked to these well-known species, making it possible to trade those on international markets.
 - It became clear that recently similar research and interviews regarding LKS was conducted by the University of Gent / Belgium (Eliat-Eliat, 2010) and the Von Thünen Institute for World Forestry / Germany (Schönfeld, 2012 unpublished data). Adequate sharing of findings from these researches will contribute to better results.
- All interviewee's express their willingness in sharing information.

Based on the various sources, an overview of the Top-10 LKS according to SBB statistics, the interviews and the FSWPS partners is presented in the table below. Again, selection of the wood species to be included in the next phase of this research can be based on this overview, realizing that the FSWPS have double weight. Due to the different perceptions on the definition of LKS, now all get similar weights, resulting in the scoring as given in the last column of the next table.

TABLE 4: Top-10 lesser known species list resulting from SBB statistics, interviews and FSWPS partners				
Local Name	SBB 2004-2011	Interviews (10)	FSWPS (3)	Selection
Kimboto (B)* (P)**	1	1	1	✓ 3
Kawudu (B) (P)	1			1
Pikin-misiki (B) (P)	1	1	1	✓ 3
Fungu spp. (B) (P)	1			1
(Witte bast) Tite-udu (B) (other)	1			1
Mapa / Pera (B) (other)	1			1
Nekeudu (B) (other)	1			1
Boskatoen (B) (other)	1			1
Jarijari (B) (other)	1			1
Kokriki (A) (P)	1			1
(Gevlamde) Bostamarinde (A) (P)		1	1	✓ 2
Sali (A) (A)		1	1	✓ 2
Gjindiaudu (A)		1		1
Wiswiskwari (A) (A)		1	1	✓ 2
Bosmahonie (A) (P)		1	1	✓ 2
Jongo Kabbes (A) (B)		1	1	✓ 2
Wanakwari (A) (A)		1	1	✓ 2
Tingimoni (A) (P)		1	1	✓ 2
Wit Riemhout (A) (A)			1	1

* First notation (according to SBB species list):

- A Marketable species
- B Potential marketable species

**Second notation (according to CELOS species list):

- A Marketable species
- B Potential species
- Other Not known

6. Characteristics of some lesser known species

The last decade shows a steady growth of the forest based industry in Suriname, reflected by a gradual increase in timber harvest and trade, both for domestic use and exports. Economic growth in the forestry sector however, cannot be sustained with continued sought after a limited number of well-known species like Basralocus, Kopi, Wana and Gronfolo. Continued focus on this limited wood species mix will not only threaten availability but may - sooner or later - also lead to an undesired change in forest composition and reduction of biodiversity. Therefore, there is a need to improve the management of natural forests, aiming at a wider range of trees, including lesser known wood species, to be harvested and brought to markets.

Surinamese forests contain hundreds of tree species. Of these only a small percentage is utilized for timber, at the risk of over-exploitation and thus jeopardizing sound recovery of these forest stands. Because of this, these forest stands have reduced economic value, value that would otherwise justify the overcoming of difficulties related to sustainable forest management and certification, both connected to high management costs in an environment where not all concessions are active.

The harvest of a wider range of different species, including LKS, is an important element of sustainable forest management. The use of LKS, in combination with high value processing, certification and access to high value export markets, can make sustainable forest management happen.

In recent years, some of the LKS are increasingly used, mainly due to better availability, good workability and nice appearance resulting in their acceptance on domestic markets. However, the selection of timber species at large still depends on tradition and customers demand.

Till now, limited effort has been made by wood processing companies to convince potential customers of the amenities of different LKS, partly due to lack of knowledge themselves. Hence, together with the wood processing industry, Tropenbos International (TBI) Suriname explored the potential of a limited list of LKS and compiled LKS datasheets to promote their harvest and use.

Based on a literature review, SBB statistics and interviews with stakeholders a selection of the 14 most promising lesser known, or better, lesser used wood species, for both domestic and export markets, is described here. The inclusion of the mentioned lesser used wood species is based on realistic market potential, for which they are expected to be available in both good quality and quantity and stable supply.

6.1 Proposed format for the species description

First entry of the information sheets is the mention of the (1) species botanical name,(2) local name(s) and (3) trade name. Next, the sheet will provide information on the family, distribution and appearance of the tree, wood characteristics, processing properties and known uses.

SPECIES NAME	
Botanical name	
Trade name	
Local name	
THE TREE	
• Family	
• Distribution	
• Appearance	
THE WOOD	
• Color	Sapwood: Heartwood:
• Grain	
• Texture	
• Green density (kg/m ³)	
• Specific gravity (at 12% MC)	
• Shrinkage (from green to moisture content of 12%)	
MECHANICAL PROPERTIES (at a moisture content of 12%)	
• Static bending (N/mm ²)	MOE: MOR:
• Compression strength (N/mm ²)	
• Janka - Hardness (N)	
PROCESSING PROPERTIES	
• Processing	Sawing: Machining:
• Drying	
• Nailing	
• Gluing	
• Finishing	
NATURAL DURABILITY	
	Fungi: Termites: Marine borers:
KNOWN USES	

6.2 Explanation of the physical information

The physical information provided in the Information Sheets is based on the following definitions and 'scales' of wood testing:

Green density is the mass per cubic meter green wood.

Specific gravity is mass per cubic meter given for wood at a moisture content of 12% in relation to the green wood.

Density at 12% moisture content (kg/m ³)	
Very light	< 350
Light	350 - 550
Moderate	551 - 750
Heavy	751 - 950
Very heavy	> 950

Shrinkage is the relation between the dimensions of green wood to that of wood at a moisture content of 12%. In the species descriptions it is only given for the overall volumetric dimension change.

Shrinkage	Tangential (%)	Radial (%)	Volumetric (%)
Very small	< 3.0	< 2.0	< 5.0
Small	3.0 - 4.0	2.0 - 2.5	5.0 - 6.5
Moderate	4.1 - 5.0	2.6 - 3.0	6.6 - 8.0
Fairly large	5.1 - 6.0	3.1 - 3.5	8.1 - 9.5
Large	> 6.0	> 3.5	> 9.5

Static bending force is measured perpendicular to the grain. The Modulus of Elasticity (MOE) reflects the capacity of the wood to return to its original shape while the Modulus of Rupture (MOR) is the point where the wood will break.

Modus of Elasticity (MOE) (N/mm ²)		Modus of Rupture (MOR) (N/mm ²)	
Very low	< 9000	Very low	< 30
Low	9000 - 11000	Low	30 - 50
Moderate	11001 - 14000	Moderate	51 - 80
High	14001 - 19000	High	81 - 100
Very high	> 19000	Very high	> 100

Compression

is the resistance against forces that squeeze the wood together. It is measured parallel and perpendicular to the grain.

Compression strength	Parallel to grain (N/mm ²)	Perpendicular to grain (N/mm ²)
Very low	< 12.0	< 1.0
Low	12.1 - 24.0	1.1 - 4.0
Moderate	24.1 - 36.0	4.1 - 7.0
High	36.1 - 48.0	7.1 - 10.0
Very high	> 48.0	> 10.0

Hardness

is the resistance against indentation by for example an item falling on the surface.

Hardness (kN)	
Very low	< 3.0
Low	3.1 - 6.0
Moderate	6.1 - 9.0
High	9.1 - 12.0
Very high	> 12.0

Durability

is the natural durability of the wood to resist biological agents (fungi, termites, marine borers) which cause changes in the appearance and in the mechanical properties.

