

CONGO BASIN COMMUNITY REPORT #8

JULY 2021

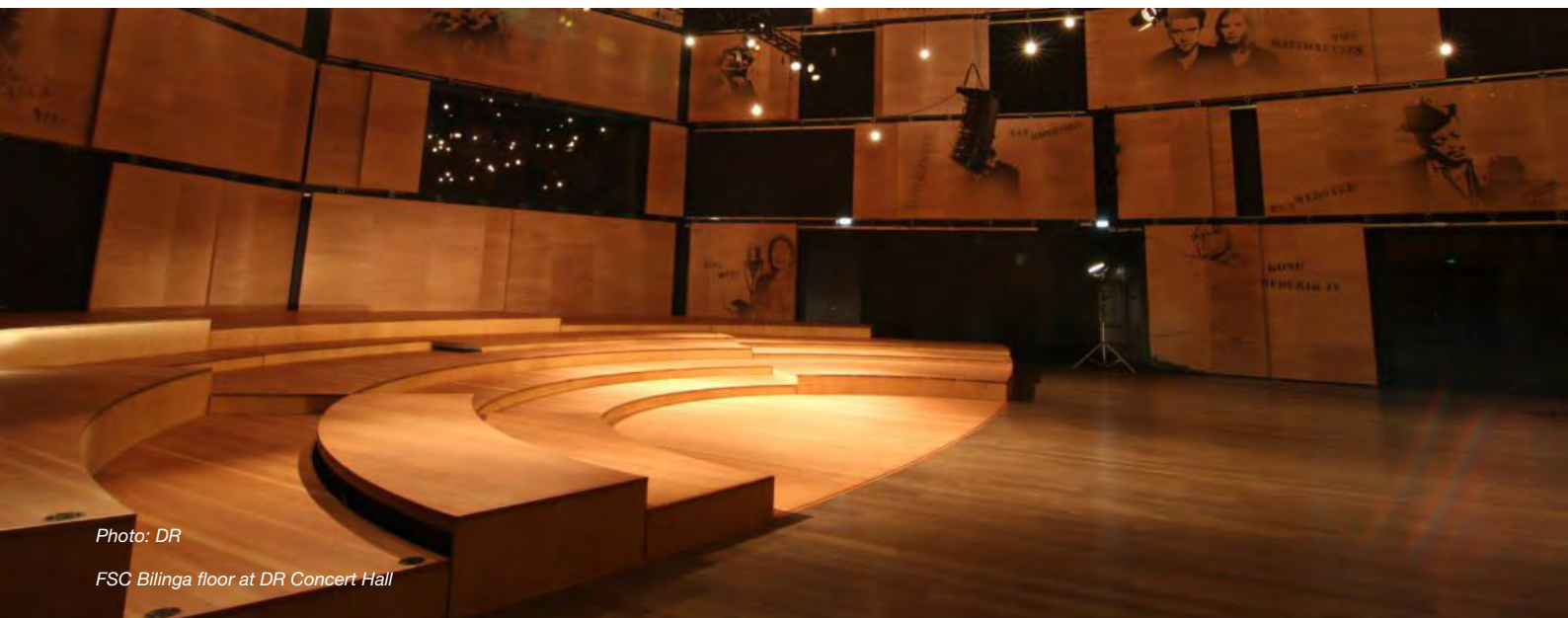


Photo: DR

FSC Bilinga floor at DR Concert Hall

LIBREVILLE ACTION POINTS

At the FSC Congo Basin Business Encounter 2018 held in Libreville Gabon 6 action points were identified to develop the market for sustainable tropical timber:

- Creating a Green Lane for FSC within EUTR.
- Developing LKTS.
- Reduce certification costs.
- Linking with Asian operators.
- Eco Services Payment action.
- Marketing tools to create awareness.

As a result of the Business Encounter and the action plan a working group is established called LKTS Congo Basin (LKTSCB). Members are from the leading European tropical timber markets and are coordinated by FSC Netherlands and FSC Denmark.

Contact interim coordinator:

Kristian Jørgensen, FSC Denmark
T: +45 28877808
E: k.jorgensen@dk.fsc.org

Dear members of the FSC Congo Basin Community

This is to date our most comprehensive newsletter and I will therefore keep my introduction short.

In Europe, we are seeing new trends as timber markets are heating up. We see prices increases for building materials and we see new export patterns for European timber, which right now makes timber a scarce commodity and is becoming a bottleneck for the investments and programs initiated to stimulate the economy on top of the Covid-19 crisis. Several national Timber Federation reports an increase in tropical timber imports and we can only wait and see if this is a lasting trend or if it is just transient as a result of colliding coincidences.



In this market call for accessible volumes, it is positive to see European importers approach the forest sectors in Tropical regions and clearly state their ambitions on sustainable timber and this with the hope to stimulate the development towards better documentation on tropical timber and more certified land and they express their long term commitment in supporting the forest sector through trade.

Kristian Jørgensen, FSC Denmark

SAVE THE DATE: 18. NOVEMBER 2021

The 2021 European Sustainable Tropical Timber Coalition (STTC) and ATIBT Conference will be held online, with the possibility of having a hybrid event in Paris depending on the pandemic circumstances. The conference will be centered around two themes:

- The role of certified forests in slowing down climate change
- Deforestation and the landscape approach and ecosystem services

[Learn more here](#)



www.lesserknowntimberspecies.com

CONGO BASIN COMMUNITY REPORT #8

JULY 2021



Photos: WALE - Wood & Logistics Expert (Emmanuel Groutel)

PROJECT 'GOMBÉ' BY CBG: KNOWLEDGE BUILDING AND PROMOTION OF A LESSER-KNOWN SPECIES

A promotional process undertaken by the CBG for 5 years, has shown that Gombé has very strong potential.

By Emmanuel Groutel, WALE with the support of PPECF

The global target of this project supported by the PPECF is to guarantee the economic viability of an abundant species allowing the survival of responsible management systems in Central Africa. The diversification of species to be offered on the markets is becoming a necessity.

The timber market is increasingly forced by standards and technical justifications. The trade of this species can therefore only increase, if it is accompanied by optimized data on its characteristics, attested by recognized laboratories, or through use tests on which manufacturers can rely, in complete confidence.

To this end, several specific objectives have been defined to strategically frame the action:

- Facilitate the marketing of Gombé, from sustainably managed forests and the resource of which is guaranteed in quantity and renewability.
- Communicate to manufacturers and consumers the real properties of Gombé.
- Improve the marketing approach of this material.

The economic survival of certified companies in the Congo Basin and in the field depends on the sustainability of the concession model under responsible management according to the FSC®-standards. By seeking to guarantee the economic viability of Gombé, the proposed activities aim at perpetuating the sustainable forest management system set up by CBG.



This also implies securing jobs and socio-environmental benefits associated with these activities. The promotion of an abundant tropical species at a modest cost can also lead to the development of a local processing sector.



GOMBÉ - DIDELOTIA SPP.

Tradenames: Gombé, Ekop-Gombé, Toubauaté, Tow, 代德苏木

The heartwood is salmon pink, sometimes with a few greenish-brown veins. Grain is often straight, occasionally slightly interlocked. Gombé is easily sawn and can be peeled without difficulty. Nails, screws and staples can be inserted without difficulty. It can also be satisfactorily glued with all glues in common industrial uses and used to make laminated or finger-joint.

PARTNERS AND ACTIVITIES

CIRAD (Center for International Cooperation in Agronomic Research for Development) is an organization which working on the characterization of forest species undertaken by the CTFT (Centre Technique Forestier Tropical) since 1924. It has a very rich database and diversified, recognized experts and consistent laboratory equipment. CIRAD will therefore carry out comparative tests between the three species.

