

Agreement

Between the

**Johann Heinrich von Thünen Institute,
Federal Research Institute for Rural Areas, Forestry and Fisheries,
Bundesalle 50,
38116 Braunschweig, Germany**

Here acting:

Thünen-Institute of Forest Genetics
Sieker Landstrasse 2
22927 Grosshansdorf
VAT: DE 153809887

**represented by the President
represented by the Head of Administration**

- Executing Agency
(EA) -

and

**Instituto de Investigaciones de la Amazonía Peruana
Avenida Abelardo Quinonez km 2.5
Iquitos, Peru
RUC number:20171781648**

- Collaborating
Agency (CA) -

Preamble

Illegal logging is one of the chief causes of worldwide deforestation. Moreover, trade with illegal timber and wood products creates market disadvantages for products from sustainable forestry.

Now several legal instruments have been established against illegal logging and the related trade (e.g. EU timber trade regulation with its national implementation in Germany (HSiG)).

DNA testing methods have been shown to be efficient tools to control the requested claims on the botanical species and the country of origin of timber. In the last ten years the Thünen-Institute of Forest Genetics has invested a lot of efforts to develop and apply the methods necessary for efficient DNA verification techniques.

In frame of the project the EA wants develop genetic reference data to check the country of origin for timber of 14 high priority species in Africa and Latin America.

This will be realized in frame of bilateral projects among the Thünen-Institute and institutions in timber producing countries as well as with institutes that contributes lab work and training.

In this context EA is the Executing Agency for the project “Großflächiger Aufbau von genetischen Referenzdaten zur Holzherkunftbestimmung“- Large scale project on genetic timber verification. It will be in charge of general management and administration of all project activities, and will also be directly responsible for reporting all results to the Federal Ministry of Food and Agriculture. It will be responsible for receiving, disbursing, and managing all funds released by the Federal Ministry of Food and Agriculture.

CA will be a Collaborating Agency for the project implementation. CA will work in close collaboration with EA.

§ 1

Type of Activity

In Frame of the “**Large scale project on genetic timber verification (LargeScale)**” (Förderkennzeichen 28I-001-01) the EA mandates the CA to participate and contribute with the following items:

- a) Providing a genetic reference lab for timber verification. For this the CA will be supported with financial means to buy additional equipment and consumables for the genetic lab of IIAF in Iquitos and training. The list of relevant equipment and consumables is an annex of this agreement. (see No. 1 and 2 of the attached budget table)

- b) Hosting a training workshop for 10 persons in 2017. This includes all costs: flight tickets, local transport, food and accommodation. The participants and agenda of the workshop need to be agreed in a written letter by the EA. (see No. 3 of the attached budget table)

- c) Sampling of plant material (cambium, leaves, wood samples) of the target tree species for the gene marker development, reference data base and blind tests. The sampling needs to be done according to written details on the selected species and sampling protocols agreed by the EA. (see attached Annex on the sampling and No. 4, 5 and 6 of the attached budget table)

§ 2
Execution

(1) The work is to be completed during the time period from 01.10.2014 – 31.12.2017.

(2) The EA provides the following documents/material to the CA:

- a) List of relevant additional equipment and consumables for the reinforcement of the genetic reference lab
- b) List of participants and agenda for the training workshop in 2017
- c) Species list and sampling protocols for the collection of plant material

§ 3
Remuneration

(1) As non-recurrent remuneration (VAT included, if necessary) for the manufacture of the work described under § 1 is agreed:

291,000 € (two hundred ninety one thousand Euros)

(2) The agreed remuneration is only due for the proper performance and is considered as lump sum remuneration; there are no additional claims for remuneration or fees exceeding the lump sum.

Remuneration on approval work will be made on the basis of invoices signed by the CA. The invoice must provide the VAT registration numbers of the EA and the CA (if necessary).

Details on the remuneration are given in the attached budget table.

(3) Besides the remuneration directly dedicated to the CA the EA has reserved a budget of 20,000 Euros for training of three persons from IIAP at skilled genetic labs.

(4) The CA has to correct any deficiencies stated on inspection or acceptance inspection within a reasonable time and without additional payment.

§ 4
Modalities of Payment

Remuneration shall become due and payable after acceptance of the work by the EA.

Partial remuneration is agreed for partial performances.