Natural durability
Poor
Moderate
Good

6.3 Description of the selected species

6.3.1 Gjindjaudu

SPECIES NAME	
Botanical name	<i>Buchenavia capitata</i>
Trade name	Mirindiba, Periquitaira, Tanimbuca
Local name	Gjindjaudu (DJI)*
THE TREE	
• Family	Combretaceae
• Distribution	Suriname, Guianas, Brazil, Venezuela to Bolivia
• Appearance	Tree height 20-25 m, bole length 18-21 m, dbh 60-80 cm. Bole straight; tree base with large buttresses
THE WOOD	
• Color	Sapwood: indistinct, light yellow brown Heartwood: yellowish brown to golden brown
• Grain	Straight to interlocked
• Texture	Medium to course
• Green density (kg/m ³)	1050
• Specific gravity (at 12% MC)	750
• Volumetric shrinkage (from green to moisture content of 12%)	8.7 %
MECHANICAL PROPERTIES (at a moisture content of 12%)	
• Static bending (N/mm ²)	MOE: 11320 MOR: 89
• Compression strength (N/mm ²)	
• Janka - Hardness (N)	
PROCESSING PROPERTIES	
• Processing	Sawing: difficult, blunting effect moderate Machining: moderately difficult
• Drying	Easy, little degrade
• Nailing	Pre-boring necessary
• Gluing	Good
• Finishing	Good
NATURAL DURABILITY	
	Fungi: good Termites: Good to very good Marine borers: poor
KNOWN USES	
	External and internal flooring, furniture, boat decking, planking and framing, decorative veneer and turnery

* Species code according to SBB species list

Sources:

Comvalius, Leonard.B., 2010. Surinamese Timber Species: Characteristics and Utilization (2nd edition). Paramaribo, Suriname.

6.3.2 Ingipipa

SPECIES NAME	
Botanical name	<i>Couratari guianensis</i>
Trade name	Tauari
Local name	Ingipipa (ING)
THE TREE	
• Family	Lecythidaceae
• Distribution	Suriname, Guianas, Brazil, Venezuela and Central America
• Appearance	Tree height 30-40 m, bole length 15-30m, dbh 60-120 cm. Bole straight, cylindrical; tree base with some high and straight buttresses
THE WOOD	
• Color	Sapwood: not distinct, yellowish white Heartwood: cream white to yellowish brown
• Grain	Straight or uniformly interlocked
• Texture	Medium to coarse
• Green density (kg/m ³)	1100
• Specific gravity (at 12% MC)	620
• Volumetric shrinkage (from green to moisture content of 12%)	12.0%
MECHANICAL PROPERTIES (at a moisture content of 12%)	
• Static bending (N/mm ²)	MOE: 11900 MOR: 96
• Compression strength (N/mm ²)	
• Janka - Hardness (N)	
PROCESSING PROPERTIES	
• Processing	Sawing: easy, blunting effect moderate to high Machining: easy with tungsten carbide tipped tools
• Drying	Easy
• Nailing	Moderate holding
• Gluing	Good
• Finishing	Good
NARURAL DURABILITY	
	Fungi: poor Termites: poor Marine borers: poor
KNOWN USES	
	Interior and exterior joinery, flooring, furniture, molding, boxes and crates, toys.

Sources:

Comvalius, Leonard.B., 2010. Surinamese Timber Species: Characteristics and Utilization (2nd edition). Paramaribo, Suriname.

6.3.3 Busi-katun

SPECIES NAME	
Botanical name	<i>Eriotheca crassa</i>
Trade name	Paineira, Yankomini
Local name	Busi-katun (BKT)
THE TREE	
• Family	Bombacaceae
• Distribution	Suriname, Guianas, Brazil and Venezuela
• Appearance	Tree height 20-35 m, bole length 10-15 m, dbh 70-110 cm. Bole straight and cylindrical; tree base with low buttresses
THE WOOD	
• Color	Sapwood: indistinct Heartwood: Grey yellowish
• Grain	Straight, sometimes interlocked
• Texture	Medium to coarse
• Green density (kg/m ³)	820
• Specific gravity (at 12% MC)	480
• Volumetric shrinkage (from green to moisture content of 12%)	4.0%
MECHANICAL PROPERTIES (at a moisture content of 12%)	
• Static bending (N/mm ²)	MOE: 8810 MOR: 78
• Compression strength (N/mm ²)	
• Janka - Hardness (N)	
PROCESSING PROPERTIES	
• Processing	Sawing: easy, blunting effect slight Machining: good
• Drying	Easy, but with care
• Nailing	Good
• Gluing	Good
• Finishing	Good
NATURAL DURABILITY	
	Fungi: poor to moderate Termites: poor Marine borers: poor
KNOWN USES	
	Interior joinery, light carpentry, boxes and crates, veneer, pulpwood.

Sources:

Comvalius, Leonard.B., 2010. Surinamese Timber Species, Characteristics and Utilization (2nd edition). Paramaribo, Suriname.

6.3.4 Tite-udu

SPECIES NAME	
Botanical name	<i>Lecythus simiorum</i>
Trade name	
Local name	(Witte bast) Tite-udu (WTO)
THE TREE	
• Family	
• Distribution	
• Appearance	
THE WOOD	
• Color	Sapwood: Heartwood:
• Grain	
• Texture	
• Green density (kg/m ³)	
• Specific gravity (at 12% MC)	
• Volumetric shrinkage (from green to moisture content of 12%)	
MECHANICAL PROPERTIES (at a moisture content of 12%)	
• Static bending (N/mm ²)	MOE: MOR:
• Compression strength (N/mm ²)	
• Janka - Hardness (N)	
PROCESSING PROPERTIES	
• Processing	Sawing: Machining:
• Drying	
• Nailing	
• Gluing	
• Finishing	
Natural DURABILITY	Fungi: Termites: Marine borers:
KNOWN USES	

6.3.5 Foengoe

SPECIES NAME	
Botanical name	<i>Licania majuscula</i>
Trade name	Pintadinho (all traded under this one name)
Local name	Fungu (FOE) (more than one species, includes Kwepi)
THE TREE	
• Family	Rosaceae
• Distribution	Suriname, Guianas, Brazil, Tropical Amazon Region
• Appearance	Tree height 20-35 m, bole length 15-20 m, dbh 40-65 cm. (<i>L. laxiflora</i>). Bole moderately straight; tree base buttressed and swollen (<i>L. heteromorpha</i>)
THE WOOD	
• Color	Sapwood: rather indistinct, pinkish red (<i>L. heteromorpha</i>) Heartwood: reddish brown, yellowish or grayish brown with pinkish tinge (<i>L. heteromorpha</i>)
• Grain	Straight or slightly interlocked
• Texture	Course to fine
• Green density (kg/m ³)	1160
• Specific gravity (at 12% MC)	1030
• Volumetric shrinkage (from green to moisture content of 12%)	16.5%
MECHANICAL PROPERTIES (at a moisture content of 12%)	
• Static bending (N/mm ²)	MOE: 17400 MOR: 173
• Compression strength (N/mm ²)	
• Janka - Hardness (N)	
PROCESSING PROPERTIES	
• Processing	Sawing: difficult, power required, blunting effect high Machining: difficult, special tools recommended
• Drying	Easy to moderate difficult, risk of distortion
• Nailing	Pre-boring necessary
• Gluing	With special precautions
• Finishing	Good
NATURAL DURABILITY	
	Fungi: poor to moderate Termites: moderate Marine borers: very good
KNOWN USES	
	Heavy constructions (above ground), framing, shingles, marine constructions.

