



Promoting Lesser Known Species Harvesting, Industrialization and Marketing to Support Sustainable Forest Management in the Peruvian Amazon

Project #: 527-A-00-02-0013-00 Amendment

Reporting Period: Jan – Mar 2003 (1st report)

I. SUMMARY

A. Introduction

Work plan strategies and final clarifications in contracts and responsibilities have been determined among the co-executors of this project (WWF PPO, EXPORTIMO/South Cone Trading Company and Magensa furniture manufacturer of Lima). The initial months of this project have subsequently been utilized to make advancements in the knowledge collection phase of lesser known tree species in the Peruvian Amazon and in the analysis of national market preferences for wood products.

Extensive data tables have been created in order to categorize the characteristics of tree species and pinpoint which ones may have potential in the wood products market that, to this point, remain relatively unstudied.

Statistical collection from pertinent sources concerning timber harvests and national trade have begun and are being organized for analysis. A northern corridor and southern corridor for national trade and market preference characteristics have been defined and are under analysis.

B. Highlights

- An extensive technical report has been completed about the potential volumes and abundance of lesser known species by region and forest type. This report also contains the results of studies carried out on dendrological, anatomical and mechanical characteristics of selected lesser known species.
- A study and report of the characterization of the national wood products markets of Peru are near completion. In the north, production outputs from the department of San Martin and its main markets in Piura, Chiclayo and Trujillo have been analyzed. In the south, production outputs from the department of Madre de Dios and its main market corridor which includes Cusco, Puno and Arequipa have also been examined. Studies of the central trade corridor originating in the department of Ucayali are now underway.

C. Activity Status

#	ACTIVITIES	STATUS	RESPONSIBLE
A. On-the-Ground Technology			
A1	Identify volumes and abundance of species groups in selected forest areas in the departments of Madre de Dios, Ucayali and San Martin	ON-TRACK	WWF PPO
A2	Analyze and create an information system about wood harvest and transformation	ON-TRACK	WWF PPO
B. Knowledge			
B1	Analyze preference criteria for wood products in selected international and national markets	ON-TRACK	WWF PPO EXPORTIMO
B2	Analyze, prioritize and select groups of lesser known species with potential market appeal	ON-TRACK	WWF PPO EXPORTIMO MAGENSA
B3	Complete studies of dendrological, anatomical and technological characteristics of selected lesser known species	ON-TRACK	EXPORTIMO MAGENSA
B4	Development of standards for quality control and forest certification with selected lesser known species	TO BE INITIATED	WWF PPO EXPORTIMO MAGENSA

C. Species Promotion			
C1	Work with local forest micro-enterprises to promote selected lesser known species	TO BE INITIATED	WWF PPO EXPORTIMO MAGENSA
C2	Offer training to support Peruvian enterprises in harvest, transformation and commercialization of selected lesser known species	TO BE INITIATED	WWF PPO EXPORTIMO MAGENSA
C3	Develop and promote a marketing strategy at the international level	TO BE INITIATED	WWF PPO EXPORTIMO
C4	Promotion of a national marketing strategy	TO BE INITIATED	WWF PPO MAGENSA
D. Partnership Promotion			
D1	Develop a network of national and international wood products organizations with the purpose of facilitating the interchange of information and experience	TO BE INITIATED	WWF PPO

II. DETAILED DESCRIPTION OF PROGRESS

A. Key short and long term program objectives

The widespread extraction of big-leafed mahogany and a few other key species by an informal forest sector motivated by the promise of short term, unsustainable economic gains has created a major threat to the forests of the Peruvian Amazon. With the removal of these trees of high value and no incentive to manage the remaining area, the forest lacks economic value and becomes nothing more than a nuisance to resource-poor farmers. This lack of incentive for sustainable forest management together with the infrastructure laid in place by the removal of mahogany frequently results in the clearance of large tracts of forest. The remaining forests contain a large variety of timber species that are not well known in national and international markets, but, after preliminary studies and analysis, have proven to hold considerable economic potential. Finding markets to justify the harvesting of these lesser known species to increase the profitability per hectare of forests is a key step towards ensuring viability of the forest sector and will in turn safeguard the sustainability of timber and other environmental products and services.

During the initial stages of this project the main objective is to gather and consolidate information that is already available in various forms and through various sources concerning lesser known tree species that may have potential in the wood products industry. Each species must be categorized and evaluated by a variety of criteria to determine strengths and weaknesses and general characteristics. Comparative analysis with proven market attributes is an essential step in the selection process of the hundreds of species.