Partial remuneration: 160,000 € (one hundred sixty thousand €), due: 25.10.2014

Partial remuneration: 36,000 € (thirty six thousand €), due: 20.11.2014

Partial remuneration: 28,000 € (twenty eight thousand €), due: 15.06.2015

Partial remuneration: 22,000 € (twenty two thousand €), due: 15.06.2016

Partial remuneration: 45,000 € (forty five thousand €), due: 15.09.2017

The remuneration for the years 2015, 2016, 2017 needs to be confirmed at the beginning of each year by the EA: The budget may only be used after this written confirmation

For special contractual expenses of the CA at the beginning of the work the following partial remuneration is agreed:

Partial remuneration: € (*amount in words* €), due:

Payment follows after bringing to account by the CA.

The funds will be administered by IIAP as special funds ("por encargo"), administered through a bank account to be opened by IIAP expressly for purposes of this agreement.

§ 5

Other Stipulations

- (1) The work described in this agreement is done in its entirety outside the Thünen-Institute.
- (2) The CA is neither employed by nor economically dependent on the EA. No work place is provided. Neither accident insurance nor social insurance for the CA is provided by the EA. The CA is aware of the fact that the EA cannot be held liable for any personal injury or material damage arising from the performance of the agreement.

§ 6

Withdrawal

- (1) The EA can withdraw from the agreement if the CA does not meet the deadline for production as agreed in § 2 neither an adequate respite or if he does not remedy deficiencies in a stipulated period.
- (2) In case of withdrawal from the agreement all the carried out and accepted work will be paid according to the relation of the total and usable work. The CA needs to return the bought equipment and consumables on his own costs back to the EA.

§ 7

Warranties

- (1) The CA warrants that the manufactured work pursuant to § 1 does not infringe any rights of third parties, especially that the title to the work is transferred free of rights of third parties.
- (2) The CA warrants that the manufactured work pursuant to § 1 complies with the state of art and is suitable for the intended use.

§ 8
Liability

(1) Except in case of intent or gross negligence, any liability of the CA shall be disclaimed. The same applies in case of slight negligence by agents or assistants in performance. However, the foregoing does not apply in case of a breach of fundamental agreement obligations.

(2) Liability for culpable damage to life, body or health as well as liability under the ProdHaftG (Act on Product Liability) shall remain unaffected.

§ 9
Confidentiality

The CA is obliged to treat all data and information that became known to the CA while producing the work as confidential and not to transmit them to third parties.

§ 10
Property

(1) The lab equipment and the lab consumables become property of the CA with the obligation to be used for the genetic reference lab for timber verification

(2) The collected plant material passes unrestrictedly with all rights to the EA's possession following the Peruvian Laws concerning the permissions for sampling and transfer of material.

(3) The EA shall be entitled to all intellectual property rights and rights of use. The genetic information of the reference samples and the technology knowledge on a set of 20 highly informative gene markers will be shared among EA and CA.

(4) EA and CA researchers involved in the project will have the right for co-authorship on the publications for which they contributed in genetic analysis, lab analysis and plant collection.

§ 11
Place of Performance/Jurisdiction

(1) Place of performance is South-America (Peru, Bolivia) and Germany

(2) Exclusive place of jurisdiction for all disputes arising out of or in connection with this agreement shall be Braunschweig, Germany and Iquitos Peru.

§ 12

Miscellaneous

(1) Any changes, modifications and amendments to this agreement have to be made in writing. Should any provision of this agreement be or become invalid, this shall not affect the validity of the remaining provisions of the agreement.

(2) This agreement shall be governed by the laws of the Federal Republic of Germany and laws of the Peruvian Government. In the event of any conflict between the German and the Peruvian laws, the German laws will prevail.

§ 13
Entry into Force

This agreement enters into force only after the approval of the President of the Thünen-Institute or his/her representative.

Grosshansdorf, 17/10/2014

Place, Date

Bernd Degen

Signature EA

(Dr. B. Degen)
Direktor und Professor

Approved:

Iquitos, Perú 17-10-14

Place, Date



Signature CA

President of IIAP

KENETH REATEGUI

Braunschweig, 20/10/2014

Johann Heinrich von Thünen Institute
- The President -

In Order

[Handwritten signature]

