

**REPORT OF THE INDEPENDENT EVALUATION OF
PROJECT PERFORMANCE, MANAGEMENT AND
PROGRESS**

**PD 58/97 Rev. 1 (I)
The Establishment of the Database of Tropical
Industrial Lesser Used Wood Species**

Prepared by

Dr Lew Wing Hing and Dr Isaac Bindzi

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Background

This two-year project is being implemented by the ITTO Secretariat and has been subcontracted to the Nagoya University Furukawa Museum. The project is aimed at creating a comprehensive database of tropical timber species that are readily available to enter the marketplace, especially the Lesser-Used Species (LUS). The database is intended to promote the utilization of LUS from the ITTO member countries through the broad distribution of a CDROM and the creation of a Web site to promote the LUS species. The project was designed to attain the singular specific objective of facilitating the access to the data and information on various aspects of LUS for government officials, forest industries, timber traders and other interested parties. This objective is to be accomplished by the subcontractor who would carry out a set of agreed-upon activities for the collection of information, database coding and validation.

In accordance with the project document, the ITTO has carried out a performance evaluation of the project's accomplishments through November 2000 with attention given to the performance, management, and progress to date. This evaluation will serve as a reference for ITTO members to review the format of the database and function as a guide for the Expert Meeting which will finalize and decide on the CDROM content, required items and format, as well as provide direction to any future activities.

An Evaluation Team was commissioned to undertake this evaluation exercise from November 28 to December 09, 2000. The team comprised two members, led by Dr Lew Wing Hing (Malaysia) and Dr Isaac Bindzi (Cameroon).

The Evaluation Report is structured into four main parts, as follows:

- PART 1 Current Status at the time of Evaluation**
- PART 2 Findings of the Evaluation Team**
- PART 3 Recommendations of the Evaluation Team**
- PART 4 Priority Ranking**

Once the report by the evaluation team was received by the ITTO Secretariat on 9 December 2001, it was circulated to the subcontractors at Nagoya University. After reviewing the report, their comments on the evaluation report were forwarded and received at the Secretariat on 22 January 2001. These comments appear in Section 7.0 of this report. Additionally, the Terms of Reference for the Performance Evaluation appears as Annex 1. The Itinerary and Schedule of Work are shown as Annex 2. And included in the hardcopy form (and not in the email transmission to expert meeting participants) are Annexes 3 and 4 respectively which show Schematics of the Main Menu and Main Query Form and Output Form. Annexes 5, 6, 7 show Schematics of the Query Form and Output Form for Query by Trade Name, Scientific Name and Country respectively. Annex 8 shows the Query/Output on Trade Restrictions by country. Annex 9 shows the Query/Output on Industry Profile by country.

PART 1 CURRENT STATUS AT THE TIME OF EVALUATION

1.0 Introduction

This Part of the Evaluation Report deals with the issues specifically mentioned in the Terms of Reference, and these are dealt with in accordance with the sequence contained therein.

1.1 Identification of species included

The subcontractor informed the Evaluation Team that they had examined data on more than 1,500 species for the three geographical zones of Africa, Tropical America and South East Asia & Oceania. The species selected were drawn mainly from ITTO sponsored projects. Out of this total, the subcontractor excluded species that contained little or no data, and the existing number of 946 species was chosen, based upon the personal experience of the subcontractor.

1.2 Collection of species data

The data were drawn from some 374 reference sources. The subcontractor identified CTFT (now Cirad-Foret) and PROSEA as two important references and sources. The full list can be obtained directly from the subcontractor.

1.3 First draft of format of the database

1.31 Data collection procedure

As mentioned earlier, the subcontractor used 374 reference sources, some from within ITTO and the rest from external sources. The subcontractor stressed that no new data were produced, meaning that all the data are published data. The detailed views of the Evaluation Team on the data collection procedure are given in Part 2 of this Report.

1.32 Selection of software

Microsoft Office 2000 was the computer software package selected. Only the Microsoft Access component, which is a Data Base programme, is being used.

1.33 Method of data entry

Owing to the fact that the data were lifted and re-organized from multiple sources, the subcontractor had to devise a somewhat laborious process in its attempt to streamline the format. The Evaluation Team has given a thorough analysis in its Findings which appear in Part 2.

1.34 Ease of use of the database

In its present state, any user would need to have a certain level of computer literacy, particularly in regard to the use of the Search functions. Again, further comments by the Evaluation Team are given in Part 2.

1.4 Sample and check species information

The Evaluation Team sample-checked 15 species, 5 from each region. Checking was somewhat arduous and time-consuming, as the data had to be counter-checked against many references. The results showed the occurrence of some errors that will need to be rectified. This aspect is elaborated in Part 2 of this Report.