B. Activities descriptions and benchmark advances

1. Identify volumes and abundance of species groups in selected forest areas in the departments of Madre de Dios, Ucayali and San Martin

Benchmark Activities

Description	Product	Responsible	Status
Technical report about the potential volume of lesser known species by region and forest type (at least the 15 most abundant species)	Technical Report	WWF	Completed (see Annex 1 for sample of tables)
Workshops with concessionaires, community and business reps to provide assistance in identification of lesser known species with potential commercial value	Technical Report	WWF	On-track (begins in April 03)

2. Analyze and create an information system about wood harvest and transformation.

Benchmark Activities

Description	Product	Responsible	Status
Interview concessionaires and forest engineers in the field to collect information about forest products yields and transformation, and understand critical points	Technical Report	WWF	On-track (began in March 03)
Create a document with the results which includes proposals for best practices	Technical Report	WWF	On-track (begins in June 03)

3. Analyze preference criteria for wood products in selected international and national markets

Benchmark Activities

Description	Product	Responsible	Status
Identify and characterize international markets (U.S. and others)	Report on the identification and characterization of at least two markets	EXPORTIMO	On-track (Begins in April 03)

Characterization of national markets	Report	WWF	On-track (2/3 finished)
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4. Analyze, prioritize and select groups of lesser known species with potential market appeal.

Benchmark Activities

Description	Product	Responsible	Status
Revise and analyze dendrological, anatomical and mechanical studies of lesser known species	Technical Report	WWF	Completed (see Annex 2 for sample of tables)
Analyze, prioritize and select criteria to group selected lesser known species under commercial names for market promotion	Technical Report of a minimum of two groups	EXPORTIMO	On-track (Begin April 03)
Workshops with concessionaires, community and business reps to provide assistance in identification of lesser known species with potential commercial value	Workshop reports	EXPORTIMO WWF	On-track (begins in April 03)

5. Complete studies of dendrological, anatomical and technological characteristics of selected lesser known species.

Benchmark Activities

Description	Product	Responsible	Status
Complete anatomical, dendrological and mechanical studies of selected lesser known species in coordination with the U.S. Forest Service	Technical Report of complimentary studies	EXPORTIMO	On-track (Began in April 03)
Complete tests for finished furniture and other products made from selected lesser known species in coordination with the U.S. Forest Service	Technical Report	EXPORTIMO	On-track (begins in April 03)
Develop industrial processing tests of lesser known species (drying, durability, workability, finishing, and others)	Technical Report	EXPORTIMO Magensa	On-track (Begins in April 03)

6. Development of standards for quality control and forest certification with selected lesser known species.

Benchmark Activities

Description	Product	Responsible	Status
Develop quality control standards and indicators for the different phases of the chain of production (harvest and transformation)	Technical Report on quality standards	EXPORTIMO, Magensa, WWF	On-track (begins in April 03)
Regional workshops in concepts and methodologies quality control in harvest and transformation	Report of three workshops and methodology	EXPORTIMO, Magensa, WWF	On-track (begins Jan 04)

7. Develop and distribute at the national and international levels technical documents about selected lesser known species.

Benchmark Activities

Description	Product	Responsible	Status
Develop technical documents with quality standards based on anatomical, dendrological and mechanical characteristics of selected lesser known species	Technical files for groups of species	EXPORTIMO, Magensa	On-track (to begin in Aug 03)
Develop a promotional catalogue with technical documents about the selected lesser known species and translate it to English for distribution in markets in the United States and other countries	Promotional catalogue (5,000 copies)	EXPORTIMO	On-track (to begin Dec 03)
Distribute a relevant document (report of the final results) for the Lima market and importers	Report of supported distribution (1000 copies)	Magensa	On-track (to begin Dec 03)

8. Work with local forest micro-enterprises to promote selected lesser known species.

Benchmark Activities

Description	Product	Responsible	Status
Offer local workshops to concessionaires, wood products specialists and communities about the economic value of lesser known species	Report of 3 workshops	EXPORTIMO, Magensa, WWF	On-track (to begin Nov 03)
Produce informational material(brochures, posters,etc.)for each of the selected species to distribute to national and international buyers	Informational material (5000 of each type)	EXPORTIMO. Magensa	On-track (to begin Dec 03)

9. Offer training to support Peruvian enterprises in harvest, transformation and commercialization of selected lesser known species.