FCBA is the Industrial Technical Center for Wood in France. It contains the BNBA (Office for Standardization of Wood and Furniture) which sits on all European and international standardization committees. In this sense, it has equipped itself with suitable laboratory equipment allowing it to grant approvals or certifications specific to certain uses and internationally recognized. This laboratory will perform bonding tests, according to the XP CENT / TS 13307-2 standard, in order to verify the suitability of Gombé for CTB LCA bonding certification.

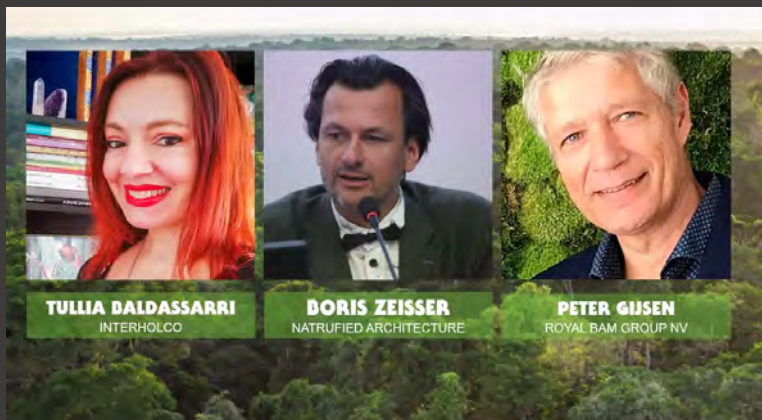
SHR laboratory (Stichting Hout Research) is engaged in applied scientific research on the use of wood and its transformation into other materials and products. In particular, it carries out tests allowing the SHK to grant KOMO certification for industrially bonded wooden elements based on the BRL - ERM 4000 / URL Historic carpentry 4001 standards.

Termolegno has been assisting manufacturers located in more than 60 countries since 1994. It is specialized in the design, production and installation of drying machines, vaporization and heat treatment. Termolegno company is recognized worldwide as one of the largest manufacturers of dryers for the primary timber industry. This company will carry out drying tests.

CONGO BASIN COMMUNITY REPORT #8

JULY 2021

WEBINAR HIGHLIGHTS THE POSITIVE ROLE OF TROPICAL TIMBER



“Building Sustainably: How architects, specifying tropical wood, can help mitigate climate change”

The reputation of tropical timber often overshadows the role it can play in preserving the world’s rainforests and its biodiversity, when sourced sustainably. Architects and designers can therefore play a key role in reversing this trend by specifying the use of certified tropical timber.

Tullia Baldassarri Höger von Högersthal from Interholco presented the remarkable impacts of sustainable forest practices in the Rep. of Congo and compared their logging intensity with the European norms and practices.

Founder of, Natrufied Architecture, Boris Zeisser took us through the many projects of his using hardwood and how he finds inspiration in the natural environment.

From the Dutch construction giant Royal BAM Group, we heard Peter Gijzen telling about the road to 100% certified timber and their experiences of using tropical timber that accounts for ~30 percent of their consumption of timber.

On the 6th of July, 2021 FSC International hosted a webinar focusing on tropical timber.

Did you miss out on this opportunity? No need to worry - the webinar is to be found on the FSC International website and on the LinkedIn profile.

[The recorded webinar is here available from LinkedIn](#)

LETTER FROM EUROPEAN TIMBER IMPORTERS TO THE BRAZILIAN FOREST SECTOR

INSPIRATION: A group of +30 European importers have united in their efforts to motivate the Brazilian forest sector “to initiate or resume processes that leads to an increased area of state and federal Concessions and of FSC certified forest area in Brazil”. The result of this is an open letter delivered to main forest organizations and relevant authorities in Brazil.

As this group of companies points out several general market tendencies including own ambitions on sustainability, the core message also applies for the Congo Basin community and all other tropical timber regions. To this, many of the companies behind the letter is also involved in the Congo Basin.

From the letter:

“By signing up on this letter we therefore state our interest in:

- Timber of good and sustainable origin and non-destructive logging methods.
- Forest management practices which sustain long term forest production.
- FSC-certified timber, including more lesser known timber species.”

[The letter is here available from the website of Keflico](#)



CONGO BASIN COMMUNITY REPORT #8

JULY 2021



LAUNCH OF FSC BLOCKCHAIN BETA

FSC's Blockchain verification technology aims to tackle fraudulent claims and non-conforming forest materials, and support "know your materials" compliance.

FSC has begun its first pilot into using blockchain technology to tackle fraudulent claims and non-conforming forest products. The FSC Blockchain Beta digital verification platform, our latest technology innovation that aims to revolutionize FSC materials traceability and trade compliance with blockchain technology, will be launched in a pilot programme for high-risk supply chains.

What is the FSC Blockchain Beta?

The FSC Blockchain Beta is a "permissioned" private blockchain ledger platform designed to verify materials trade compliance across FSC supply chains. We are conducting pilot tests of our technology from April to October 2021, and these pilots focus on high-risk supply chains.

The goal of the pilot program is to demonstrate blockchain technology's facility to transform trade compliance verification and to identify point of value creation for the participating certificate holders, where FSC and the technology itself can create a new and added value as part of the compliance verification process.

The pilots will also gauge organizations' means of meeting requisite criteria to share standardized point-of-trade data, and we will gather information on features that would be indispensable to certified organizations.

Our pilot program will offer the space to validate blockchain technology with real data and to determine the conditions that will enable us to develop enhancements towards wider general availability to certified organizations in the future.

Feedback and expression of interest in the FSC Blockchain

Certified organizations are invited to provide feedback and express interest in the FSC Blockchain.

[Please sign up here!](#)

[Full-length article at fsc.org](#)

WHAT IS BLOCKCHAIN AND HOW CAN IT SUPPORT INTEGRITY IN FSC SUPPLY CHAINS?

Simply put, blockchain is a record-keeping digital technology, and it registers transactions into a digital ledger that cannot be changed. Like many global supply chains, forest-related supply chains rely on paper documentation.

Paper systems open the potential for fraudulent claims by cause of tampering with or falsifying documentation to inflate material volumes.

Blockchain can fundamentally change how compliance and traceability of FSC materials across supply chains are verified using secure technology, breaking free of paper-based documentation and the exclusive reliance on paperwork exchanged amongst organizations to assert trade claims that imply that materials are compliant.

FOREST FOR THE FUTURE PODCAST #19

How blockchain can help FSC - Interview with CIO Michael Marus

In this episode of Forest for the Future, where we talk to FSC CIO Michael Marus and dive deep into the beta pilot, that has just launched. We cover all of the questions on who, how, when and why. But we also allow Michael to look ahead and dream big for a bit about what a blockchain in FSC could enable.

Find out more about the FSC Blockchain in our latest podcast:

[Apple Podcasts](#) | [Castbox](#) | [Google Podcasts](#) | [Podtail](#)



www.lesserknowntimberspecies.com

CONGO BASIN COMMUNITY REPORT #8

JULY 2021



Photo: CIB - Vincent Istace

CIB STARTS THE GENETIC AND CHEMICAL PROFILING OF THEIR TIMBER SPECIES

As part of its ongoing collaboration with Congolese Universities in the Republic of Congo, Congolaise Industrielle des Bois (CIB) is taking its commitment to traceability even further. In July, a team from TIMTRACE and World Forest ID joined CIB's to undertake a research visit in the concessions of Kabo and Loundoungou. The team collected over 60 samples of the wood species Sapelli, Tali and Azobe to sequence and to be able to create a genetic and chemical profiling stable isotopes to verify the geographical origin of these trees. Over the next three years, the project aims to collect and catalogue samples from trees within CIB's forest concessions to establish stable databases. This will allow customers to cross-check the traceability and origin of any product supplied by CIB, thanks to a simple DNA or chemical test of the product.