1.5 Critique the methods of sorting species through the software chosen

In its present form, the methods for the sorting of species are adequate. Amendments, however, will be needed if the Evaluation Team's recommendations contained in Part 3 are adopted.

1.6 Comments on the copyright status of the database and the intellectual property rights of ITTO

On the aspect of copyrights, the subcontractor has secured the full permission of two main reference sources, viz. Cirad-Foret and PROSEA. Copies of these can be obtained directly from the subcontractor.

1.7 Implementation Efficiency of the subcontractor

1.71 Technical

The subcontractor has assembled a very qualified team of 6 experts, mostly academics from the University. It is the opinion of the Evaluation team that the Project team could be strengthened with members from industry.

1.72 Financial

The subcontractor did not have any specific comments on this aspect.

1.73 Managerial

The subcontractor informed the Evaluation Team that at present the work is proceeding in accordance with the revised schedule.

PART 2 FINDINGS OF THE EVALUATION TEAM

2.0 Introduction

The Part deals with the findings of the Evaluation Team after consultations and discussions with the subcontractor, timber industrialists and ITTO officials.

2.1 Listing of species in the database

One of the main difficulties faced by the subcontractor is nomenclature, especially with the Trade Names. This difficulty could be overcome if the recommendation of the Evaluation Team pertaining to the method of sourcing is accepted. It has to be pointed out that, in reality, it is almost impossible to standardize Trade Names, and, as such, the Trade Names provided by individual producer countries have to be respected and used.

There appears also a degree of confusion with regard to the choice of the so-called Commercial species. On this aspect, the listing provided by the subcontractor contains species not found in the list contained in the ITTO Annual Review. The reverse situation also applies in that the latter list does not contain species in the list of the subcontractor.

2.2 Data Collection - Current Procedures

The data collection procedure currently used is scientifically sound. The data have been collected from a large number of references and so cross-checking of the information was possible, though tedious. Data from software products have also been included. In its present form, the database contains a fairly large databank on tropical timber species, since, apart from LUS, some tropical commercial species have been included. The addition of the data obtained from the scientific works of the members of the subcontractor and the consistency in the scientific approach in the analysis of the data are additional points in favor of the work performed by the subcontractor.

2.3 Selection of the software

Microsoft Access 97 under the Windows 98 environment has been selected, mainly because the subcontractor considered it important to make use of this database software program, since for some relatively poorer countries, most of the up-to-date software are either unavailable or too costly, except for Microsoft Office.

There exists, however, the possibility of software version incompatibility with common user systems. As will be pointed out in Part 3, the IT expert of the subcontractor will have to ensure that the software acquired can be made usable by prospective database users with computers with older hardware and software configurations.

2.4 Method of data entry

In order to enter the data, different screens are used in which the data are filled. To enter all the information available on any given species, one has to go back to the main menu every time to enter a new set of information (technological properties, end-use, etc.). If one considers that there are at least six sub-menus in the main menu, it is laborious to use the present data entry system. It is however

contended by the subcontractor that this system has been so designed because the data entries were made relying on reference by reference and, for the species, one species at a time.

The quality of the method of data entry is, in the opinion of the Evaluation Team, heavily linked to the strategy for the selection of the species. The subcontractor considered all the LUS reported on ITTO sponsored projects and other references plus some commercial species as benchmarks, and kept from this first choice only those species for which all the necessary information (for a fair description of the single species) were available in the literature gathered. If only a limited number of LUS were selected (based for example on the knowledge of their availability in commercial quantities in the long run), the subcontractor team members would have gathered and recorded first all the information available in the literature in hand for each single species, add their eventual personal knowledge based on their scientific works, analyze and synthesize for each single species the bulk of information collected and for all the selected species (LUS and commercial), and finally designed a sound database entry protocol.

2.5 Ease of use of the draft interface

The draft interface is actually not very user-friendly, since the user has to go back and forth to get collective information on the same species. This is done by closing a current screen instead of going back to the previous menu through a “back arrow” or a “previous menu” button”. The Evaluation Team is of the opinion that this should be improved for it is hard for a casual user to understand that he has to close a screen to go back to the previous menu. It is, in fact, a new window instead, but it appears as the main screen since the previous screen disappears. In addition, from the main screen, one could not know what one should do since the items are not in a clearly interrogative form. By “general” or “select a species” etc., one could be easily confused if a specific problem is required to be solved. In addition, the sub-menus of the main sub-menus appear all around the screen, and it is hard to identify them all at a glance.