Benchmark Activities

Description	Product	Responsible	Status
Develop a training plan for concessionaires and wood products specialists about harvest, transformation and commercialization of selected lesser known species	Training plan	WWF, selected NGO	On-track (begins in April 03)
Support the formation of a national group of forest products producers that will facilitate the access of concessionaires to the export industry of Lima	Report about group formation	EXPORTIMO, Magensa, WWF, NGO	On-track (begins in Aug 03)

10. Develop and promote a marketing strategy at the international level.

Benchmark Activities

Description	Product	Responsible	Status
Develop informational articles for specialized magazines and other international media about the characteristics, potential uses and advantages of selling products made from lesser known species	2 international magazines and bimonthly publications for 6 months	EXPORTIMO	On-track (begins in Dec 03)
Prepare and publish a web page presenting photos and descriptions of selected lesser known species	Web page publication	EXPORTIMO, WWF	On-track (begins in June 03)
Participate in international conventions to promote business between the forest concessionaires and U.S. importers	Report of participation in 2 conventions	EXPORTIMO, WWF	On-track (begins in Jan 04)
Create promotional material of products made with selected lesser known species and distribute to the U.S. embassy and others	Promotional material distributed to 10 embassies	EXPORTIMO	On-track (begins in Dec 03)
Have business meetings with export companies to inform them of the preferences of the international market to buy wood products from managed forests	Reports of 2 business meetings	EXPORTIMO	On-track (begins in Jan 04)

11. Promotion of a national marketing strategy.

Benchmark Activities

Description	Product	Responsible	Status
Develop informational material focusing on the market of Lima about selected lesser known species	5,000 brochures 2,000 leaflets	Magensa	On-track (begins in Nov 03)
Transmit radio spots directed at furniture manufacturers and the general public in Lima about utilizing selected lesser known species	3 daily spots for 6 months	Magensa	On-track (begins in Dec 03)
Prepare and publish a web page with photos and descriptions of selected lesser known species	Web page with a minimum of 2 pages	Magensa, WWF	On-track (begins in Jan 04)
Develop articles for national magazines about characteristics, uses and advantages of selected lesser known species	2 magazine articles	Magensa	On-track (begins in Jan 04)

12. Develop a network of national and international wood products organizations with the purpose of facilitating the interchange of information and experience.

Benchmark Activities

Description	Product	Responsible	Status
Convoke an international meeting about the development of lesser known wood species in cooperation with CADEFOR (<i>Centro Amazonico de Desarrollo Forestal</i>) of Bolivia and the U.S. Forest Service	Report	WWF	On-track (date to be decided)
Promote a formal agreement between Peruvian wood products enterprises and the U.S. Forest Service	Formal Agreement	WWF	On-track (date to be decided)
Form association between the World Timber Institute to certify technical documents that have been developed from selected lesser known species	Convent	WWF	On-track (date to be decided)
Promote an association between Peruvian exporters and furniture manufacturers like EXPORTIMO/South Cone Trading Company and Magensa as a pilot plan with the private sector to achieve objectives of the project	Alliances	WWF	On-track (date to be decided)

Annex 1

ABUNDANCE OF FOREST SPECIES IN THE PERUVIAN AMAZON

No.	Nombre común	Nombre científico	Región MDD	Región PUC	Proy-ITTO
			Vol (m3/Ha)	Vol (m3/Ha)	Vol (m3/Ha)
			*	**	***
1	Achihua		0.0097		0.9838
2	Achiote	<i>Bixa orellana</i>			2.3258
3	Aguano pashaco			0.0016	
4	Aguano masha	<i>Paramachaerium ormosioides</i>		0.0051	
5	Ajosquiro				0.5947
6	Almendro	<i>Caryocar sp.</i>			0.6400
7	Amasisa				1.0306
8	Ana Caspi	<i>Apuleia leiocarpa</i>	0.0267	0.0004	1.0888
9	Andiroba	<i>Carapa guianensis</i>			0.8667
10	Apacharama	<i>Licania elata</i>		0.0009	0.4133
11	Ayahuma	<i>Couroupita sp</i>		0.0049	
12	Azucar huayo	<i>Hymenaea oblongifolia</i>	0.0509		0.8738
13	Caimitillo	<i>Pouteria sp.</i>		0.0315	1.1100
14	Caimito	<i>Pouteria sp.</i>			2.0702
15	Caimito amarillo	<i>Pouteria sp.</i>			0.9781
16	Camu camu	<i>Myrciaria paraensis</i>			0.2200
17	Canilla de vieja				0.5275
18	Caoba	<i>Swietenia macrophylla</i>	0.0724	0.0988	
19	Capinuri	<i>Clarisia biflora</i>			6.7933
20	Capirona	<i>Calyciphylum sp.</i>		0.3547	4.5683
21	Carahuasca	<i>Sapium marmieri</i>			1.7316
22	Cashimbo	<i>Cariniana sp</i>		0.1656	
23	Castaña				3.9879
24	Catahua	<i>Hura crepitans</i>	0.1453	0.3240	4.7172
25	Caucho	<i>Sapium Marmieri</i>			1.9198
26	Caupuri			0.0303	
27	Cedro	<i>Cedrela sp.</i>	0.0581	0.1437	0.2233
28	Cedro Masha			0.0003	
29	Cetico	<i>Cecropia sp.</i>			2.3816
30	Chimicua	<i>Perebea chimicua</i>			2.6702
31	Chontaquiro	<i>Diplorhynchis sp.</i>		0.0009	0.7933
32	Chuchuhuasi	<i>Heisteria palida</i>			0.5683
33	Coloradillo				0.5231
34	Copaiba	<i>Copaifera officinalis</i>	0.0129	0.1434	
35	Copal	<i>Protium sp.</i>	0.0025	0.0002	0.7283
36	Cormillon	<i>Manilcara sp.</i>			0.1767
37	Cormiñon			0.0004	
38	Cuchara caspi	<i>Malouetia sp</i>			0.1033
39	Cumala	<i>Virola sp.</i>	0.0618	0.2116	3.5356