[Learn more of CIB / Olam](#)

[Learn more of World Forest ID on FSC's website](#)



CONSULTATION: CONTINUOUS IMPROVEMENT PROCEDURE

FSC has developed a new procedure to improve access to, and uptake of, the FSC system by small forest owners and communities. The Continuous Improvement Procedure is based on the idea that sustainability, rather than a fixed objective, is a path. It invites smallholder and communities to become part of the global FSC community of certificate holders without having perfect responsible management in place. It's enough to have initiated and implemented crucial measures and to commit to continue the path of sustainability together with FSC.

We invite you to participate in the consultation available from 15 June 2021 through 26 August 2021.

[Participate through this link](#)



Photo: FSC Denmark



Photo: FSC Congo Basin

RECENT ACTIVITIES BY FSC CONGO BASIN

The Prince Albert II of Monaco Foundation (FPA2) has awarded a grant to FSC to implement the "Achieving Forests for All Forever in Gabon" project over a three-year period. This will enable FSC to mobilize and work with forest management stakeholders and government actors to conduct robust training and communication activities to support the successful implementation of Gabon's sustainable forestry goals.



On March 21, 2021, FSC Gabon participated in the International Day of Forests along with the Gabonese Minister of Water and Forests, Dr. Lee White and the FAO representative in Gabon. The FSC representatives in Gabon celebrated this international day dedicated to preserving forests at the Sibang Arboretum on the outskirts of Libreville. They took part in a species discovery and planting session. Each participant was able to plant several Okoume and Azobe trees, two emblematic species of Gabon.

[Learn more of the project and recent activities by FSC in the Congo Basin](#)

www.lesserknowntimberspecies.com

CONGO BASIN COMMUNITY REPORT #8

JULY 2021



Photos: WALE - Wood & Logistics Expert (Emmanuel Groutel)

MOVING FORWARD WITH LESSER KNOWN TIMBER SPECIES FROM THE CONGO BASIN

By Tijmen Hennekes, FSC Netherlands

This advisory report on how to introduce LKTS on the European tropical timber market was finalised in June.

The Forest Stewardship Council's Dutch office has commissioned research on the introduction of LKTS on the European market. The report contains an analysis of threats and opportunities that describe the environment for lesser-known timber species on the European market.

The research was focussed on the timber species that previously have been indicated as interesting by the LKTSCB working group: Movingui, Kosipo, Limbali, Omvong, Gombé, Olon, Ozigo, Okan and Fraké.

In addition, an extensive analysis was made on the demand in tropical timber from Europe, regarding technical requirements, trade flows and factors that may affect the trade.

Timber is a natural resource, naturally this means timber species' qualities, properties and availability is very diverse. In order to identify whether a species is suitable for the European market, an extensive analysis on species abundance in the forest, ecological vulnerabilities, technical properties and active supply lines must be conducted. Therefore this research paper includes these parameters in the species profiles that have been constructed for all 9 species in the scope.

Furthermore, interviews with market representatives from Europe and from the Congo Basin have made very clear that there are three market requirements that will allow market access for a timber species: steady supply, reliable quality and competitive pricing. With that said, it is paramount that this is supported by reliable research, especially on technical properties.

A warm thank you to those who contributed.

Species profiles from the report follows at the end of this newsletter.

KEY FINDINGS FROM THE REPORT

- There is a high demand for sustainable solutions on the European market. Tropical timber could be part of the answer to this, provided the general image of sustainably sourced tropical timber improves.
- European trade flow analysis shows that there is a demand for tropical timber which is currently not utilized, this indicates there are opportunities for LKTS market development.
- Okan and Fraké/Limba have proven themselves on the EU tropical timber market and are now widely accepted. In the future they should be promoted as such.
- The timber species Movingui, Kosipo, Limbali, Omvong/ Eyoum, Gombé, Olon each show their own potential to be successful on the EU market. Although work is still to be done to allow full market access.
- Pilot projects with lesser-known timber species can generate reference cases for the market, which can be communicated throughout the whole tropical timber value chain as promotional material. This will likely boost demand for LKTS from the Congo Basin.



FSC WELCOMES TIJMEN TO THE TEAM



Tijmen Hennekes joins the team at FSC Netherlands after ending his 5 month internship and finalizing his studies in Forestry and Nature management from University of Applied sciences Van Hall Larenstein. Tijmen has specialised himself in International Timber Trade and will from the 1st of July work with FSC Netherlands projects in the promotion of sustainable tropical timber including the Congo Basin program.

Interested in the full report?

Please do get in contact by sending an e-mail to: t.hennekes@nl.fsc.org

www.lesserknowntimberspecies.com

CONGO BASIN COMMUNITY REPORT #8

JULY 2021



BILINGA FLOOR DR CONCERT HALL

DR Koncerthuset / DR Concert Hall (previously Copenhagen Concert Hall in English) by Jean Nouvel is a part of the "new" DR Byen (DR Town), that houses the Danish Broadcasting Corporation, DR.

The concert complex consists of four halls with the main auditorium seating 1,800 people. It is the home of the Danish National Symphony Orchestra. With a total surface of 25,000 m², the concert hall complex designed by Jean Nouvel includes a concert hall of 1800 people and three recording studios with variable acoustics.

As flooring Jean Nouvel insisted on using the West African species, bilinga. No other species could match the hall's other brownish wooden glow. The bilinga floor covers 3,600 m² and was delivered by Hørning Parket A/S.



Photos: DR + Hørning Parket A/S + Wiki Commons

Country: Denmark
Place: Ørestad (Copenhagen)
Size: The bilinga floor covers 3,600 m²
Client: Danish Broadcasting Corporation
Design: Jean Nouvel
Year: 2009
Supplier: Hørning Parket A/S (FSC-C043090)
Timber: Bilinga - 100% FSC certified

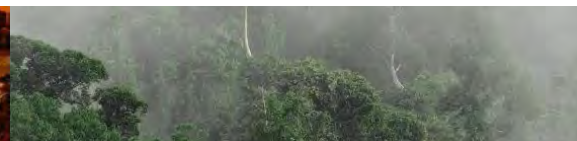
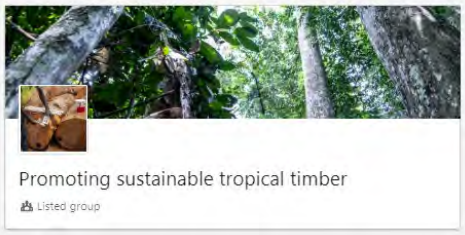
BILINGA
Nauclea spp.

ALOMA
OPEPE
狄氏黄胆木

SEE YOU ON LINKEDIN

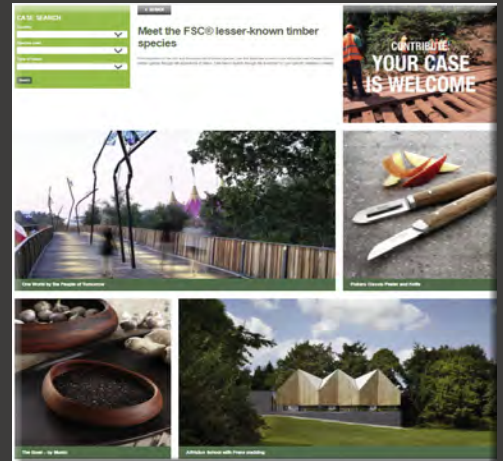
The LinkedIn group: "Promoting sustainable tropical timber" is a platform for inspiration in the use of tropical timber.

Join the [LinkedIn group](#)



YOUR CASES NEEDS TO BE SHOWN

WWW.LESSERKNOWNTIMBERSPECIES.COM



SUBMIT: We are collecting examples of the use of lesser-known tropical timber species from a broad range of wood users, such as designers, architects, producers, businesses and project owners.

This database is your opportunity to promote your products or projects made with FSC certified LKTS species!

Provide us with a description and other details of the product/project such as:

- An overall description (50 - 150 words)
- Location of construction/production
- Year of construction/production
- Constructer/producer
- Designer/architect
- Project owner
- Timber supplier
- Species used and their use in the project/product

Remember to provide us with a variety of high-resolution images of your project/product.