2.6 Quality of the information on the species in the database

After checking the information provided by the database for a sample of only 15 species (5 for each of the tropical timber producing zones), the Evaluation Team noticed that there remain some entry errors. These errors are not typing errors since they led to wrong information on the species. For instance, a species is reported to have the end-use as “matches” though this could not be confirmed by the literature. Another example is a species reported to be “impermeable” although the literature designates it as of “medium” permeability. This should be corrected by a cross-checking of all the database. As noted above, the information provided by the database is sound and complete and this makes it of high quality, and it is important to put a strong emphasis on the reliability of the information given as far as the existing literature is concerned.

The Evaluation Team also noticed that some very important information are given in bulk form though a point form would have better highlighted those species features - information on the characteristics of the standing tree, information on the end-uses, information on some important defects, etc. The information on the end-uses of the different species mix valuable uses with less valuable ones for a single species. For example, a species suitable to be utilized for luxury furniture is, at the same time, cited as suitable for common furniture. This should be avoided as it would not promote the better utilization of the timber.

For some species, certain technological properties are not presented exactly as reported in the literature used as sources. The values reported in the database have been obtained by computations performed on the data collected from the literature as the data for inclusion in the database, even when the original showed a marked difference (greater than the one generally accepted as natural variability in the wood properties), though it is not based upon personal scientific knowledge of the species nor proper experimental work. The Evaluation Team is of the opinion that data obtained in this way would not be representative of the given species since, in reality, the data are already known in the experimental environment and protocol.

2.7 Quality of the selection of the species

Since nothing is actually known on the availability of the species included in the database since this parameter was not a selection criterion, there could be cases where one species selected in the database and designated as LUS and thus promoted as such, is available in very limited volumes and could not be promoted for its trading on the international market, unless it is of so a high quality that it could be used in very special applications which do not require high volumes. The availability of the raw material for each single LUS should be a very important criterion for its selection as an LUS to be promoted through the database.

2.8 Integrity of the species

The integrity of the species is based upon their botanical names and the commercial names are made secondary, and this is fair. The subcontractor should be commended for this approach, since different species based on their commercial names in different countries share in the database the same "commercial name", as they belong to the same genus. This should be considered as a first step in the improvement of the trading of tropical timber species since some LUS can find themselves being commercial species. A species could be an LUS in a given country even though it is a commercial species in other countries, perhaps because of different commercial names. The botanical/scientific name of a given species is, in fact, the one to use in the building of its marketing strategy.

2.9 Description of the species

The description of each of the species is fairly complete. Most of the information needed for a better knowledge of a given species are provided for most of the species included. Even non-published scientific results of research activities are included, such rare information as those on growth stresses in tropical timber species, kiln schedules for the kiln drying of tropical timber, chemical properties, etc. There is, in the opinion of the Evaluation Team, a need to include additional information and details on this aspect are contained in the Recommendations in Part 3.

2.10 Market relevance of the information on the species

From the foregoing perception of relevant market information on the tropical timber LUS, no market information is provided by the database in its present format. Ideally, the necessary market information would be the following:

- Information on the availability of the LUS selected, for each individual producer country (standing volume, quality of the raw materials and also the alternative wood products that could be traded in the foreign markets, volume of supplies on a regular basis);
- Information on the commercial species for which each single LUS could be considered as a competitor for a given end-use;
- Information on the end-uses of each of the commercial tropical timber species, on each specific market at the international level.

In fact the information provided by the database is almost the raw data collected from “the field”, and could be considered as basic data for a “market study”. These data should, as a next step, be analyzed in order to produce market-relevant information which will be the outputs of a “market study”.

2.11 Sample viewpoints of prospective Japanese user of database

The Evaluation Team considered the views of prospective database users from industry to be of great significance. The subcontractor managed to arrange discourses with one large company which also has an assembly plant, one trading company and one furniture manufacturing company. Unfortunately, owing to the limited duration of the evaluation exercise, it was not possible to interact with companies which use small quantities of special timbers for distinct end-uses. Industry reaction to the concept of niche-marketing with attendant value-enhancement could not therefore be directly discerned.

This limited interaction with industry was further constrained by the fact that the concept was explained to them only verbally as no demonstration was arranged due to lack of time.

Notwithstanding the foregoing, the Evaluation Team gathered the general impression that availability of species mattered strongly to these industrialists. They would generally welcome data that can permit them to extend their range of sources that the database could provide.