40	Cumala colorada	<i>Virola sp.</i>	0.0009		1.9001
41	Espintana	<i>Anaxagorea sp.</i>			2.4967
42	Estoraque	<i>Myroxylon balsamum</i>	0.0021	0.0026	0.8729
43	Guacamayo caspi				1.4961
44	Hualaja	<i>Zantoxylum sp</i>			0.7767
45	Huamansamana	<i>Jacaranda copaiba</i>			0.3133
46	Huangana	<i>Lucuma sp.</i>			0.4133
47	Huanganacasha			0.0079	
48	Huarmi caspi	<i>Cordia sp.</i>			0.5833
49	Huayruro	<i>Ormosia sp.</i>		0.0737	0.3567
50	Huimba	<i>Ceiba sp.</i>		0.0067	1.4033
51	Icoja	<i>Unonopsis floribunda</i>			0.2700
52	Incapacae	<i>Inga sp</i>	0.0009		
53	Ishpingo	<i>Amburana cearensis</i>	0.0134	0.0966	1.2265
54	Isigo				2.2915
55	Itauba				0.7743
56	Lagarto		0.0133	0.0278	
57	Lagarto Caspi	<i>Calophyllum brasiliensis</i>			0.1800
58	Laurel	<i>Ocotea veraguensis</i>	0.0024		
59	Leche leche				0.7654
60	Limoncillo				0.9235
61	Lupuna	<i>Chorisia integrifolia</i>	0.0710	0.5488	4.3109
62	Lupuna blanca		0.0072		
63	Lupuna colorada		0.0014		1.5591
64	Lupunilla				0.0000
65	Machimango	<i>Eschweilera sp.</i>		0.0276	5.9967
66	Manchinga	<i>Brosinum sp.</i>		0.0014	5.0343
67	Maria buena	<i>Lonchocarpus sp.</i>			0.7767
68	Marupa	Simarouba amara		0.0200	
69	Mashonaste	<i>Clarisia racemosa</i>		0.0018	2.2226
70	Matapalo	<i>Ficus schultessii</i>	0.0099		
71	Mauba	<i>Clinostemon sp.</i>			0.8633
72	Misa	<i>Couratari sp</i>	0.0172		1.3532
73	Moena	<i>Aniba sp.</i>	0.0400	0.1624	1.9174
74	Moena amarilla	<i>Nectandra sp.</i>			1.4550
75	Moena negra	<i>Aniba sp.</i>			0.7055
76	Motelo micuna	<i>Coussarea tenuiflora</i>			0.1800
77	Naranjilla		0.0013		
78	Ochabaja	<i>Sterculia sp.</i>			0.8367
79	Oje	<i>Ficus sp</i>	0.0031		
80	Palo aceituna				0.4904
81	Palo de agua				0.8413
82	Palo malecón				0.6226
83	Palo Sangre	<i>Brosinum sp.</i>			0.0467
84	Palo santo				0.7284
85	Palo santo negro				0.9772
86	Palta Moena			0.0007	