Submit cases by contacting the website editor:

Kristian Jørgensen, Projectcoordinator, FSC Denmark
Mail: k.jorgensen@dk.fsc.org

www.lesserknowntimberspecies.com





PROFILES FOR SELECTED TIMBER SPECIES

MOVINGUI

LIMBALI

KOSIPO

EYOUM

GOMBE

OZIGO

OLON

OKAN

FRAKÈ

FROM THE REPORT:

**MOVING FORWARD WITH LESSER KNOWN
TIMBER SPECIES FROM THE CONGO BASIN**

**- AN ADVISORY REPORT ON HOW TO INTRODUCE
LKTS IN THE EUROPEAN TIMBER MARKET**

MOVINGUI

(*Distemonanthus benthamianus*)

| SCIENTIFIC SPECIES DATA | | IUCN: | CITES: |
|--------------------------------------|---|---------------|------------|
| Scientific name(s): | <i>Distemonanthus benthamianus</i> | Not Evaluated | Not listed |
| Family: | Fabaceae-Caesalpinioideae (angiosperm) | | |
| Origin: | West Africa | | |
| ATIBT Pilot Name: | Movingui | | |
| Local and common name(s): | Ayan (Ghana, Benin & Nigeria) - Ayanran (Nigeria) - Barré (Côte d'Ivoire) - Bonsamdua (Ghana) - Distemonanthus (United Kingdom) - Eyen (Cameroon, Gabon & Equatorial Guinea) - Movingui (Gabon) - 两蕊苏木 (China) | | |
| Commercial restrictions: | No restriction | | |
| TECHNICAL SPECIFICATIONS | | | |
| Typical Color: | Lemony-ellow to yellow brown | | |
| Durability: | Fungi - Class 3 - Moderately durable (According to E.N. standards) | | |
| Specific Gravity (at 12% MC): | ~730 kg/m3 (+/- 6) | | |
| Stability: | Moderately stable to stable | | |
| Static bending strength: | ~116 MPa (+/- 13) | | |
| Peeling: | Good | | |
| Nailing/screwing: | Good - but pre-boring is recommended | | |
| Gluing: | Correct | | |
| Typical Uses: | Sliced veneer - Wood frame house - Interior joinery - Exterior panelling -Stairs (inside) - Arched goods - Current furniture or furniture components - Vehicle or container flooring - Shingles - Light carpentry - Veneer for back or face of plywood - Exterior joinery - Interior panelling - Flooring, Cooperage - Cabinetwork (high class furniture) - Glued laminated - Turned goods - Resistant to several acids | | |
| Possible proxy for: | Sapelé | | |



© FSC Denmark

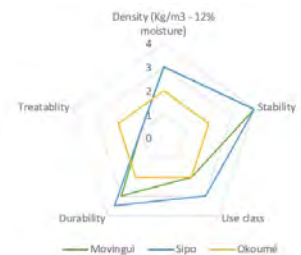


Figure 11 - Technical properties of Kosipo (CIRAD, 2020). Movingui compared with the relevant proxy species Sipo and Okoumé

FINDINGS

Movingui is a species that is very comparable to Sipo and Okoumé because it is a relatively light species, and still very stable.

Sustainable trade is already active with Movingui, with Italy in the lead, there are various companies who are FSC – COC certified to trade with Movingui (FSC, 2021).

Movingui used to be a very common species in France, where it was used for stair cases and façade elements.

For Movingui there is a sustainable supply, it has a consistent quality, and suppliers can offer competitive pricing to similar species.

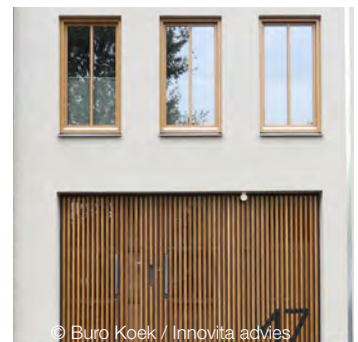
In contrary to Movingui's current use class, it has proven to be suitable for outside conditions, Movingui works well in window framing and in cladding as shown in picture 2 (FSC, 2020).

Producers should know that there could be complications with running optimal yields due to small log diameters. Although this can be solved by implementing recovery lines such as finger jointing and laminating.

To allow access to the European market, Movingui should be tested on strength according to European guidelines (CE marking), as well as tested on gluing properties (KOMO). Target applications for promotion could be: Window/door framing, cladding, flooring, plywood.

REFERENCES:

Nomenclature générale des bois tropicaux, 7e édition, 2016 - ATIBT
 Technical descriptions from the software Tropix 7- CIRAD
 Catalogue of Life



Picture 2: Movingui window frames and facade.

Valid FSC-certificates for this species

Number of FSC-CoC-certificates in main markets with Movingui as part of the certification scope.

| | |
|---------------------|------------|
| Belgium: | 12 |
| Germany: | 11 |
| Spain: | 20 |
| France: | 23 |
| Italy: | 91 |
| The Netherlands: | 10 |
| United Kingdom: | 16 |
| World total: | 326 |
| www.info.fsc.org | |

LIMBALI

(*Gilbertiodendron* spp.)

| SCIENTIFIC SPECIES DATA | | IUCN: | CITES: |
|----------------------------------|---|---------------|------------|
| Scientific name(s): | <i>Gilbertiodendron dewevrei</i> | Not Evaluated | Not listed |
| | <i>Gilbertiodendron preussii</i> | Not Evaluated | Not listed |
| | <i>Gilbertiodendron brachystegiodes</i> | Not Evaluated | Not listed |
| Family: | Fabaceae-Caesalpinioideae (Angiosperm) | | |
| Origin: | West Africa | | |
| ATIBT Pilot Name: | Limballi | | |
| Local and common name(s): | Ekobem (Cameroon) - Molapa (Central African Republic) - Epal Congo - Vaa (Côte d'Ivoire) - Ditshipi (DR Congo) - Ligudu (DR Congo) - Limballi (DR Congo) - Abeum (Gabon) - Tetekon (Ghana) - Ekpagoi Eze (Nigeria) - 大瓣苏木 (China) | | |
| Commercial restrictions: | No restriction | | |

| TECHNICAL SPECIFICATIONS | |
|--------------------------------------|--|
| Typical Color: | Red brown with greenish or copper shades. |
| Durability: | Funghi - Class 2 - Durable (According to E.N. standards) |
| Specific Gravity (at 12% MC): | ~810 kg/m ³ (+/- 5) |
| Stability: | Moderately stable |
| Static bending strength: | ~137 MPa (+/- 13) |
| Peeling: | Bad |
| Nailing/screwing: | Good but pre-boring necessary |
| Gluing: | Correct (for interior only) |
| Typical Uses: | Heavy carpentry - Exterior joinery - Ship building (planking and deck) - Stairs (inside) - Industrial or heavy flooring - Interior joinery - Interior panelling - Vehicle or container flooring - Wood frame house |
| Possible proxy for: | Sapelé - Sipo |

FINDINGS

Limballi is a timber species that can be considered as a good alternative for Sipo and Sapele. It is somewhat heavier than its competitors, although it does offer a better resistance against fungi.

Existing FSC-COC certificates for Limballi show that there is active trade in Europe, however this is limited (FSC, 2021).

According to Jan Willem Hunink, director at CIB OLAM, Limballi is a species that used to be very popular in Portugal, 45 years ago it was used for windows doors and decking in large quantities. Although it has lost its market due to the introduction of new sawing techniques with standardized widths and thicknesses.

Several experts are convinced this is due to the nature of the wood; it can be described as very nervous and has a tendency to crack if not handled carefully. With traditional sawing techniques, this was not really a problem, although industrialized sawing methods caused too many defects.

Therefore, it can improve yields in the sawmills significantly by using good recovery lines. Finger jointing and laminating are often applied for this timber to improve yields.