Sources:

Comvalius, Leonard.B., 2010. Surinamese Timber Species: Characteristics and Utilization (2nd edition). Paramaribo, Suriname.

6.3.6 Wit Riemhout

SPECIES NAME	
Botanical name	<i>Micropholis guyanensis</i> var. <i>guyanensis</i>
Trade name	Apixuna, Curupixa
Local name	Wit Riemhout (WRH)
THE TREE	
• Family	Sapotaceae
• Distribution	Suriname, Guianas, Brazil, Venezuela to Argentina
• Appearance	Tree height 30-35 m, bole length 12-20 m, dbh 45-100 cm. Bole generally straight; tree base with high buttresses
THE WOOD	
• Color	Sapwood: not clearly distinct Heartwood: yellow to gray brown with a pinkish tinge and sometimes with a yellowish-green hue
• Grain	Generally straight
• Texture	Fine to medium
• Green density (kg/m ³)	1100
• Specific gravity (at 12% MC)	800
• Volumetric shrinkage (from green to moisture content of 12%)	14.3%
MECHANICAL PROPERTIES (at a moisture content of 12%)	
• Static bending (N/mm ²)	MOE: 16930 MOR: 161
• Compression strength (N/mm ²)	
• Janka - Hardness (N)	
PROCESSING PROPERTIES	
• Processing	Sawing: moderate difficult, blunting more or less high Machining: moderately difficult
• Drying	Moderately difficult, slow drying recommended
• Nailing	Pre-boring recommended
• Gluing	Good
• Finishing	Good
NATURAL DURABILITY	
	Fungi: moderate to good Termites: poor Marine borers: poor to moderate
KNOWN USES	
	Internal joinery, flooring, millwork, furniture, decorative veneer.

Sources:

Comvalius, Leonard.B., 2010. Surinamese Timber Species: Characteristics and Utilization (2nd edition). Paramaribo, Suriname.

6.3.7 Agrobigi

SPECIES NAME	
Botanical name	<i>Parkia nitida</i>
Trade name	Faveira, Faveira-Bengué
Local name	Agrobigi (AGR)
THE TREE	
• Family	Leguminosae
• Distribution	Suriname, Guianas, Brazil to Peru
• Appearance	Tree height 15-25 m, bole length 10-15 m, dbh 50-75 cm. Bole straight and cylindrical; tree base buttressed
THE WOOD	
• Color	Sapwood: not distinct, light yellowish brown Heartwood: reddish brown to light brown
• Grain	Straight to interlocked
• Texture	Fine to medium
• Green density (kg/m ³)	1090
• Specific gravity (at 12% MC)	400
• Volumetric shrinkage (from green to moisture content of 12%)	9.8%
MECHANICAL PROPERTIES (at a moisture content of 12%)	
• Static bending (N/mm ²)	MOE: 8042 MOR: 68
• Compression strength (N/mm ²)	
• Janka - Hardness (N)	
PROCESSING PROPERTIES	
• Processing	Sawing: easy, blunting effect very light Machining: easy
• Drying	Fast, slightly cupping and casehardening
• Nailing	Good
• Gluing	Good
• Finishing	Good
NATURAL DURABILITY	
	Fungi: poor Termites: poor Marine borers: poor
KNOWN USES	
	Interior joinery, molding, light carpentry, boxes and crates, plywood

Sources:

Comvalius, Leonard.B., 2010. Surinamese Timber Species: Characteristics and Utilization (2nd edition). Paramaribo, Suriname.

6.3.8 Pikin-misiki

SPECIES NAME	
Botanical name	Piptadenia suaveolens
Trade name	Timborana
Local name	Pikin-misiki (PMS)
THE TREE	
• Family	Fabaceae-Mimosoideae
• Distribution	
• Appearance	Dbh 4-100 cm
THE WOOD	
• Color	Sapwood: not clearly demarcated Heartwood: pinkish brown
• Grain	Straight or interlocked
• Texture	Medium
• Green density (kg/m ³)	
• Specific gravity (at 12% MC)	800
• Volumetric shrinkage (from green to moisture content of 12%)	
MECHANICAL PROPERTIES (at a moisture content of 12%)	
• Static bending (N/mm ²)	MOE: 19120 MOR: 122
• Compression strength (N/mm ²)	
• Janka - Hardness (N)	
PROCESSING PROPERTIES	
• Processing	Sawing: blunting effect fairly high, stellite tipped recomm. Machining:
• Drying	High risk of distortion
• Nailing	Good, pre-boring recommended
• Gluing	Good
• Finishing	
NATURAL DURABILITY	
	Fungi: moderate durable Termites: moderate durable Marine borers:
KNOWN USES	
	Heavy carpentry, industrial or heavy flooring, furniture or - components, interior joinery, crates and boxes

Sources:

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6.3.9 Tingomoni

SPECIES NAME	
Botanical name	<i>Protium decandrum</i>
Trade name	Almesca, Curacai, Mesclão
Local name	Tingimoni(TIM)
THE TREE	
• Family	Burceraceae
• Distribution	Suriname, Guianas, Brazil, Central America
• Appearance	Tree height 15-30 m, bole length 15-20 m, dbh 35-75 cm. Bole straight, sometimes fluted; tree base with flat buttresses
THE WOOD	
• Color	Sapwood: not clearly distinct, pale buff to pinkish Heartwood: brown to reddish brown with irregularly spaced darker brown streaks
• Grain	Straight to very irregular and interlocked
• Texture	Rather fine to fairly coarse
• Green density (kg/m ³)	900
• Specific gravity (at 12% MC)	720
• Volumetric shrinkage (from green to moisture content of 12%)	10.7%
MECHANICAL PROPERTIES (at a moisture content of 12%)	
• Static bending (N/mm ²)	MOE: 12836 MOR: 108
• Compression strength (N/mm ²)	
• Janka - Hardness (N)	
PROCESSING PROPERTIES	
• Processing	Sawing: rather difficult, power required, resin may clog saw teeth, blunting effect moderate Machining: easy
• Drying	Moderately difficult, risk of distortion and checking
• Nailing	Pre-boring necessary
• Gluing	Variable, special care recommended
• Finishing	Filler required
NATURAL DURABILITY	
	Fungi: poor Termites: poor Marine borers: poor
KNOWN USES	
	Interior joinery, framing, light carpentry, furniture, veneer.

Sources:

Comvalius, Leonard.B., 2010. Surinamese Timber Species: Characteristics and Utilization (2nd edition). Paramaribo, Suriname.