87	Pama				0.9113
88	Parinari	<i>Heisteria sp.</i>			0.3733
89	Pashaco	<i>Schizolobium sp.</i>	0.0561	0.0561	3.1991
90	Pashaco colorado	<i>Schizolobium sp.</i>			2.1515
91	Pashaco espinado	<i>Schizolobium sp.</i>			1.0059
92	Paujil ruro	<i>Pterigota amazonica</i>			0.4100
93	Peine de mono	<i>Apeiba membranacea</i>			3.1459
94	Pino amarillo	<i>Alseis</i>			1.1300
95	Pumaquiro	<i>Aspidosperma macrocarpon</i>	0.0059	0.0492	
96	Punga	<i>Eriotheca sp</i>			0.1500
97	Quillobordon	<i>Aspidosperma vargasii</i>	0.0056	0.0028	
98	Quillocaspi			0.0006	
99	Quina quina	<i>Pouteria sp.</i>		0.0260	2.6841
100	Quinilla	<i>Manilkara bidentata</i>	0.0483	0.3827	3.3170
101	Quinilla colorada	<i>Manilkara sp</i>			1.6628
102	Renaco	<i>Ficus sp.</i>			2.4000
103	Requia	<i>Guarea trichiloides</i>	0.0008	0.0262	0.2467
104	Sacha requia				0.5128
105	Sapote	<i>Matisia cordata</i>		0.0002	2.0264
106	Shihuahuaco	<i>Dypterix micrantha</i>	0.2349	0.0634	5.9425
107	Shimbillo	<i>Inga sp.</i>			5.7087
108	Shimbillo colorado	<i>Inga sp.</i>			0.9144
109	Shiringa	<i>Hevea sp.</i>			2.2061
110	Tahuari	<i>Tabebuia sp.</i>	0.0212		1.0749
111	Tamamuri	<i>Ogcoidea sp.</i>			2.5652
112	Tamara	<i>Crataeva tapia</i>			0.1150
113	Tornillo	<i>Cedrelinga catenaeformis</i>	1.2906	0.4418	3.4267
114	Tortuga	<i>Douguetia sp</i>			0.4533
115	Tortuga	<i>Casearia sp</i>			0.3733
116	Tushmo	<i>Lucuma sp.</i>			0.1633
117	Ubos	<i>Spondias mombin</i>		0.0005	2.6057
118	Ubos amarillo	<i>Spondias sp.</i>			1.9745
119	Uchumullaca	<i>Trichilia japurensis</i>			0.6983
120	Ushun			0.0005	
121	Utucuro	<i>Septotheca tesmannii</i>		0.0233	0.6467
122	Uvilla	<i>Pouroma sp.</i>			1.1937
123	Yacushapana	<i>Terminalia oblonga</i>		0.0231	3.1593
124	Yutubanco	<i>Heisteria sp.</i>		0.0004	1.6361

*Area inventariada 13,731.57Has de concesiones de MDD

**Area inventariada 18,193.98 Has de concesiones de Pucallpa

***Fuente: Proyecto OIMT PD 37/88 Fase II e INRENA 2003

Identification of Species

No.	Nombre Común	Nombre Científico	Dendrologo	Familia	Nombre Comercial Internacional
1	Aguano masha	Machaerium inundatum	Ducke	Papilionaceae	Aguano Masha
2	Almendo	Caryocar coccineum	Pilger	Caryocaraceae	
3	Almendo ¹	Caryocar glabrum	Aubl. Pers.	Caryocaraceae	
4	Ana Caspi	Apuleia leiocarpa	Macbride	Caesalpiniaceae	Grapia
5	Azucar Huayo	Hymenaea palustris	Ducke	Caesalpiniaceae	Courbaril
6	Bolaina blanca	Guazuma crinita	Mart.	Sterculiaceae	Bolaina blanca
7	Cachimbo	Cariniana domestica	Mart.	Lecythidaceae	Cachimbo
8	Caimito	Pouteria sp.		Sapotaceae	
9	Caoba	Swietenia macrophylla	G. King	Meliaceae	
10	Capirona	Calycophyllum spruceanum	Benth	Rubiaceae	Pau mulato
11	Carahuasca	Guatteria decurrens	R.E.Fries	Annonaceae	
12	Casho Moena	Ocotea sp.	por confirmar	Lauraceae	
13	Catahua Amarilla	Hura crepitans	L	Euphorbiaceae	Assacú
14	Caucho Masha	Sapium marmieri	Huber	Euphorbiaceae	
15	Cedrillo	Vochysia vismiifolia	Spruce	Vochysiaceae	Cedrillo
16	Cedro	Cedrela odorata	L	Meliaceae	
17	Copaiba	Copaifera officinalis	L	Caesalpiniaceae	Copaiba
18	Cumala Blanca	Virola sp.		Myristicaceae	Virola
19	Charihuelo	Rheedia sp.		Guttiferae	
20	Chimicua	Pseudolmedia laevis	(R y P) Macbr	Moraceae	
21	Chontaquiro	Diplostropis martiusii	Benth	Papilionaceae	
22	Diablo fuerte	Podocarpus oleifolius	Don in Lamb	Podocarpaceae	
23	Estoraque	Myroxylon peruiferum	L	Papilionaceae	Bálsamo
24	Eucalipto	Eucalyptus globulus	Labill	Myrtaceae	
25	Higerilla negra	Micranta spruceana	Schulters	Euphorbiaceae	Higerilla negra
26	Huacamayo caspi	Sickingia sp		Rubiaceae	
27	Hualaja	Zanthoxylum sp		Rutaceae	
28	Huairuro	Ormosia coccinea	Jacks	Papilionaceae	
29	Huairuro ¹	Ormosia shunkei	Ludd.	Papilionaceae	
30	Huamanzamana	Jacaranda copaia	Aubl.	Bignoniaceae	
31	Huimba	Ceiba samauma	(Mart.) Schum.	Bombacaceae	
32	Isphingo	Amburana cearencis	(Fr. Allem.) A.C. Smith	Papilionaceae	
33	Lagarto Caspi	Calophyllum brasiliense	Cambers	Guttiferae	Palo maría
34	Lupuna Blanca	Chorisia integrifolia	Ulbr.	Bombacaceae	
35	Machimango blanco	Eschweilera sp.		Lecythidaceae	Mata mata
36	Machin zapote	Matisia bicolor	Ducke	Bombacaceae	
37	Manchinga	Brosimum uleanum	Mildbr.	Moraceae	Charo amarillo
38	Manchinga ¹	Brosimum sp.		Moraceae	
39	Maquisapa ñaccha	Apeiba aspera	Aubl.	Tiliaceae	Peine de mono
40	Maquisapa ñaccha ¹	Apeiba membranacea	Spruce	Tiliaceae	
41	Mari mari	Vatairea guianensis	Aublet	Papilionaceae	Faveira amargosa
42	Marupa	Simarouba amara	Aubl.	Simaroubaceae	