Limballi recently has been re-introduced in Denmark in a Decking project, shown in picture 2, where it is in place since 2014 (FSC, 2020). This is a good example of how Limballi is a suitable material for decking, although it must be handled with care.

Limballi is graded in the strength grade D40, however it is not tested to be certified as KOMO.

Target applications for promotion could be: Plywood, veneer

REFERENCES:

Nomenclature générale des bois tropicaux, 7e édition, 2016 - ATIBT
 Technical descriptions from the software Tropix 7 - CIRAD
 The IUCN Red List of Threatened Species
 Catalogue of Life



© FSC Denmark

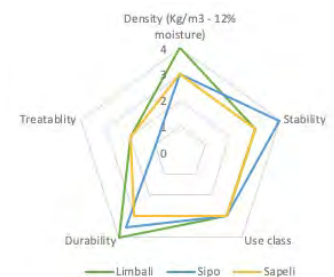


Figure 12 - Technical properties of Kosipo (CIRAD, 2020). Limballi compared with the relevant proxy species Sipo and Sapelélé.



Picture 3: Limballi decking on Øster Farimagsgades Skole, Copenhagen. Timber delivered by Global Timber.

Valid FSC-certificates for this species

Number of FSC-CoC-certificates in main markets with Limballi as part of the certification scope.

| | |
|---------------------|-----------|
| Belgium: | 2 |
| Germany: | 1 |
| Spain: | 1 |
| France: | 3 |
| Italy: | 3 |
| The Netherlands: | 2 |
| United Kingdom: | 0 |
| World total: | 52 |
| www.info.fsc.org | |

KOSIPO

(*Entandrophragma candollei*)

| SCIENTIFIC SPECIES DATA | | IUCN: | CITES: |
|----------------------------------|---|------------|------------|
| Scientific name(s): | <i>Entandrophragma candollei</i> | Vulnerable | Not listed |
| Family: | Meliaceae (Angiosperm) | | |
| Origin: | West Africa | | |
| ATIBT Pilot Name: | Kosipo | | |
| Local and common name(s): | Lifuco (Angola) - Atom-Assie (Cameroon) - Bakanga (Central African Republic) - Kosipo (Côte d'Ivoire, Ghana) - Impompo (DR Congo) - Etom (Gabon)- Penkwa-Akowaa (Ghana) - Omu (Nigeria) - Heavy Sapele (Nigeria) - Diamuni (Rep. of the Congo) - Kosipo-Mahogany (Germany) - 大非洲楝 (China) | | |
| Commercial restrictions: | No restriction | | |

| TECHNICAL SPECIFICATIONS | |
|--------------------------------------|---|
| Typical Color: | Red brown with purplish glints |
| Durability: | Funghi - Class 5 - Not durable (According to E.N. standards) |
| Specific Gravity (at 12% MC): | ~690 kg/m ³ (+/- 7) |
| Stability: | Moderately stable |
| Static bending strength: | ~87 MPa (+/- 14) |
| Peeling: | Good |
| Nailing/screwing: | Good |
| Gluing: | Correct |
| Typical Uses: | Exterior joinery - Sliced veneer - Interior panelling - Veneer for back or face of plywood - Stairs (inside) - Shingles - Glued laminated - Interior joinery - Cabinetwork (high class furniture) - Current furniture or furniture components - Flooring - Exterior panelling - Light carpentry |
| Possible proxy for: | Sapelé |

FINDINGS

Kosipo comes from the same botanical family as Sipo and Sapele. It is very similar in its technical properties, although with some advantages. It is more stable than Sipo and sapele and more durable than Sapele, therefore mostly applied in window and door frames.

Kosipo is already widely traded in various markets, this is evident to the active FSC-COC trade certificates. Italy is currently the leading market in Kosipo (FSC, 2021).

Due to its properties, Kosipo is widespread exploited as African mahogany. However, seed production is erratic and population densities are quite low. For this reason, IUCN has marked *Entandrophragma Candollei* as vulnerable (IUCN, 1998). When forest operators manage their forests sustainably it is possible to commercially cut Kosipo.

According to expert interviews it is evident that Kosipo can have some troubles with quality, as it contains a lot of worm holes and shot holes. Therefore, it is important to implement good recovery lines in order to maintain quality standards. Finger jointing and three-ply laminating are often used methods for this. Furthermore, Kosipo is much harder than Sipo and Sapele therefore it is required to use harder steel in the production plant. When the producer knows this, it should be no problem to handle the wood properly.

Kosipo is listed in the SKH publication of accepted species for façade elements (SKH,2018), which means it could be implemented in window frames with a KOMO certificate (Dutch market). However, there have been no tests on CE strength grading.

Target applications for promotion could be: Window and doorframes, plywood, flooring.

REFERENCES:

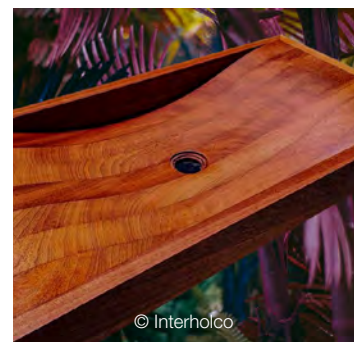
Nomenclature générale des bois tropicaux, 7e édition, 2016 - ATIBT
 Technical descriptions from the software Tropix 7- CIRAD
 The IUCN Red List of Threatened Species



© FSC Denmark



Figure 13 - Technical properties of Kosipo (CIRAD, 2020). Kosipo compared with the relevant proxy species Sipo and Sapele.



Picture 4: Wooden sink made in Kosipo. Case delivered by Interholco.

Valid FSC-certificates for this species

Number of FSC-CoC-certificates in main markets with Kosipo as part of the certification scope.

| | |
|---------------------|------------|
| Belgium: | 9 |
| Germany: | 22 |
| Spain: | 19 |
| France: | 22 |
| Italy: | 49 |
| The Netherlands: | 16 |
| United Kingdom: | 15 |
| World total: | 373 |
| www.info.fsc.org | |

EYOUM / OMVONG

(*Dialium* spp.)

| SCIENTIFIC SPECIES DATA | | IUCN: | CITES: |
|----------------------------------|---|-----------------|------------|
| Scientific name(s): | <i>Dialium aubrevillei</i> | Not Evaluated | Not listed |
| | <i>Dialium bipindense</i> | Near Threatened | Not listed |
| | <i>Dialium dinklagei</i> | Least concern | Not listed |
| | <i>Dialium pachyphyllum</i> | Least concern | Not listed |
| Family: | Fabaceae-Caesalpinioideae (Angiosperm) | | |
| Origin: | West Africa | | |
| ATIBT Pilot Name: | Eyoum | | |
| Local and common name(s): | Eyoum (Cameroon, Gabon) - Mfang (Cameroon) - Afambéou (Côte d'Ivoire) - Kofina (Côte d'Ivoire) - Omvong (Gabon) - Kasudu (Rep. of the Congo) - Pau Veludo (Guinea-Bissau) - Bongola (DR Congo) - Gbelle-flu (Liberia) - Gia Kaba (Liberia) - Ciania (Liberia) - Ziba (Mozambique) - Penzi (Rep. of the Congo) - 拜平摘亚苏木 (China) - 科特迪瓦摘亚苏木 (China) | | |
| Commercial restrictions: | No restriction | | |

TECHNICAL SPECIFICATIONS

| | |
|--------------------------------------|--|
| Typical Color: | Orange to yellow - The heartwood is orange pink, sometimes with greenish-brown veins |
| Durability: | Funghi - Class 1 - Very durable (According to E.N. standards) |
| Specific Gravity (at 12% MC): | ~940 kg/m ³ (+/- 9) |
| Stability: | Porely stable |
| Static bending strength: | ~162 MPa (+/- 24) |
| Peeling: | Not reconmend |
| Nailing/screwing: | Good but pre-boring necessary |
| Gluing: | Correct |
| Typical Uses: | Hydraulic works (fresh water) - Wood frame house - Exterior panelling - Flooring - Vehicle or container flooring - Turned goods - Bridges (Parts in contact with water or ground) - Exterior joinery - Sliced veneer - Industrial or heavy flooring - Sleepers |
| Possible proxy for: | Azobé |

FINDINGS

Omvong or Eyoum, is a heavy species that matches the properties and applications of Azobé and Angelim vermelho. It is slightly lighter in colour than its alternatives, which is appreciated. However, it is considered less durable than Angelim Vermelho although it does have the same use class.