6.3.10 Gujabakwari

SPECIES NAME	
Botanical name	<i>Qualea dinizii</i>
Trade name	Mandioqueira, Mandio, Quaruba
Local name	Gujabakwari (GKW) (Hooglandgronfolo)
THE TREE	
• Family	Vochysiaceae
• Distribution	Suriname, Guianas, Brazil, Tropical South America
• Appearance	
THE WOOD	
• Color	Sapwood: Heartwood:
• Grain	
• Texture	
• Green density (kg/m ³)	
• Specific gravity (at 12% MC)	
• Volumetric shrinkage (from green to moisture content of 12%)	
MECHANICAL PROPERTIES (at a moisture content of 12%)	
• Static bending (N/mm ²)	MOE: MOR:
• Compression strength (N/mm ²)	
• Janka - Hardness (N)	
PROCESSING PROPERTIES	
• Processing	Sawing: Machining:
• Drying	
• Nailing	
• Gluing	
• Finishing	
NATURAL DURABILITY	
	Fungi: Termites: Marine borers:
KNOWN USES	

Bron: ©2001 Stichting Centrum Hout - Almere, Houtvademeccum, 8e druk 2001

6.3.11 Sali

SPECIES NAME	
Botanical name	<i>Tetragastris altissima</i> , <i>T. panamensis</i>
Trade name	Massa, Sali
Local name	Rode Sali (RSL), Witte Sali(WSL)
THE TREE	
• Family	Burseraceae
• Distribution	Suriname, Guianas, Brazil, Colombia, Central America
• Appearance	Tree height 25-30 m, bole length 10-15 m, dbh 50-80 cm. Bole moderate good form with few buttresses or root spurs
THE WOOD	
• Color	Sapwood: distinct, yellowish brown to pinkish gray Hardwood: orange brown to red brown
• Grain	Moderate straight, sometimes interlocked or irregular
• Texture	Rather fine
• Green density (kg/m ³)	<i>T. altissima</i> : 1100 <i>T. panamensis</i> : 980
• Specific gravity (at 12% MC)	<i>T. altissima</i> : 850 <i>T. panamensis</i> : 930
• Volumetric shrinkage (from green to moisture content of 12%)	<i>T. altissima</i> : 13.6% <i>T. panamensis</i> : 14.9%
MECHANICAL PROPERTIES (at a moisture content of 12%)	
• Static bending (N/mm ²)	MOE: <i>T. altissima</i> : 13500 <i>T. panamensis</i> : 18130 MOR: <i>T. altissima</i> : 139 <i>T. panamensis</i> : 178
• Compression strength (N/mm ²)	<i>T. altissima</i> : <i>T. panamensis</i> :
• Janka - Hardness (N)	<i>T. altissima</i> : <i>T. panamensis</i> :
PROCESSING PROPERTIES	
• Processing	Sawing: difficult, blunting effect moderate to high (silica) Machining: more or less difficult; special tools recommended
• Drying	Moderate difficult; slow drying, risk of checking and splitting
• Nailing	Poor, pre-boring recommended
• Gluing	Good
• Finishing	Good
NATURAL DURABILITY	
	Fungi: good Termites: moderate Marine borers: fair
KNOWN USES	
	Interior and exterior joinery, flooring, paneling, stairs, furniture, cabinets.

Sources:

Comvalius, Leonard.B., 2010. Surinamese Timber Species: Characteristics and Utilization (2nd edition). Paramaribo, Suriname.

6.3.12 Ajawa-tingimoni

SPECIES NAME	
Botanical name	<i>Trattinickia rhoifolia</i> , <i>T. burserifolia</i>
Trade name	Amesclao, Ulu
Local name	Awalupisi/ Ajawa-tingimoni (AJT)
THE TREE	
• Family	Burseraceae
• Distribution	Suriname, Guianas, Brazil, Venezuela
• Appearance	Tree height 25-40 m, bole length 15-25 m, dbh 40-100 cm. Bole cylindrical: tree base with low thick buttresses or unbuttressed
THE WOOD	
• Color	Sapwood: indistinct, whitish gray Heartwood: grey white to pale beige
• Grain	Rather straight, but often widely and regularly interlocked
• Texture	Medium
• Green density (kg/m ³)	890
• Specific gravity (at 12% MC)	590
• Volumetric shrinkage (from green to moisture content of 12%)	12.8%
MECHANICAL PROPERTIES (at a moisture content of 12%)	
• Static bending (N/mm ²)	MOE: 11570 MOR: 94
• Compression strength (N/mm ²)	
• Janka - Hardness (N)	
PROCESSING PROPERTIES	
• Processing	Sawing: easy, blunting effect high Machining: difficult due to interlocked grain and silica
• Drying	Slowly and with care, risk of distortion and checking
• Nailing	Good
• Gluing	Good
• Finishing	Good
NATURAL DURABILITY	
	Fungi: poor Termites: moderate Marine borers: poor
KNOWN USES	
	Interior joinery, light carpentry, furniture, plywood (interior) boxes and crates

Sources:

Comvalius, Leonard.B., 2010. Surinamese Timber Species: Characteristics and Utilization (2nd edition). Paramaribo, Suriname.

6.3.13 Jongo Kabbes

SPECIES NAME	
Botanical name	<i>Vataireopsis speciosa</i>
Trade name	Angelim Amargoso Faveira amargosa, faveira amarela, angelim amargoso, fava amargosa, fava amarela, fava bolacha, faveira bolacha, angelim araroba (Brasil), maqui (Colombia), inkassa, yongo (Frans Guyana), arakaka, arisauro (Guyana), amargo (Honduras), amargo (Panama), gele kabbes (Suriname).
Local name	Jongo Kabbes (JOK)
THE TREE	
• Family	Leguminosae
• Distribution	
• Appearance	
THE WOOD	
• Color	Sapwood: Heartwood:
• Grain	
• Texture	
• Green density (kg/m ³)	
• Specific gravity (at 12% MC)	
• Volumetric shrinkage (from green to moisture content of 12%)	
MECHANICAL PROPERTIES (at a moisture content of 12%)	
• Static bending (N/mm ²)	MOE: MOR:
• Compression strength (N/mm ²)	
• Janka - Hardness (N)	
PROCESSING PROPERTIES	
• Processing	Sawing: Machining:
• Drying	
• Nailing	
• Gluing	
• Finishing	
NATURAL DURABILITY	Fungi: Termites: Marine borers:
KNOWN USES	

6.3.14 Wanakwari

SPECIES NAME	
Botanical name	<i>Vochysia tomentosa</i>
Trade name	Quaruba, Yemeri
Local name	Wanakwari(WNK)
THE TREE	
• Family	Vochysiaceae
• Distribution	Suriname, Guianas, Brazil, Venezuela, Peru
• Appearance	Tree height 25-40 m, bole length 15-25 m, dbh 35-150 cm. Bole straight and cylindrical: tree base with buttresses
THE WOOD	
• Color	Sapwood: distinct, pale grayish brown to red grayish Heartwood: light brownish red or rose red
• Grain	Generally straight or slightly to strong interlocked
• Texture	Coarse to moderately
• Green density (kg/m ³)	870
• Specific gravity (at 12% MC)	450
• Volumetric shrinkage (from green to moisture content of 12%)	16.2%
MECHANICAL PROPERTIES (at a moisture content of 12%)	
• Static bending (N/mm ²)	MOE: 8238 MOR: 64
• Compression strength (N/mm ²)	
• Janka - Hardness (N)	
PROCESSING PROPERTIES	
• Processing	Sawing: easy, raised grains and wooly surfaces Machining: easy with sharp cutting tools
• Drying	Slowly and difficult
• Nailing	Good
• Gluing	Good
• Finishing	Good
NATURAL DURABILITY	
	Fungi: poor Termites: poor Marine borers: poor
KNOWN USES	
	Interior joinery, light carpentry, furniture, utility plywood

Sources:

Comvalius, Leonard.B., 2010. Surinamese Timber Species: Characteristics and Utilization (2nd edition). Paramaribo, Suriname.

7. Towards a strategy to support the marketing of lesser known species

7.1 Literature review: some interesting experiences

A study conducted by the Food and Agriculture Organization (2001) regarding the use of tropical timbers in Europe for sawn wood, plywood and veneer revealed that the major factors for the acceptance of (new) tropical timbers were (in order): quality consistency, supply regularity and dependability, promotional support and price competitiveness and stability. The study found that these factors are also important for the acceptance of lesser known wood species; however, in order of importance they were price, availability, appearance, quality consistency and marketing support.