43	Mashonaste (Tulpay)	<i>Clarisia racemosa</i>	R. Y P.	Moraceae	Tulpay
44	Moena Amarilla	<i>Aniba amazonica</i>	(Meis) Mez	Lauraceae	
45	Moena Negra	<i>Nectandra sp.</i>		Lauraceae	
46	Oje renaco	<i>Ficus schultesii</i>	Dugand	Moraceae	Caxinguba
47	Palisangre	<i>Pterocarpus sp.</i>		Papilionaceae	
48	Palosangre amarillo	<i>Pterocarpus sp.</i>		Papilionaceae	
49	Palosangre negro	<i>Pterocarpus sp.</i>		Papilionaceae	
50	Panguana	<i>Brosimum utile</i>	(H.B.K.) Pitt	Moraceae	Sande
51	Pashaco	<i>Albizia sp.</i>		Mimosaceae	
52	Pashaco ¹	<i>Macrolobium acaciaefolium</i>	Benth	Caesalpiniaceae	Arapari
53	Paujil ruro	<i>Pterygota sp.</i>		Sterculiaceae	Paujiruro
54	Pumaquiro	<i>Aspidosperma macrocarpon</i>	Mart.	Apocynaceae	
55	Punga	<i>Bombax paraense</i>	Ducke	Bombacaceae	
56	Quina quina	<i>Lucuma sp.</i>		Sapotaceae	
57	Quinilla colorada	<i>Manilkara bidentata</i>	(A. DC.) A. Chev	Sapotaceae	Balata
58	Requia	<i>Guarea kunthiana</i>	Adr. Juss	Meliaceae	Trompillo
59	Sachavaca micuna	<i>Trophis sp.</i>		Moraceae	
60	Shihuahuaco	<i>Dipteryx micrantha</i>	Harms	Papilionaceae	Cumaru
61	Shiringa	<i>Hevea sp.</i>		Euphorbiaceae	
62	Tahuari	<i>Tabebuia serratifolia</i>	(Vahl.) Nicholson	Bignoniaceae	Tajibo
63	Tamamuri	<i>Ogcodeia sp.</i>		Moraceae	
64	Tornillo	<i>Cedrelinga catenaeformis</i>	Ducke	Mimosaceae	Tornillo
65	Ubos	<i>Spondias mombin</i>	L.	Anacardiaceae	Ubos
66	Uchumullaca	<i>Trichilia sp.</i>		Meliaceae	
67	Ucshaquiro blanco	<i>Sclerobium sp.</i>		Caesalpiniaceae	
68	Yacushapana	<i>Terminalia oblonga</i>	(R y P) Eichler	Combretaceae	Tanimbuca
69	Yanchama	<i>Poulsenia armata</i>	(Miq.) Standl.	Moraceae	Mastate
70	Yutubanco	<i>Heisteria sp.</i>		Olacaceae	
71	Zapote	<i>Matisia cordata</i>	Humb. Et Bonpl.	Bombacaceae	Zapote