Current trade by FSC CoC certified companies in Omvong is very limited in Europe, except in Spain and a specific case in Denmark (FSC, 2021).

Expert interviews explain more about potential Omvong has in terms of availability and technical performance; there is a general agreement that Omvong has a great potential on the European timber market. However, there is still a lot of research that needs to be done before it can capture a portion of the European tropical timber market. For example, Omvong is a very durable, strong species and therefore suitable for heavy constructions in contact with fresh water, although research on CE Strength grading is still not completed.

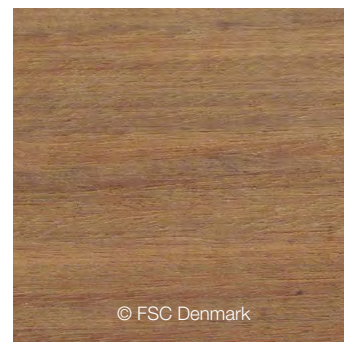
Furthermore, Omvong contains high values of silica which make the production process very complex. Until present there is not a standardized production method that is accepted by the industry. The problem is that the high silica has an extreme blunting effect on the saw blades, the tips of the saw teeth become round within minutes, making the production process too intensive and expensive. Wijma Kampen has had some successful trails, working with hardened tips on the saw bands and this has improved the production process, although it remains very delicate.

At this moment, the durability class of Omvong is being revisited by researchers in Belgium. When this research is successfully completed, it will generate new opportunities for Omvong in the heavy constructions sector as specifiers are bound by a durability class. Furthermore, Omvong is not strength graded according to the CE standards.

Target applications for promotion could be: Heavy constructions, heavy decking, waterworks, Railway sleepers

REFERENCES:

Nomenclature générale des bois tropicaux, 7e édition, 2016 - ATIBT
 Technical descriptions from the software Tropix 7 - CIRAD
 The IUCN Red List of Threatened Species
 Catalogue of Life



© FSC Denmark

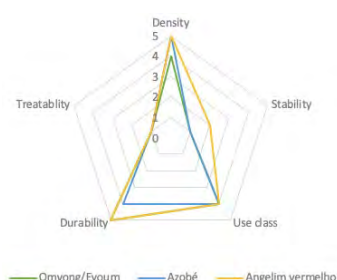


Figure 14 - Technical properties of Kosipo (CIRAD, 2020). Omvong/Eyoum compared with the relevant proxy species Azobé and Angelim Vermelho.



Lesser known species often lacks reference cases for further promotion.

Valid FSC-certificates for this species

Number of FSC-CoC-certificates in main markets with Eyoum as part of the certification scope.

| | |
|---------------------|----------|
| Belgium: | 0 |
| Germany: | 0 |
| Spain: | 2 |
| France: | 0 |
| Italy: | 0 |
| The Netherlands: | 0 |
| United Kingdom: | 0 |
| World total: | 8 |
| www.info.fsc.org | |

GOMBÉ

(*Didelotia* spp.)

| SCIENTIFIC SPECIES DATA | | IUCN: | CITES: |
|----------------------------------|---|-----------------|------------|
| Scientific name(s): | - <i>Didelotia africana</i> | Not Evaluated | Not listed |
| | - <i>Didelotia idae</i> | Near Threatened | Not listed |
| | - <i>Didelotia letouzeyi</i> | Not Evaluated | Not listed |
| | - <i>Didelotia brevipaniculata</i> | Not Evaluated | Not listed |
| Family: | Fabaceae-Caesalpinioideae (Angiosperm) | | |
| Origin: | West Africa | | |
| ATIBT Pilot Name: | Gombé | | |
| Local and common name(s): | Angok (Ghana) - Bondu (Liberia) - Broutou (Côte d'Ivoire) - Ekop-Gombé (Cameroon) - Gombé (Cameroon) - Timba (Sierra Leone) - Toubaouaté (Côte d'Ivoire) - Tow (Gabon) - 代德苏木 (China) | | |
| Commercial restrictions: | No restriction | | |



| TECHNICAL SPECIFICATIONS | |
|--------------------------------------|--|
| Typical Color: | Orange to yellow - The heartwood is orange pink, sometimes with greenish-brown veins |
| Durability: | Funghi - Class 5 - Not durable (According to E.N. standards) |
| Specific Gravity (at 12% MC): | ~640 kg/m3 (+/- 5) |
| Stability: | Moderately stable |
| Static bending strength: | ~90 MPa (+/- 12) |
| Peeling: | Good |
| Nailing/screwing: | Good |
| Gluing: | Correct |
| Typical Uses: | Veneer for interior of plywood - Sliced veneer - Boxes and crates - Interior panelling - Current furniture or furniture components - Light carpentry - Vehicle or container flooring - Veneer for back or face of plywood - Formwork - Interior joinery - Exterior joinery - Seats - Wood frame house - Table tops - Shutters - Door and door frames - Formwork - Mouldling - Coffins - Stairs |
| Possible proxy for: | Okumé - Meranti |



Figure 15 - Technical properties of Kosipo (CIRAD, 2020). Gombé compared with the relevant proxy species Okoumé and Meranti.

FINDINGS

Gombe is comparable to Okoumé. This is because it has a comparable durability and stability, making it suitable for indoor purposes. Gombe is currently in use class one, which indicates that it does not work well in damp conditions.

Existing FSC-COC certificates for Gombe show that there is active trade in Europe, however this is limited (FSC, 2021).

Various institutions are currently researching Gombe, as if it were a newly discovered species. Drying, dimensional stability, KOMO certification, fire safety, durability and density will be identified and will provide information about European market requirements to allow market access. This initiative is driven by Emmanuel Groutel, director at CBG. He also stressed that other forest operators in the Congo Basin are starting to harvest Gombe as well, indicating that a production market is under development.

Gombe is easy to work with, it does not have specific complexities except that during painting, a filler might be in place to obtain a smooth surface. It is possible to use Gombe for decorative veneering and it is possible to treat the wood with preservatives if needed. (Plantuse, 2019)

Interviews with experts indicate that Gombe has relatively high amount of sapwood which has a low quality, this unfortunately affects yields and is used as biomass to generate energy for the sawmill.

Target applications for promotion could be: Plywood, veneer, Formwork, Door and door frames, Interior joinery

REFERENCES:

- Nomenclature générale des bois tropicaux, 7e édition, 2016 - ATIBT
- Technical descriptions from the software Tropix 7- CIRAD
- The IUCN Red List of Threatened Species
- Catalogue of Life
- WALE - Wood & Logistics Expert (Emmanuel Groutel) - Fact sheet on Gombé - www.gombé.com



Picture 5: Light carpentry made by WALE - Wood & Logistics Expert.