Aiming at the promotion of lesser known wood species from Bolivian forests, Cossio (2007) made use of a so-called 'Affinity Diagram' to group the reasons under which conditions traders might be willing to include new wood species in business. The main reasons were price and availability, 39% of respondents stated that price is the main reason, while, 27% stated that availability would be the main reason. 23% stated that appearance and wood properties are the main reasons. Other reasons, but in less extent, included customer demand driven, competitive advantage and diversification.

Exploratory research conducted by Eastin and Wright (1998) revealed that the decision to evaluate a lesser known species is related to the availability of technical information describing appropriate end-uses and its substitutability for traditional species. Although there do exist several digital, non-digital or online databases of wood species, hardly any of them provide options for comparison and substitution including lesser known species.

One of the few computer databases focused exclusively on lesser-known wood species found in literature is More LKS, developed within the framework of the Tropenbos International (TBI) Cameroon program and the International Tropical Timber Organization (ITTO). The program provides information on Cameroonian lesser known wood species and end-uses in the local market. The program allows comparing those Cameroonian LKS with selected timber species. The objective of such a project was "to provide the Cameroonian timber sector with a tool to promote timbers which are currently difficult to sell, under the assumption that the sector can broaden the range of species harvested, thus contributing to sustainable forest management" (Zijp *et al.* 1999).

A similar database was designed for the comparison (and substitution) of a range of 30 common wood species with 20 Bolivian lesser known species (Cossio 2007). The comparison is based on mechanical properties and sensory appeal attributes and the degree of similarity (DS) is classified like a correlation factor with a value between 0 and 1, thus 'the higher the value, the higher the similarity'.

Ranges were classified as follows:

- Wood species that are very similar ($DS \geq 0.90$)
- Wood species that are similar ($0.80 \leq DS < 0.90$)
- Wood species that have somewhat similarity ($0.70 \leq DS < 0.80$)
- Wood species that seem to be different ($DS < 0.70$)

This site is aiming to collect and facilitate the existing knowledge on some of the most commercially relevant lesser-known species. Here you will find a wide range of technical data and possible end-uses for several lesser-known species.

In addition to these two country-specific databases, FSC Denmark hosts a web-based database on LKS from all over the tropics. They argue that a great number of these species are potential valuable timber species i.e. may hold an unfulfilled sustainable production potential. Poor knowledge of the physical wood properties and possible end-uses of the lesser-known species are often mentioned as reasons for the species not yet to be incorporated on the international market. However, poor distribution of the existing knowledge on the species to manufacturers and wood buyers seems to be one of the most limiting factors for the usage of lesser-known species. The web-based database aims at filling this information gap (<http://pre.fsc.dk>).

Beyond doubt, the above mentioned examples are some great tools in the promotion and introduction of LKS in new markets. But they also have their limitations as they fully rely on the available data on wood properties and appeal attributes. The promotion of the use of LKS however, needs more than information sharing on technicalities only.

Already in 2001 a FAO conducted stakeholders' consultation concluded that throughout the timber industry (in Europe) there is recognition of the need to improve marketing activities and the level of promotion of timber products. It is acknowledged that other industries have promoted their products far more successfully than the timber industry and that - as a consequence - market share and opportunities have been lost to competitors' products and materials. The report suggests that the greatest improvements to the industry be gained through market 'pull' rather than supply 'push'. Some of the recommendations to help generate this demand, which may also be important for the promotion of LKS, included:

- Education: increase awareness of the quality of (tropical) timber products as well as the environmental benefits to be gained from their use;
- Promotion: communicate the value and the benefits of wood products to persons/organizations involved the sale, distribution, processing and uses of timber products. The report, nevertheless, points out that promotion of wood *per se*, without any other built-in benefits, does not create a lasting impact;
- Coordination: focus the support of academic, institutional and corporate research and development programs to provide new, market driven, product and service solutions, especially total solutions where both product and its application are combined into the product concept;
- Market access: facilitation of infrastructure (logistics, standards/norms) supported by concerted market and industry-wide databases and networking.

The FAO consultations resulted in some recommendations for the maintenance and development of markets for tropical timber - including the lesser known timber species -that may still be valid and give direction to the design of a successful marketing strategy.

➤ Markets:

A significant market share of tropical timber has been lost to both wood and non-wood based alternative materials in recent years. There are many reasons for this trend, however, the public perception of tropical timbers, promotion/marketing by competitor manufacturers and price are all factors. It is likely that a thorough understanding of the current end-use markets and improving the perception or 'image' of tropical timbers through educational/promotional campaigns will assist in recovering, maintaining or increasing market share.

➤ End uses:

Lack of data available on the end-uses for tropical (lesser known) timbers hampers its introduction in potential markets. Without this information it is difficult to make informed

decisions on how and where tropical timbers should be actively marketed and promoted. A possible key to obtaining up-to-date and regular information on end-uses is the establishment of a network of contacts within the industry. Web-based application may ease this knowledge- and information sharing.

➤ Education and promotion:

Tropical timbers continue to suffer from negative images connected with tropical forest destruction. Positive publicity and education should be core elements of marketing and promotion. However, as northern public perceptions are still biased against tropical timbers, care should be taken to ensure that the campaigns to promote tropical timbers are not seen to be coming solely from the tropical wood industry alone, since this may be perceived to be one-sided and possibly untrue. Nowadays, third party forest certification is the most 'acceptable' way to present such information.

➤ Target groups:

Promotional and educational campaigns should be targeted at those involved in specifying materials. These include architects and builders' merchants in particular. Careful consideration should be to the types of information that different user groups require and how this should be presented to them (e.g. through trade shows, presentations, printed literature and computer-based formats). The ability to supply a comprehensive customer service to address any technical issues will become increasingly important if lesser known species are to be utilized and/or new end users identified.

➤ Price, specifications and supply:

Whilst price is undoubtedly a key issue in the purchasing decisions of buyers of tropical timber, quality consistency and supply regularity are also important features. In these, tropical timbers often do not do well against competitive products. Measures taken to increase the links between buyers and supplier countries are to be encouraged so as to ensure that products being supplied are of the required specifications (standardization). Additionally, importers and merchants may improve their market information about end-users' needs and requirements, since this could well lead to increased opportunities for diversification and the market opportunities for LKS.

"The marketing of lesser known tropical wood species was reported by the industry to be difficult. It was felt that the exporting countries should be responsible for this.

Furthermore, it was considered that the best way to introduce lesser known species was through its use in a value added products where design, quality and service are considered most".

Source: FAO Stakeholders' consultations 2001

7.2 Interviews: international policies, trends and initiatives

Till the mid-sixties of the twentieth century a wide range of over 80 tropical hardwood species was commonly traded, all having their very specific uses in construction, housing, civil engineering and furniture making (personal communication SKH, 2013). With the emergence of the Asian wood industry, providing global markets with a constant supply of high volumes of tropical hardwood of good quality (and price), hardwoods from both tropical Africa and the Amazon region have been 'elbowed out' rapidly. Nowadays, due to worldwide critical reviews on the sustainability of Asian forestry, international timber markets show genuine - renewed - interest in wood supplies from alternative sources, creating market opportunities for Amazon wood species, including those of Suriname. Although this demand is presently tempered by a lack of economic growth in Europe, this overall trend may not be ignored when considering the potential of LKS in international wood markets.