Signature

No.		Company	Material item	Number in the catalogue	Price per unit in Peru including Peruvian Taxes (Euros)	quantity	Total Price (Euro)
1	General for ABI:	Life Technologies GmbH	MicroAmp® Optical 96-Well Reaction Plate (10 plates)	N8010560	€ 150.00	2	€ 300.00
2		Life Technologies GmbH	PLATE,SEPTA RETAINER 96 WELL	4334869	€ 100.00	2	€ 200.00
3		Life Technologies GmbH	SEPTA STRIP,96 WELL TRAY	4315933	€ 760.00	1	€ 749.00
4		Life Technologies GmbH	FG,DS-33 (DYE SET G5) MATRIX STD KIT	4345833	€ 292.00	1	€ 292.00
5		Life Technologies GmbH	Hi-Di™ Formamide, 3500 dx series	4401457	€ 80.00	2	€ 160.00
6		Life Technologies GmbH	3730 BUFFER(10X) W/EDTA 500ML	4335613	€ 540.00	2	€ 1,080.00
7		Life Technologies GmbH	AMPLITAQ GOLD 360 DNA POLYMRSE (250*6: 1500u)	4398892	€ 2,250.00	2	€ 4,500.00
8		Life Technologies GmbH	CAPILLARY ARRAY 8-CAP 50CM RUO	4404685	€ 2,600.00	2	€ 5,200.00
9		Life Technologies GmbH	POP7-3730/3730XL DNA ANALYZERS	4363929	€ 2,270.00	2	€ 4,540.00
10		Life Technologies GmbH	SEPTA,8 STRIP RUO 3500	4410701	€ 849.00	1	€ 849.00
11		Life Technologies GmbH	TAQ DNA POLYMERASE	18038026	€ 300.00	2	€ 600.00
12		Life Technologies GmbH	GS120 LIZ SIZE STD 800RXN	4324287	€ 830.00	2	€ 1,660.00
13	SNaPshot:	Life Technologies GmbH	SNaPshot® Multiplex Kit 100 RXN, with protocol	4323151	€ 840.00	2	€ 1,680.00
14		Affymetrix	Shrimp Alkaline Phosphatase (SAP) 500	78390 500 UN	€ 100.00	2	€ 200.00
15		Affymetrix	ExoSAP-IT For PCR Product Cleanup 500	78201 1 ML	€ 990.00	2	€ 1,980.00
16		Eurofins	Primers (20)		€ 350.00	20	€ 7,000.00
17		Qiagen	Kits for DNA extraction		€ 2,390.00	3	€ 7,170.00
18		Invitrogen	Agarose ultrapure 500g	1650500	€ 1,100.00	1	€ 1,100.00
	Sum				16791		€ 39,260.00

No.	Company	Equipement	Model	Price per unit in soles	Price in Euro	Price per unit in Peru including peruvian Taxes (Euro)
1	Qiagen	Tissulyser II (For high-throughput disruption of biological samples)	Tissulyser II	93,250.00	25271.00271	25272
2	Eppendorf	BioPhotometer	D30	33,750.00	9146.341463	9147
3	VWR	Congelador -80 °C	Sinfony	50,000	13550.1355	13550
4	Millipor	Ultra clean water supply	Sinergy	20,000	5420.054201	5420
5	Eppendorf	CENTRIFUGA 5430R	5430R	30,000.00	8130.081301	8130
6	Eppendorf	Thermocycler	Mastercycler nexus	35000	9485.094851	9485
7	Eppendorf	THERMOMIXER C	EPPE5382000015	20000	5420.054201	5420
8	Biometra	Photodocumenter Sistem		30000	8130.081301	8130
9	Labconco	Biosafety cabinet type AII		47787	12950.4065	12950
10	Eppendorf	oven		9000	2439.02439	2496
	Total					100000

**Sampling Protocol for
the Instituto de Investigaciones de la Amazonía Peruana (IIAP)
in frame of the
“Large scale project on genetic timber verification”**

(Last changed by Bernd Degen 04/10/2014)

Target region for sampling:

Latin-America (Peru)

Sampling proportion in Latin America:

50 % High DNA quality samples

30 % Reference samples

30 % Wood samples

Short List Target tree species:

Botanical name	Local name	Family	Brazil	Bolivia	Peru	French Guiana	Samples available at partners
<i>Carapa guianensis</i> (Aubl.)	Andiroba	Meliaceae	X		X	X	IIAP
<i>Cedrela fissilis</i> Vell	Cedro	Meliaceae	X	X	X		IIAP + Thünen
<i>Cedrela odorata</i> L.	Cedro-cheiroso	Meliaceae	X	X	X	X	CEH + Thünen
<i>Dinizia excelsa</i> Ducke	Angelim Vermelho	Leguminosae	X			X	
<i>Hymenaea courbaril</i> L.	Jatobá	Fabaceae	X	X	X	X	CEH
<i>Jacaranda copaia</i> (Aubl.) D. Don	Pará-pará	Bignoniaceae	X	X	X	X	
<i>Manilkara huberi</i> (Ducke) Chevalier	Maçaranduba	Sapotaceae	X			X	
<i>Simarouba amara</i> Aubl	Marupá	Simaroubaceae	X	X	X	X	
<i>Tabebuia serratifolia</i> (Vahl) Nich.	Ipê-amarelo	Bignoniaceae	X		X	X	Thünen
<i>Virola surinamensis</i> (Rol. Ex Rottb.) Warb	Cumala	Myristicaceae	X		X	X	
<i>Dipteryx odorata</i>	Cumaru, Shihuahuaco	Fabaceae	X		X	X	

Expected number of samples:

Species	Reference samples (locations/ N total)	High quality DNA samples (locations / N total)	Wood samples blind test (N)
<i>Carapa guianensis</i>	12 / 360	3 / 6	10
<i>Cedrela fissilis</i>	12 / 360	3 / 6	10
<i>Cedrela odorata</i>	12 / 360	3 / 6	10
<i>Hymenaea courbaril</i>	12 / 360	3 / 6	10
<i>Jacaranda copaia</i>	12 / 360	3 / 6	10
<i>Simarouba amara</i>	12 / 360	3 / 6	10
<i>Dipteryx odorata</i>	12 / 360	3 / 6	10

Reference samples

For each tree species in total 40 locations (populations) should be sampled well distributed over the target countries involved in the project. Per location we need samples from 20 to 30 individual trees. Thus per species we are expecting to receive samples from 800 to 1200 trees. A location could be an area in a forest within a radius of 10 km or it could be a collection along a street, forest road or river of 20 km (figure 1).

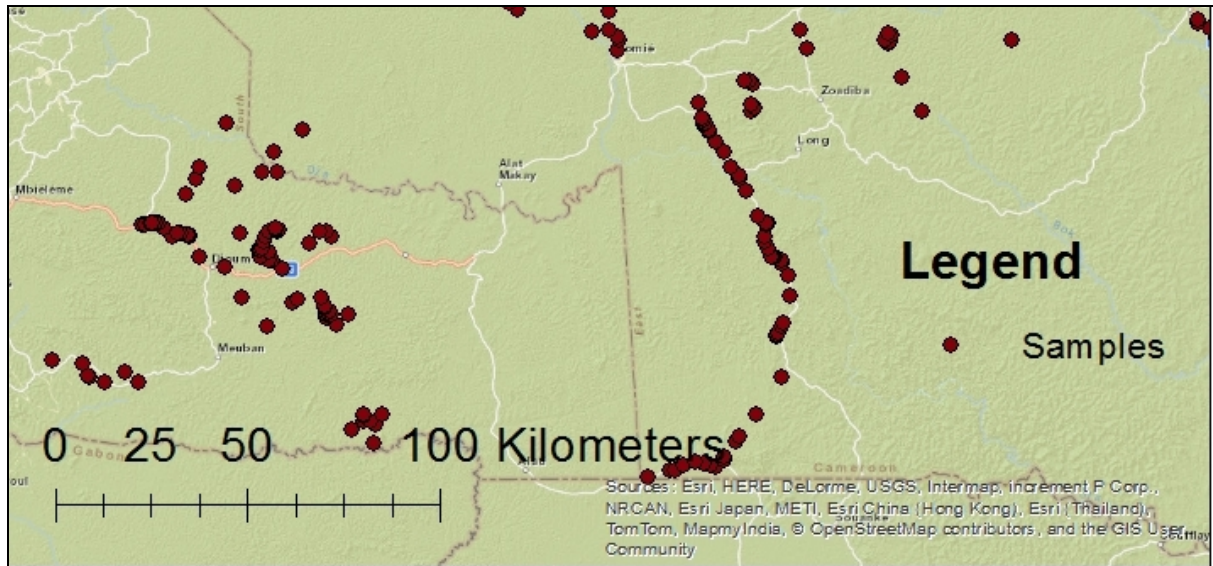


Figure 1: Sampling along roads in Cameroon

There is an overlapping of the natural distribution range of target tree species. Thus in many cases there is the possibility to collect samples from several tree species at the same place. For each sampled tree you should note and measure the following information:

- give a unique tree number
- measure longitude and latitude in decimal degrees as well as altitude in meters with a GPS (figure 2)
- diameter at breast height (= at 1.2 m height) in cm
- botanical name of the species (taxa)
- country
- date of collection
- name of the collecting person



Figure 2: Use the GPS to measure longitude and latitude in decimal degrees and the altitude (elevation) in meters

For each sampled tree you could either sample leaves or cambium:

Leaf samples:

- Place 10 cm² of leaf material in a numbered zip bag containing a sufficient amount of loose silicagel to dry the sample in only a few hours. The remaining material should be stored in a numbered envelope to ensure backup material.
- Silicagel may be replaced when necessary (it usually turns to another colour)
- All bags should be stored in a dry place, for example a hermetic plastic box or in a room with air conditioning.

Cambium samples:

- Punch a hole in the trunk (see figure 3a and 3b). **Repeat it three times**. The cambium is a very thin and humid layer between the bark and the wood (figure 3c). Place the three pieces of barks and cambium in a labelled plastic bag with silicagel (figure 3d).
- Check in the following days that the silicagel did not change colour, if so, add more silicagel.

Once the samples are in plastic bags with silica gel you can store them up to three weeks before sending the samples to the lab. Note all information of the samples in a table (see below):

Sample ID	Country	Taxa	Diameter (cm)	Altitude (m)	LAT (decimal degrees)	LONG (decimal degree)	Sampling person	Date
C_01_IROE_02	Cameroun	Milicia excelsa	123	640	2.77504	10.6912	Germain Yene	16.01.2013
C_01_IROE_03	Cameroun	Milicia excelsa	90	658	2.81662	10.7333	Germain Yene	16.01.2013
C_01_IROE_04	Cameroun	Milicia excelsa	85	550	2.42183	10.6958	Germain Yene	17.01.2013
C_01_IROE_05	Cameroun	Milicia excelsa	123	533	2.33225	10.7524	Germain Yene	28.12.2012
C_01_IROE_06	Cameroun	Milicia excelsa	145	35	2.37559	9.95999	Germain Yene	27.12.2012
C_01_IROE_07	Cameroun	Milicia excelsa	133	47	2.3811	9.97658	Germain Yene	27.12.2012
C_01_IROE_08	Cameroun	Milicia excelsa	96	126	2.3937	10.0662	Germain Yene	27.12.2012

Table 1: Example for the needed information to be noted for every sample



Figure 3a: Punch and hammer for cambium collection



Figure 3 b: Get three cambium pieces per tree



Figure 3c: The cambium is a very thin and humid layer between the bark and the wood



Figure 3d: Put three pieces per in the zip-plastic bag with sufficient silicagel

High quality DNA samples

For the development of gene markers we need from twelve trees per species samples that provide high quality and quantity of DNA. The 12 individual per species should be collected at 6 different locations. There should be a spatial distance of at least 100 km among two sampled locations. Not all 6 locations should be in one country. It is important to include the edges of the species distribution. At each location two trees should be sampled. There should be a minimum distance of 200 m among sampled trees in order to avoid sampling relatives. From each tree we need all three types of material: leaves, cambium and a wood sample. The cambium should be sampled and stored in the same way as described for the reference samples. There should be several leaves collected per tree (figure 4a). Half of the leaf material should be stored in plastic bags with silica gel and the other part of the leaf material should be put in a plastic bag without silica gel and stored in a cooler or freezer. In addition wood samples should be taken using a drill (figure 4b) or wood samples with at least 10 cm³ timber are taken with a machete. Another option is to collect all three types of material during felling

operations. All wood samples should be stored dry. For each individual tree samples the same information as shown in table 1 should be measured and noted. The high quality DNA samples are supposed to be transported to the genetic lab within less than 5 days from the sampling.



Figure 4a: Indication of the needed amount of leaves



Figure 4b: Wood sampling with a drill

Wood samples for the blind test

After the gene markers have been developed and all reference samples have been genetically screened the genetic reference data base is ready to test claims on the origin of timber from the target tree species. The performance of the genetic reference data will be checked based on wood samples that are collected and anonymously send to the genetic lab either with a correct or false claim on the geographic origin. The wood samples for this blind test will be collected parallel to the collection of reference samples. For each tree species we need wood samples from 20 trees. Each wood sample should have a size of at least 10 cm x 10 cm x 3 cm. The samples should NOT be collected from trees that are part of the reference samples or high quality DNA samples. Part of the samples should be collected far away of any sampling point for the reference samples.