Valid FSC-certificates for this species

Number of FSC-CoC-certificates in main markets with Gombé as part of the certification scope.

| | |
|---------------------|-----------|
| Belgium: | 4 |
| Germany: | 3 |
| Spain: | 3 |
| France: | 2 |
| Italy: | 23 |
| The Netherlands: | 4 |
| United Kingdom: | 2 |
| World total: | 94 |
| www.info.fsc.org | |

OZIGO

(*Dacryodes buettneri*)

| SCIENTIFIC SPECIES DATA | | IUCN: | CITES: |
|----------------------------------|---|---------------|------------|
| Scientific name(s): | <i>Dacryodes buettneri</i> | Not Evaluated | Not listed |
| Family: | Burseraceae (angiosperm) | | |
| Origin: | West Africa | | |
| ATIBT Pilot Name: | Ozigo | | |
| Local and common name(s): | Assas (Cameroon) - Assia (Gabon & Equatorial Guinea) - Ozigo (Gabon) - 中非蜡烛木 (China) | | |
| Commercial restrictions: | No restriction | | |

| TECHNICAL SPECIFICATIONS | |
|--------------------------------------|---|
| Typical Color: | Light brown to pinkish white |
| Durability: | Funghi - Class 5 - Not durable (According to E.N. standards) |
| Specific Gravity (at 12% MC): | ~590 kg/m3 (+/- 5) |
| Stability: | Stable |
| Static bending strength: | ~91 MPa (+/- 11) |
| Peeling: | Good |
| Nailing/screwing: | Good |
| Gluing: | Correct |
| Typical Uses: | Window frames - Veneer for plywood (core and f/b) - Interior joinery - Boxes and crates - Stairs (interior) - Current furniture or furniture components - Interior panelling - Flooring |
| Possible proxy for: | Okoumé |

FINDINGS

Ozigo, is a species for indoor use, although not in damp conditions. However, according to pre-existing research, Ozigo has a durability class 1. Ozigo is specified in the same use class as Okoumé. Ozigo has similar properties as Okoumé, however it is significantly more stable.

Unfortunately, there is no existing trade with Ozigo in European importing countries. FSC-COC certificate database show 0 results of companies that have this species in their product scope.

According to experts, Ozigo is a species that has a long history in local markets, it is mostly used for veneering. The reason it has not been exported to Europe has to do with local ecology and politics; Ozigo's fruits are important to animals and local communities.

For this reason, local governments have placed an export ban on the species. Due to developments in the scientific community around ozigo, governments are considering lifting the export ban of Ozigo, this can be very interesting for the trade since the availability of Ozigo throughout the Congo Basin is high. Due to this same reason Ozigo has not been extensively tested and is lacking strength grading. As Ozigo has not been exported to Europe for a long time, it has not been tested to European standards.

Target applications for promotion could be: Plywood, veneering

| REFERENCES: | |
|--|--|
| Nomenclature générale des bois tropicaux, 7e édition, 2016 - ATIBT | |
| Technical descriptions from the software Tropix 7 - CIRAD | |
| The IUCN Red List of Threatened Species | |
| Catalogue of Life | |

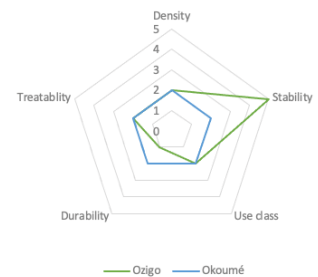
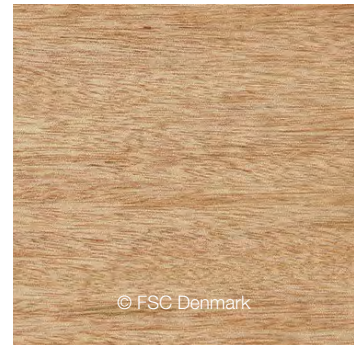


Figure 16 - Technical properties of Kosipo (CIRAD, 2020). Ozigo compared with the relevant proxy species Okoumé.



Lesser known species often lacks reference cases for further promotion.

| Valid FSC-certificates for this species | |
|---|----------|
| Number of FSC-CoC-certificates in main markets with Ozigo as part of the certification scope. | |
| Belgium: | 0 |
| Germany: | 0 |
| Spain: | 0 |
| France: | 0 |
| Italy: | 0 |
| The Netherlands: | 0 |
| United Kingdom: | 0 |
| World total: | 0 |
| www.info.fsc.org | |

OLON

Zanthoxylum heitzii

| SCIENTIFIC SPECIES DATA | | IUCN: | CITES: |
|----------------------------------|---|---------------|------------|
| Scientific name(s): | <i>Zanthoxylum heitzii</i> | Least concern | Not listed |
| Family: | Rutaceae (Angiosperm) | | |
| Origin: | West Africa | | |
| ATIBT Pilot Name: | Olon | | |
| Local and common name(s): | Bongo (Cameroon) - Olon (Gabon) - Kamasumu (Democratic Republic of the Congo) - M'banza (Republic of the Congo) - Olong (Equatorial Guinea) - 软崖椒 (China) | | |
| Commercial restrictions: | No restriction | | |



© FSC Denmark

| TECHNICAL SPECIFICATIONS | |
|--------------------------------------|--|
| Typical Color: | Light Yellow to greenish yellow |
| Durability: | Funghi - Class 3 - Moderately durable (According to E.N. standards) |
| Specific Gravity (at 12% MC): | ~520 kg/m3 (+/- 5) |
| Stability: | Moderately stable |
| Static bending strength: | ~72 MPa (+/- 13) |
| Peeling: | Good |
| Nailing/screwing: | Good |
| Gluing: | Correct |
| Typical Uses: | Veneer for interior of plywood – Moulding - Interior joinery - Boxes and crates – Blockboard - Light carpentry - Glued laminated - Veneer for back or face of plywood - Interior paneling - Current furniture or furniture components – Formwork - Fiber or particle boards - Wood frame house - Sliced veneer |
| Possible proxy for: | Okumé |

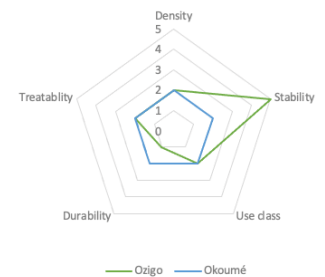


Figure 17 - Technical properties of Kosipo (CIRAD, 2020). Olon compared with the relevant proxy species Okoumé.

FINDINGS

Olon is a light species for indoor uses, therefore it is comparable to Okoumé. Although, it is more durable, more stable and better treatable.

There are just two companies that are FSC-COC certified to trade with Olon sustainably in the European importing countries. This means Olon should be available in Europe, probably in small amounts, and trade should be developed from there.

According to producers, Olon has great potential because it has small amounts of sapwood and considering the limited amount of light timber species in Africa it is quite interesting. There have been tests with sawing, drying and gluing, the results were quite satisfactory. Olon is considered a good species for the plywood industry. Finally, Olon is not tested on KOMO, Euroclass nor CE Strength. Olon is relatively stable, which could show potential for thermal modification.

Target applications for promotion could be: Plywood, veneering



Lesser known species often lacks reference cases for further promotion.

REFERENCES:

Nomenclature générale des bois tropicaux, 7e édition, 2016 - ATIBT
 Technical descriptions from the software Tropix 7 - CIRAD
 The IUCN Red List of Threatened Species

Valid FSC-certificates for this species

Number of FSC-CoC-certificates in main markets with Olon as part of the certification scope.

| | |
|---------------------|-----------|
| Belgium: | 1 |
| Germany: | 0 |
| Spain: | 0 |
| France: | 1 |
| Italy: | 0 |
| The Netherlands: | 0 |
| United Kingdom: | 0 |
| World total: | 21 |
| www.info.fsc.org | |

OKAN

(*Cylicodiscus gabunensis*)

| SCIENTIFIC SPECIES DATA | | IUCN: | CITES: |
|----------------------------------|--|---------------|------------|
| Scientific name(s): | <i>Cylicodiscus gabunensis</i> | Not Evaluated | Not listed |
| Family: | Fabaceae-Mimosoideae (Angiosperm) | | |
| Origin: | West Africa | | |
| ATIBT Pilot Name: | Okan | | |
| Local and common name(s): | Adoum (Cameroon) - Bokoka (Cameroon) - African Greenheart (Cameroon) - N' Duma (Republic of the Congo) - Bouemon (Côte d'Ivoire) - Oduma (Gabon) - Edoum (Gabon) - Benya (Ghana) - Adadua (Ghana) - Denya (Ghana) - Okan (Nigeria) - 加蓬圆盘豆 (China) | | |
| Commercial restrictions: | No restriction | | |