Despite this interesting opportunity for LKS to (re)gain market share, market requirements have changed significantly over years, in which standardization and certification, both for products and processes, became decisive conditions for successful market entry (personal communication TAA, 2013). Product standards and reliable technical information on products became of utmost importance in a world in which designers, constructors and builders wish to eliminate all avoidable risk and associated liability. Process standards have become important tools in the assessment of reliable business relations and sustainable natural resource management. A comprehensive overview of applicable standards and certificates, as part of the SWP-project, is given in the next chapter.

According to Stichting Keuring Hout (SKH), the standard setting authority in the wood based industry in The Netherlands, technical data on wood properties remain the most important and convincing criteria for successful introduction of LKS in new markets. Once knowing these wood properties, the 'scope of practical application' can be defined for which SKH offers three categories: (1) Outdoor construction like door- and window frames, (2) non-constructive uses like façade carpentry works and (3) civil engineering like land- and shore protection, sheet piling and the construction of waterworks. Admitted to one of these categories (like the BRL 0801) will support market access of the LKS. A next step in the acceptance of LKS in new markets will be its mention in the 'Houtvademecum' (Timber handbook) of which the next edition is expected in 2015.

Second most important criterion for successful market entry is the reliability of supply. In the past SKH was engaged in several initiatives aiming at the introduction of common Surinamese wood species in the Dutch carpentry industry: Wana, Pisi spp. and Kwari spp. All these introductions failed because of unstable supply, both in time and volume.

According to The Amazon Alternative (TAA), a Dutch public-private initiative aiming at increased wood supplies - including LKS - from sustainable managed (and certified) Amazon forests, experienced that the acceptance of new species needs more than quality, quantity and continuity in supply (availability). New species should offer (part of) the solution to an existing problem, e.g. they can replace lesser available common species or are an alternative for common species from non-certified forests. Also, TAA learned that wood markets are traditional and continue to select species rather by name than by 'fit-the-purpose' principles.

Although the previously mentioned FAO study (2001) suggests that the greatest success in introducing LKS may be gained rather through market 'pull' than supply 'push', TAA now aims at combining those two forces. They were able to interest international wood traders who hold concessions in the Amazon as well, Precious Woods Ltd. being one of them. Together with these companies, a limited group of LKS was selected for active introduction in the international timber trade chain. All species come from

certified production and offer a welcome alternative for commonly traded species, thus combining supply 'push' and market 'pull' forces.

FSC Nederland, together with the Dutch 'Initiatief Duurzame Handel' (IDH) took the initiative to launch a project on the introduction of LKS in Dutch/European timber trade chains. The project is coordinated by Innovita Consultancy Ltd. who was able to establish a network of several hardwood traders to identify the conditions under which the introduction of new wood species may be successful. Although the initiative started from 'demand', it soon became clear that the introduction of new wood species should first of all be based on supply regularity, meaning the forests' sustainable production capacity (personnel communication Innovita). Regularity in both 'volume' and 'time' are the most imported criteria for traders to join new business opportunities. The minimum annual volume of interest is estimated at 2,000 m³ in a business-to-business relation (or something like 20,000 m³ at a sector level). One of the most frequent pitfalls in this respect is that expected volumes cannot be met because of disappointing recovery rates (sapwood, log shape, defect). This may be avoided by creating added value in the country of origin, aiming at the exports of e.g. decking instead of rough sawn timber. This market approach, according to Innovita, works best anyhow; the appeal of nicely finished material will easier persuade potential markets to buy.

Another 'warning' by Innovita is the possible inconsistency in the description of wood characteristics. Some wood species, although nowadays seen as LKS, already have a long history in international timber trade and now seem to regain markets. The description of mechanical properties of these species may be based on outdated testing methods, which makes it difficult to compare. New lab-testing may be required.

Once business relations are established, Innovita aims at the set-up of pilot project in which the use of new species is shown in practical application like construction, housing, marina's or waterworks. These presentations are expected to play a crucial role in promotion and acceptance of new wood species.

From all interview it became clear that, knowing the limited production capacity of Suriname, cooperation between companies in the wood value chain is crucial and may be a decisive factor in success. Some field for cooperation that were mentioned are:

- Supply continuity on both quality and quantity;
- The introduction and maintenance of product standards;
- Business improvement through combined training and process certification;
- LKS and product promotion (marketing and PR at sector level).

7.3 An overview of related standards and certification

Standardization and certification are important tools to support the promotion and marketing of lesser known timber species. As part of the SWP project these issues are addressed already, resulting in a comprehensive report in which both product- and process standards and associated marketing constrained are described. The results of that study are here summarized in brief.

The following international **product standards** are or might be applicable for the Surinamese wood processing industry, especially when exporting wood products into the EU or USA timber markets:

- **ISO Standards** do not have a legal basis, but are developed to create uniformity in both products and processes. Many of these norms are generally applied already, also in the wood industry of Suriname;
- **European Norms (EN)** are developed by the European Committee for Standardization and published by country standardization institutes, in The Netherlands known as the NEN norms. In The Netherlands country specific NEN norms are developed that are referred to in national building codes (BRL);
- **CE Marking** is a conformity mark, stating the product is in accordance with all relevant European legislation. Most of the wood products construction purposes need a CE mark;
- **USANorms** are developed by a wide variety of standardization organizations. For the wood sector the standards of ASTM International (formerly known as the American Society for Testing and Materials) are most relevant and referred to in (inter)national Building Codes.

The following (inter)national **process standards** are or might be applicable for the Surinamese wood processing sector, especially when exporting wood products into the EU or USA timber markets:

- **ISPM 15** is a sanitation measure to prevent the spread of fungi, parasites and insects through wood based(package) material. Wood should be chemically- or heat treated before entering international markets. In the near future this measure will also apply to other types of wood and wood products;
- **ISO 9001** and **ISO 14001** are standards for quality management, the first covering company's management systems, the second dealing with environmental management;
- **FSC** and **PEFC** are the main globally recognized schemes for 'sustainable forest management' and the 'chain of custody' certification;
- The **EU FLEGT Program** offers various programs to combat illegal logging and timber trade. A timber licensing scheme may be implemented through **Voluntary Partnership Agreements (VPA)** between the EU and non-EU countries, while since recent **EU Timber Regulations (EUTR)** prohibit placing illegally harvested timber on the EU market and requires operators to comply with 'due diligence' regulations. **LHV (Legal Harvest Verification)** offers third party certification to comply with the EUTR;
- The **Lacey Act** is a USA law by which it is illegal to import, export, transport, sell, receive, acquire, or purchase any plant (including wood) taken or traded in violation of applicable laws of the US or the country of origin. Operators should implement due diligence systems in order to minimize the risk of illegal wood entering supply chains;
- At national level, **SBB** acts as the controlling mechanism for the National Forest Law. Timber logging and transport should be accompanied with all applicable documents and export licenses.

7.4 Some findings and lessons learned

From literature and the conducted interviews, both in Suriname and abroad, some ‘lessons’ may be drawn which, in turn, can be translated in several recommendations for the design of a marketing strategy to support the introduction of LKS species in domestic and overseas markets.

The conditions under which new species are accepted by markets, in particular world markets, have changed significantly over the last decades. Roughly speaking, non-acceptance of LKS can basically be reduced to (1) a lack of reliable information of wood properties and (2) the negative ‘image’ that associates tropical - lesser known - wood species with unsustainable forest utilization (deforestation and forest degradation).

From this research on potential LKS from Suriname it is clear that of most species the wood properties and technical information, although scattered over literature, is largely available. Therefore, it would be better to speak about ‘lesser used’ instead of ‘lesser known’ species. The same count for the end-uses of these wood species, which makes it possible to design a (web-based) application through which they can be compared to commonly known ones, and offer alternatives.