Annex 2

PHYSICAL AND MECHANICAL PROPERTIES OF PERUVIAN FOREST SPECIES

No.	Common Name (Spanish)	Physical Properties				Mechanical Properties								
		DB(g/cm3)	Contracción (%)			Flexión Estática			Compresión Paralela		Compresión Perpendicular	Cizallamiento	Dureza	Tenacidad
			RAD	TANG	VOL	EFLP (kg/cm2)	MOR (kg/cm2)	MOE (t/cm2)	EFLP (kg/cm2)	RM (kg/cm2)	EFLP (kg/cm2)	Kg/cm2	Lados (kg/cm2)	Kg-m
1	Aguano masha	0.73	2.71	4.9	7.47		1102	139		574	127	135	1052	5.9
2	Almendro	0.65	4.38	9.61	13.80	409	665	133	248	331	67	94	606	3.6
3	Almendro (1)	0.65	5.51	11.45	15.70	407	687	132	259	320	78	98	583	3.4
4	Ana Caspi	0.70	4.20	6.40	10.60		856	111		453	85	115	118	4.1
5	Azúcar huayo	0.62	3.30	7.30	11.20	550	1300	150	450	700	-	180	-	3.5
6	Bolaina Blanca	0.41	3.50	5.50			507	98		271	51	51	303	1.0
7	Cachimbo	0.59	4.96	7.58	12.10	429	735	131	260	342	66	84	468	3.9
8	Caimito	0.60	4.42	7.18	10.80	483	765	123	364	403	88	110	546	2.8
9	Caoba	0.43	3.17	5.54	8.80	328	524	94	240	292	58	68	298	1.9
10	Capirona	0.76	5.00	9.00	15.00		723	100		283	67	87	425	2.0
11	Carahuasca	0.52	3.91	7.98	11.50	362	620	123	260	328	45	72	375	3.0
12	Casho moena	0.53	3.68	8.68	11.90	378	581	118	278	330	47	76	363	3.0
13	Catahua amarilla	0.41	3.43	5.81	9.00	230	401	68	126	184	28	51	236	2.0
14	Caucho masha	0.40	3.43	6.75	8.90	273	403	94	170	209	31	47	136	1.2
15	Cedrillo	0.59	3.10	6.50				137			68			
16	Cedro	0.52	3.10	7.00	10.50	209	395	72	104	148	33	58	273	1.3
17	Copaiba	0.61	3.43	7.04	10.70	422	736	112	268	359	74	99	587	3.4
18	Cumala blanca	0.45	4.45	9.87	13.40	297	447	106	185	209	37	52	212	0.9
19	Charichuelo	0.60	3.85	12.40	15.40	443	717	124	280	340	69	84	552	4.6
20	Chimicua	0.71	4.78	10.30	14.50	542	898	160	373	452	77	111	761	3.8
21	Chontaquiro	0.74	4.10	6.10	10.60	677	997	148	459	559	115	149	915	2.9
22	Diablo fuerte	0.53	3.22	6.15	9.00	366	580	99	251	302	57	86	425	2.8