© FSC Denmark

| TECHNICAL SPECIFICATIONS | |
|--------------------------------------|--|
| Typical Color: | Orange to yellow - The heartwood is orange pink, sometimes with greenish-brown veins |
| Durability: | Funghi - Class 1 - Very durable (According to E.N. standards) |
| Specific Gravity (at 12% MC): | ~910 kg/m3 (+/- 10) |
| Stability: | Moderately stable |
| Static bending strength: | ~134 MPa (+/- 2) |
| Peeling: | Not recommended |
| Nailing/screwing: | Good - but pre-boring is recommended |
| Gluing: | Correct |
| Typical Uses: | Hydraulic works (seawater) – Sleepers - Heavy carpentry – Sculpture - Bridges (Parts in contact with water - or ground) – Flooring – Poles - Industrial or heavy flooring - Vehicle or container flooring - Turned goods - Bridges (Parts not in contact with water or ground) - Decking |
| Possible proxy for: | Azobé - Bilinga - Angelim Vermelho |

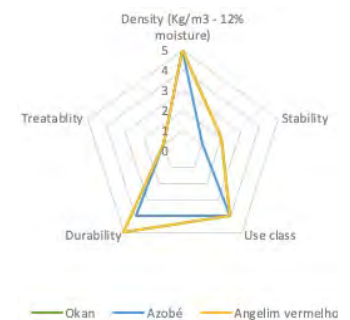


Figure 18 - Technical properties of Kosipo (CIRAD, 2020). Okan compared with the relevant proxy species Azobé and Angelim Vermelho.

FINDINGS

According to available data, Okan is performing as good as Angelim Vermelho. Pre-existing research indicate that it is even more durable and stable than Azobé, although in practice, opinions of professionals are not fully agreeing with this statement.

Okan is already accepted by the Dutch market where various companies are FSC-COC certified to trade with Okan sustainably. Okan is available in other European countries although limited companies are trading it.

Okan primarily is used in heavy constructions and waterworks as a proxy for Azobé, however in practice it is considered less stable than Azobé with more cracks and deformations.

An example of Okan in action is the the "One world" bridge constructed in 2014 for the 10th anniversary of the major music festival Tomorrowland (picture 6) in Belgium it is both a bridge and a work of art made by the Belgian artist Arne Quinze. (Denis decaluwe, 2014)

A possible solution that may allow Okan to be used in larger dimensions, is to laminate the timber to create a more stable species. In this way it could possibly be applied in heavy constructions as well (i.e., bridges and walkways). Some people even consider Okan having a nicer look than Azobé.

Okan is tested on strength, according to the EU standards Okan has the strength grade D34 or D40 depending on where it comes from and the quality of the timber.

Target applications for promotion could be: Heavy constructions, heavy decking, waterworks, Railway sleepers

REFERENCES:

Nomenclature générale des bois tropicaux, 7e édition, 2016 - ATIBT
 Technical descriptions from the software Tropix 7- CIRAD
 The IUCN Red List of Threatened Species
 Catalogue of Life



© Arne Quinze

Picture 6: The "One world" bridge constructed for the 2014 Tomorrowland music festival in Belgium is both a bridge and a work of art made by the Belgian artist Arne Quinze. 200.000 wooden planks of Okan is used.

Valid FSC-certificates for this species

Number of FSC-CoC-certificates in main markets with Okan as part of the certification scope.

| | |
|---------------------|------------|
| Belgium: | 14 |
| Germany: | 10 |
| Spain: | 12 |
| France: | 11 |
| Italy: | 25 |
| The Netherlands: | 102 |
| United Kingdom: | 8 |
| World total: | 302 |

www.info.fsc.org

LIMBA / FRAKÉ

(*Terminalia superba*)

| SCIENTIFIC SPECIES DATA | | IUCN: | CITES: |
|----------------------------------|--|---------------|------------|
| Scientific name(s): | <i>Terminalia superba</i> | Not Evaluated | Not listed |
| Family: | Combretaceae (Angiosperm) | | |
| Origin: | West Africa | | |
| ATIBT Pilot Name: | Limba | | |
| Local and common name(s): | Azinii (Benin) - Akom (Cameroon, Equatorial Guinea, Gabon) - N'ganga (Central African Republic) - Fraké (Côte d'Ivoire) - Limba (Rep. of the Congo, DR of the Congo) Noyer Du Mayombe (France) - Ofram (Ghana) - Afara (Nigeria) - White Afara (Nigeria) - Kojagei (Sierra Leone) Korina (United States of America) - 艳丽榄仁 (China) | | |
| Commercial restrictions: | No restriction | | |



© FSC Denmark

| TECHNICAL SPECIFICATIONS | |
|--------------------------------------|--|
| Typical Color: | Light yellow |
| Durability: | Funghi - Class 4 - Poorly durable (According to E.N. standards) |
| Specific Gravity (at 12% MC): | ~540 kg/m ³ (+/- 7) |
| Stability: | Moderately stable |
| Static bending strength: | ~80 MPa (+/- 16) |
| Peeling: | Good |
| Nailing/screwing: | Good |
| Gluing: | Correct |
| Typical Uses: | Veneer for interior of plywood - Blockboard - Seats - Interior panelling - Light carpentry - Wood frame house - Fiber or particle boards - Sliced veneer - Veneer for back or face of plywood - Current furniture or furniture components - Interior joinery - Moulding - Glued laminated - Boxes and crates - Wood-ware |
| Possible proxy for: | Okoumé - Ayous |

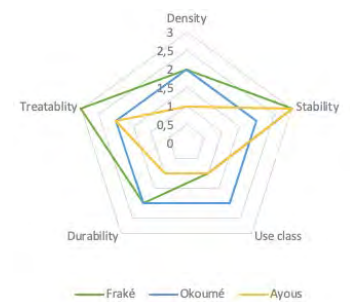


Figure 19- Technical properties of Kosipo (CIRAD, 2020). Limba / Fraké compared with the relevant proxy species Okoumé and Ayous.

FINDINGS

Fraké/ Limba, is already popular in thermally modified purposes, although the data in this study is based on natural Limba. Natural Limba is a proxy for Okoumé, because of its similar durability and stability.

Fraké and Ayous are both used in thermally modified applications which make them comparable to each other, practice shows they perform well in cladding.

Limba is sustainably traded under FSC-COC certification in Europe by plenty of companies which indicates there are active trade relations dealing in Limba.

Due to the low natural durability of Limba, various companies in Europe chose to thermally modify Limba. This process results in a more durable and a more stable product that is appropriate for outdoor uses. An example of this is the Façade of the Alfriston school in the United Kingdom (Picture 7), where thermally modified timber was applied as cladding (Ecochoice, 2014).

Limba is tested on strength according to the CE standard, it has been classified as D18

Target applications for promotion could be: Plywood, indoor joinery, door frames (indoor)

... and thermally modified: Cladding, doors, decking.



Picture 7: Alfriston School, Buckinghamshire (UK). The outside paneling including the roof is made with thermally modified wood of the species Fraké - also known as Limba.

Valid FSC-certificates for this species

Number of FSC-CoC-certificates in main markets with Limba as part of the certification scope.

| | |
|---------------------|------------|
| Belgium: | 12 |
| Germany: | 47 |
| Spain: | 17 |
| France: | 13 |
| Italy: | 74 |
| The Netherlands: | 91 |
| United Kingdom: | 15 |
| World total: | 886 |
| www.info.fsc.org | |

REFERENCES:

Nomenclature générale des bois tropicaux, 7e édition, 2016 - ATIBT
 Technical descriptions from the software Tropix 7- CIRAD
 Catalogue of Life