To large extent, forest certification schemes contribute to the market acceptance, consumers ‘good feeling’ and positive image. Third party verified certification of sustainable forest management, trade chains (CoC) and legality are very much appreciated - if not mandatory - by markets.

Further, supply regularity, regarding both quality and quantity, is much heard as a condition for becoming successful in international markets. Examples of failure because of irregular supply are plenty. Nowadays, product standards are a common tool to secure the quality of sawn timber, dimensions, permitted deviation and tolerance. The regular supply of required volumes largely depends on the availability of species. Knowledge on available volumes may be drawn from stock survey inventories and/or creating ways to share these data among timber harvesting companies, saw mills and traders. A web-based database (possibly with limited access) may be a viable option to support this.

The introduction of new species in new markets should seek for the support of academic, institutional and corporate Research and Development (R&D) programs to create new products and ‘solutions’ where both product and its application are combined into the product concept.

Finally, active promotion of ‘new species’ is frequently mentioned as a factor for success. Promotional activities, tools and products should be well chosen in relation to the target group to be addressed. For instance, the introduction and acceptance of new species in ‘construction’ will benefit from recognition by authorities like SKH and the mention in forthcoming edition (2015) of the ‘Houtvadamecum’ (Timber handbook). Pilot projects in which new species are shown in practical application like construction, housing, marina’s or waterworks, are considered very effective in the promotion and acceptance of new wood species.

Once business relations are established in the international markets, shipments should meet all buyers’ conditions regarding dimensions (and tolerance) and packaging. In general, ‘shipment dry conditions’ are required; meaning that the wood moisture content should be 20-25% and the product should be free from fungi decay at the port of arrival. Shipments entering the EU are under the EU Timber Regulations, meaning that all wood and wood products need to origin from verifiable legal sources.



8. Elements and steps of a successful market approach

Both from literature, the various interviews and additional observations a list of ‘steps to be taken’ and elements for the successful market introduction of LKS can be made. Although the implementation of these actions cannot guarantee the success of the market introduction of new wood species, it will surely contribute to creating a consumers-environment in which room for the use of new species is emerging. To reach this, various actions are needed at various levels; some can be done by the individual company, other by the private sector organizations like the FSWPS or the PHS, while some need to be addressed by research institutes like the CELOS or even at the government level.

From all interviews and discussions with various stakeholders it became clear that the introduction of new species in new markets can only succeed if parties are willing to cooperate and ‘take their share’. This may start with having a look at the list below of ‘steps to be taken’ to support a successful LKS marketing strategy and agree on ‘who’ can do ‘what’ best.

Know and norm your product

- Wood characteristics and properties must be known and presented in standardized formats;
- Product specifications must meet all applicable standards and norms in relation to end-uses;
- Product standards may be further developed and registered by the ‘Bureau for Standards’ (SSB);
- Aim at the inclusion of new species on formal ‘recommended species list’ of SKH and others;
- Aim at inclusion in wood users reference guides like ‘Houtvadamecum’ and others.

Know and norm your process

- Provide prove of compliance with national legislation and internationally agreed conventions;
- Comply with legislation of the customer’s like the Lacey Act (USA), EUTR (Europe) and others;
- Suriname might consider entering in a EU-FLEGT Voluntary Partnership Agreement (VPA);
- Consider ISO, FSC, LHV or other forms of process certification.

Know your strengths and weaknesses

- Be honest in all form of communication and be a trustworthy business partner;
- Be able to provide a ‘good reference’ list;
- Be honest in your ability to meet the three core element of sustainable trade relations: supply regularity in (1) Quality, (2) Quantity and (3) Continuity.

Availability and supply regularity

- Gain reliable data on the availability of species (both spatial and by volume);
- Gain information on recovery rates (wood efficiency) of species;
- Be aware of market constraints due to trade limitations (e.g. Protected species, CITES, EUTR).

Promotion

- Present your company in a concise ‘Company Profile’ including species/product list;
- Present new species in ‘information sheets’ including both technical description and ‘uses’;
- Include ‘story telling’ and explain the importance of enlarging the species mix from SFM;
- Prepare a set of promotional products like imaginary, wood samples, models and products;
- Address potential markets by presenting (end-)products instead of rough sawn timber;
- Create pilot project in which end-uses of LKS are shown practical applications.

Partnership and cooperation

- Create cooperation in species supply by the set-up of collective (web-based) databases;
- Seek cooperation in showing 'real life' use of LKS: construction, housing, waterworks;
- Aim at win-win partnerships in business: how can LKS become (part of) the solution of an occurring or existing problem in established markets.

Some concrete field for cooperation that were frequently mentioned in the various interviews that were conducted during this research, are:

- Supply continuity on both quality and quantity;
- The introduction and maintenance of product standards;
- Business improvement through combined training and process certification;
- LKS and product promotion (marketing and PR at sector level).

As part of the FSWPS project, a website will be launched on which all research documents and findings are being placed and thus publicly available for all timber harvesting, wood processing and trade colleagues.

Source: FSWPS Project Document 2010

This website may also create a good opportunity for the promotion of LKS.

9. Recommendations and next steps

Recommendation 1:

Supply regularity is a key factor in the roadmap leading to successful introduction of new wood species in new markets. This regards both quality and quantity of supply. Therefore, reliable data needs to be available on the volume per species that can be marketed when the focus is only on a limited number of LKS. Second, the quality needs to be secured by continuing the ongoing process of the introduction of product standards. Where applicable, these standards should also meet international standardization.

Next steps:

- Build knowledge on the available volumes of LKS, based on forest stock inventories;
- Share information on available LKS volumes to meet market interest (by volume);
- Explore options to share this information through web-based databases;
- Intensify, expand and formalize the design and introduction of product standards;
- Seek cooperation with the SSB to support the product standardization processes.

Recommendation 2:

Not all technical information is readily available inherent to the nature of 'lesser known species'. Additional lab-testing is needed. This is best done by shipping test-orders to potential buyers who are able to facilitate this additional research.

Next steps:

- Create partnerships with overseas partners to facilitate the market introduction of new species;
- Include additional wood research (and potential uses) in these (new) partnerships.

Recommendation 3:

The introduction of new species needs to be supported by active promotional activities. Many materials can support this. With TBI-Suriname 'glossy' info sheets on eight species will be produced. But there are more, and easy to realize ways to support market introduction of LKS. Active promotion needs adequate and constant attention and can - initially - best be done at a sector level.

Next steps:

- Make use of the FSWPS/PHS website: starting with 'story-telling' and uploading the 'glossies';
- Make wood samples of the new wood species (box) and get them included in CELOS/SBB wood sample collections; aim at categorizing the wood samples boxes;
- Seek 'free publicity' through media attention and professional magazines;
- Create partnerships to establish 'demonstration' pilot projects.

Recommendation 4:

Wood markets are traditional; the introduction of LKS will take time to materialize. Partners within the FSWPS have shown that working together is a successful manner to reach objectives of shared interest. These partnerships under the FSWPS need to be cherished, maintained and - where possible - extended. The implementation of activities that benefit all, or a new FSWPS project, may prove a good way to consolidate this cooperation.

Next steps:

- The introduction and maintenance of product standards;
- Business improvement through combined training and process certification;
- LKS and product promotion (marketing and PR at sector level), and
- Find a new project of mutual interest to consolidate the cooperation within the FSWPS.