23	Estoraque	0.78	4.16	6.52	9.97	889	1340	175	622	714	130	163	1143	6.6
24	Eucalipto	0.57	6.90	16.10	22.40	384	678	122	232	305	50	91	571	4.9
25	Higuerilla Nerga	0.40	3.43	6.75	8.92		403	94		209	31	47	136	3.5
26	Huacamayo caspi	0.65	4.00	9.90	13.00	492	829	131	321	328	90	104	670	4.6
27	Hualaja	0.47	4.29	7.98	11.40	345	551	97	261	299	57	73	361	2.2
28	Huairuro	0.61	3.19	6.30	9.40	543	838	136	361	443	71	105	650	3.7
29	Huairuro (1)	0.57	3.70	7.94	10.50	435	706	122	291	279	68	85	561	3.1
30	Huamanzamana	0.31	5.40	8.20	13.90			89		313	31	61	192	2.9
31	Huimba	0.57	4.35	7.70	11.60	383	582	105	232	287	42	71	374	2.2
32	Ishpingo	0.43	2.30	4.10	7.60	571	739	94	308	421	78	52	358	1.4
33	Lagarto caspi	0.51	4.80	7.10	12.30	389	734	111	213	319	62	88	403	2.3
34	Lupuna blanca	0.28	3.10	9.01	10.70	153	232	47	109	125	17	28	120	1.1
35	Machimango blanco	0.72	5.44	8.25	12.90	518	923	133	357	462	102	106	834	5.1
36	Machín zapote	0.52	5.13	10.71	14.60	340	552	131	197	262	45	67	352	2.0
37	Manchinga	0.68	4.96	8.13	12.40	460	785	117	283	365	75	109	720	3.6
38	Manchinga (1)	0.68	4.29	7.97	12.00	544	874	123	367	438	102	123	741	4.5
39	Maquisapa ñaccha	0.29	2.20	6.28	7.96	163	278	52	135	159	12	35	156	1.4
40	Maquisapa ñaccha (1)	0.27	2.63	6.67	8.44	142	272	45	127	152	14	32	131	1.0
41	Mari-mari	0.77	3.50	7.80			1315	160		622				
42	Marupa	0.36	2.91	6.95	8.60	258	427	76	159	201	33	57	204	1.6
43	Mashonaste (Tulpay)	0.59	2.80	6.34	8.38	593	926	139	475	536	76	100	690	2.9
44	Moena amarilla	0.56	4.30	9.00	9.40	421	699	130	278	379	57	87	430	2.2
45	Moena negra	0.42	2.71	5.95	9.06	299	500	89	242	269	48	73	291	2.3
46	Oje Renaco	0.43	2.11	5.56	7.55									
47	Palisangre	0.70	3.81	6.49	9.90	651	1102	139	439	547	127	135	1052	5.9
48	Palosangre amarillo	0.68	5.34	9.90	14.50	538	868	152	348	444	78	107	810	5.0
49	Palosangre negro	0.73	2.71	4.90	7.47	639	1051	141	407	515	95	124	1025	5.6
50	Panguana	0.49	3.71	6.88	9.69	289	511	100	206	264	41	74	380	2.7
51	Pashaco	0.45	3.21	7.25	9.49	309	508	91	238	273	55	82	334	2.8
52	Pashaco ¹	0.40	3.70	7.00	10.40		569	86		364	54	80	231	1.4
53	Paujil ruro	0.62	4.22	9.34	12.80	526	859	146	383	441	97	110	620	2.7
54	Pumaquiuro	0.67	4.10	8.08	12.40	626	950	146	434	522	95	117	738	4.0
55	Punga	0.39	3.63	10.06	12.90	222	348	78	127	169	23	42	205	1.9

56	Quina quina	0.74	5.08	10.01	14.20	537	897	164	363	435	100	110	795	5.1
57	Quinilla colorada	0.87	6.76	11.01	15.80	684	1204	184	476	608	140	135	1090	6.6
58	Requia	0.60	5.59	10.14	14.90	461	750	154	313	384	67	93	579	3.6
59	Sachavaca micuna	0.44	3.17	9.36	11.50	315	511	98	236	267	41	62	286	2.0
60	Shihuahuaco	0.87	5.50	9.10	15.00		1286			672	150	145	1353	6.2
61	Shiringa	0.53	3.01	6.79	8.95	247	472	92	192	238	53	72	306	1.6
62	Tahuarí	0.92	5.69	8.88	13.85	872	1436	198	653	786	128	152	1403	6.5
63	Tamamuri	0.66	4.89	8.25	12.50	456	874	140	345	437	80	115	596	2.9
64	Tornillo	0.45	3.17	6.90	10.65	349	576	108	222	283	57	81	388	3.0
65	Ubos	0.35	3.18	7.44	10.00	246	400	80	142	204	25	54	199	1.7
66	Uchumullaca	0.69	6.35	9.98	15.30	479	837	134	308	384	84	106	706	4.4
67	Ucsshaquiro blanco	0.39	3.40	6.62	9.25	292	488	91	187	237	38	65	286	3.5
68	Yacushapana	0.73	4.93	8.59	12.30	530	807	127	387	472	96	111	768	5.3
69	Yanchama	0.44	4.46	7.00	10.80	343	500	79	238	288	36	69	283	1.9
70	Yutubanco	0.71	5.09	10.95	14.60	528	871	142	368	426	101	99	757	5.4
71	Zapote	0.43	3.81	8.97	11.80	286	488	89	184	239	40	55	272	2.1

(1) Existe un solo nombre común para dos especies diferentes.

DB = Densidad Básica

RAD = Radial

TANG = Tangencial

VOL = Volumétrica

EFLP = Esfuerzo de las Fibras en el Límite Proporcional

MOR = Módulo de Ruptura

MOE = Módulo de Elasticidad

RM = Resistencia máxima