Annex 1: Terms of Reference: Marketing opportunities for lesser known Surinamese wood species

(Final Version dated: May 7th 2013)

Terms of Reference

- 1 Elaborate a work plan covering the tasks mentioned in point 2
- 2 Conduct the following assessment

For the part about lesser known Species, the Contractor will conduct a study that should at least cover the following subjects:

- In relation to the **national** market:
 - o Current marketable Surinamese wood species, with approximate annual volumes per species at national level; distinguish between intermediate products and end products (incl. types of products);
 - o Identification of 10-15 potential wood species for the national market;
 - o Description of these potential wood species, which includes wood characteristics, utilization, treatment schemes and processing methods (if known);
 - o As far as available and possible: collection of imagery (pictures, drawings, etc.) of trees, trunks and especially wood of potential wood species;
- In relation to the **international** market:
 - o Current marketable Surinamese wood species, with approximate annual volumes per species at international level; distinguish between round wood, intermediate products, end products, and describe types of products;
 - o Identification and characterization of approximate 10-15 potential wood species for the international market;
 - o Description of these potential wood species, which includes wood characteristics, utilization, treatment schemes and processing methods (if known);
 - o For the latter: comparison of each potential wood species with a similar wood species already known on the international market;
 - o As far as available and possible: collection of imagery (pictures, drawings, etc.) of trees, trunks and wood of potential wood species.

The contractor will use, as far as possible, other available studies, especially wood technology research and overviews of the Foundation for Forest Management and Production control (SBB). Next, the contractor will conduct several interviews with wood processing companies. Selection of these companies will be done in close cooperation with the Project Manager of the SWP Project.

The next part of the research, the market research, is a key factor to get advantage over competitors. Market research provides important information to identify and analyze the market need, market size and competition.

The Contractor will conduct a study that should at least cover the following subjects, for **national** and the **international** market:

- Current market size and needs (supply and demand), with approximate annual volumes per species at (inter)national level; distinguish between intermediate products and end products (incl. types of products); in order to find out how to get market share;
- Identification of opportunities and requirements for the national market, based on customer analysis and competitors analysis;
- Description of the process of packaging, selling and exporting in the context of the requirements;
- Advice on how to approach the national market for successful results, based on market needs, size and competition.
- Development of promotional materials for the national and international market;

The contractor will use, as far as possible, other available studies, information from export agencies and the study on lesser known wood species, conducted in this project. Next, the contractor will conduct several interviews with existing or potential customers on the (inter)national market and with wood processing companies that are operating on the national and international market. Selection of the potential customers will be done by the contractor. Selection of the companies will be done in close cooperation with the Project Manager of the SWPS Project.

The contractor will write a report (in English) based on the findings of the above-mentioned subjects. The report will include a description of processing methods (general) and should elaborate on the legal requirements (e.g. USA or EU legislation) and technical requirements that should be met to successfully offer Surinamese wood species on the international market.

Together with TBI-Suriname the contractor will make up a database of imagery (resolution as high as possible) of the potential wood species, which might come from institutes or individuals. These pictures should become available to the FSWPS for PR purposes and will be used for the production of information sheets and brochures.

The contractor will write the text (in English) for eight information sheets (1,000 to 1,100 words for each information sheet) resulting from the findings of the study.

Annex 2: Conducted interviews, consulted literature and additional sources

CONDUCTED INTERVIEWS

- **In Suriname**
 - FSWPS partners:
 - REMAS N.V.
 - Mr. Siegfried Markiet
 - RAMZON N.V.
 - Mr. Ruben Rampersad
 - Caribbean Parquet Flooring (CPF) N.V.
 - Mr. Benito Chin Ten Fung
 - Mr. Hardi Kartodikromo
 - Greenheart Resources Ltd.
 - Mr. Roy Hilgerink
 - Ms. Wedika Hanoeman
 - Others:
 - Trafassie N.V.
 - Mr. A.A.Gesser (also chair PHS)
 - Dhanes Zagerij en Houtmarkt N.V.
 - Mr. C. Dhanes
 - N.V. TAKT
 - Mr. R. Nunes
 - Indian Brothers N.V.
 - Mr. A. Abdoelbasier
 - Brokopondo Water Wood Industry (BWWI) N.V.
 - Mr. R. Moendir
 - Soekhoe en Zonen N.V.
 - Mr. D.Ch. Mahesh
- **Outside Suriname**
 - Stichting Keuring Hout (SKH) / Stichting Hout Research (SHR)
 - Ms. Bryndis Perdijk
 - Mr. Jan Dubelaar
 - Mr. René Klaasen
 - The Amazon Alternative (TAA)
 - Ms. Petra Hamers
 - Innovita Consultancy Ltd.
 - Mr. Andries van Ekeveld
 - Vereniging van Nederlandse Houthandelaren (VVNH)
 - Mr. Paul van den Heuvel

CONSULTED LITERATURE

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Cossio Antezana, Victor H., 2007. Introducing lesser known wood species from certified forests in Bolivia to the U.S. market.

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Foundation for Sustainable Wood Processing in Suriname (FSWPS), 2013. Product- and process standards for the wood processing industry. SWP project document.

Prins J.H., 2003. Houtwoordenboek: Termen en definitie voor rondhout en gezaagd hout volgens NEN-EN 844. Centrum Hout – Nederlands Normalisatie Instituut, Delft. Nederland.

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Werger, Marinus J.A. (ed.), 2011. Sustainable Management of Tropical Forests: the CELOS Management System. Tropenbos International, Paramaribo, Suriname.

Zijp, M.A., Polman, J.E. and Tongo Bokam, T., 1999. MoreLKS: manual for a computer program on Cameroonian lesser-known timbers and end-use requirements. Tropenbos (TBI) Cameroon Document 2.

ADDITIONAL SOURCES

WWW.CIRAD.FR Centre de cooperation internationale en recherché agronomique pour le développement

WWW.SBBSUR.ORG Stichting Bosbeheer en Bostoezicht (SBB) Suriname

Approximately 90% of Suriname's total land area is classified as forest land (14.8 million ha). The logging activities take place in the forest belt (ca. 4.5 million ha with a productive area of 2.5 million ha) of which at present slightly over 200,000 ha is managed under the FSC SFM certificate. The National Forest Policy (2003) assumes a potentially annual sustainable cut of 1.0 - 1.5 million m³ based on a cutting cycle of 25 years and a logging intensity of 10 - 15 m³ and if a steady expansion of the package of currently lesserknown species (LKS) is realized. The precautionous approach suggests an annual cut still far greater than currently harvested and brought to markets: in 2012 the production was 436,000 m³.

Economic growth in the forestry sector cannot be sustained with continued sought after a limited number of well-known species like Basralocus (*Dicorynia guianensis*), Kopi (*Goupia glabra*), Wana (*Ocotea rubra*) and Gronfolo (*Qualea* spp., *Ruizterania* spp.). Ongoing focus on this limited species mix will not only threaten availability but may - sooner or later - also lead to an undesired change in forest composition and reduction of biodiversity.

Together with the wood processing industry, Tropenbos International (TBI) Suriname explored the market potential of a selection of LKS and compiled some LKS datasheets to promote their sustainable harvest, marketing and use, both domestic and overseas. This report describes recommendations and suggests 'next steps' for the successful introduction of LKS from Suriname's in the wood markets.

By making knowledge work for forests and people, Tropenbos International contributes to well-informed decision making for improved management and governance of tropical forests. Our long-standing local presence and ability to bring together local, national and international partners make us a trusted partner in sustainable development.



F S W P S
Foundation for Sustainable Wood Processing
in Suriname