One of the large Japanese traders propounded the idea that the database (though, in his opinion, would yield more benefits to producers than consumers) could be used to inspire a concept that could be described as a “triangular business arrangement”. As an example of such a tripartite arrangement, logs from a resource-rich country like Myanmar (with under-developed processing facilities and infrastructure) could ship the logs to an intermediate country like Thailand or Malaysia (with adequate processing facilities and relatively lower processing costs) and have the finished products consigned finally to the third party like Japan. The information content that is described in Part 3 Recommendation 12 will help promote such a business arrangement.

PART 3 RECOMMENDATIONS OF THE EVALUATION TEAM

3.1 General Principles

Firstly, the Evaluation Team considers it necessary to expound its perception of the LUS concept. In the past, many terms have been utilized to designate those tropical timber species that are not traded on a regular basis in the world market. Secondary species, Lesser Known Species (LKS), and Less Commercially Accepted Species (LCAS); and now Lesser Used Species (LUS). The one feature common to these species is that their classification as non-valuable species is based on their absence in the international market. One other point to note is that these species are often classified as LUS (or LKS or LCAS) under their commercial name, not under their scientific name. There are cases where a species from one country is called an LUS/LKS/LCAS by its commercial name, and is also a well-known commercial species for another country by another commercial name. Both timbers show the same genus but may differ in name only at the species level. Further, a species can have a limited standing volume in one country and, as such, is not harvested and considered as an LUS/LKS/LCAS. However, in another country a large standing volume exists and is a well-known commercial species. This clearly shows that the concept of LUS/LKS/LCAS is country-specific in nature.

It should also be strongly emphasized that for any given country, many reasons could explain the existence of the LUS/LKS/LCAS. The Evaluation Team cites just a few reasons, as follows:

The number of target market(s) of the forest industry sector in the country is significant. If the major market(s) are confined to only a few countries, only a limited number of species will be traded.

The availability, quality and capacity of continuous supply of the target market for the well-known species inhibits the utilization of the LUS/LKS/LCAS.

The type of forest/wood industries in the country is also significant. For if the industry sector consists only of primary processing mills (sawmills, plywood/veneer mills) for the supplying products to its target markets, only a limited number of species will be accepted for these end products. The level of downstream processing and the range of end products (from solid wood products to panel products) is thus a factor.

The existence of a domestic market for the wood products could mean that the LUS/LKS/LCAS are consumed domestically and only the commercial timbers are exported.

To synthesize, the Evaluation Team suggests that LUS be defined on a country basis as those species which:

- ◆ are available enough to supply wood industries on a regular basis in the long run (the forest being sustainably managed);
- ◆ are not harvested by the forest industry companies in amounts compatible with the Available Annual Cut for this species. Even in some cases the corresponding logs when cut accidentally are abandoned in the forest.

The problem/question of the "Promotion of LUS" is tackled better when the above approach is used - an approach based on the reality of the forest activities in the forest sector of the Tropical Timber producer countries.

3.2 Marketing Approach

From the standpoint of Marketing Science/Arts, “Promotion” is an element/component of a “Marketing Mix” strategy, consisting of a series of actions executed in the marketplace and dedicated to:

- make the consumer know about the product (demonstration at the market place of the features of the product);
- make the consumer test the product (distribution in the marketplace of specimens of the product).

The Evaluation Team is of the opinion that the term “promotion” utilized in the title of the project proposal differs from the above understanding of the concept. If it were so, it would have been very difficult to execute this promotion through a database, even if the database could have been designed as a multimedia tool performing the above actions for each single LUS through different end products.

From the point of view of the Evaluation Team, it is discerned that there is a “Marketing” problem with the LUS. In fact, many so-called LUS are, in a sense, already known. All their useful properties are reported in published literature, and they have already been used or tested in some applications, as reported in the literature. As these species are already known, it would be just a matter of designing a “Marketing Mix” strategy for increasing their use by consumers in pre-selected target markets.

A successful “Marketing Mix” strategy is generally based upon relevant market studies, from which the following information could be collected:

- Consumers' needs in terms of type of wood products, quantities with the market share of each end-product, etc.;
- The competitors in the wood-products' markets, these competitors being understood as the various timber species (specifically the tropical timber species for the present project). In the above market studies, the competitors of the LUS would be the well-known commercial species, which should thus be defined as precisely as possible with particular stress on those features that make them appreciated by the consumers;
- The consumer behavior in its purchasing “approach”. What makes the consumer use any species for specific applications/end-uses? What could make a consumer shift to other species? What are its purchasing strategies/protocols?

Actually, for the tropical timber market, all the above are fairly well known. It would just be a matter of utilizing this knowledge of this specific market in the design of a database that would ultimately serve as a powerful tool for the design of sound “Marketing Mix” strategies for the LUS wood products by each of the tropical timber producing countries. This database would also help all kinds of consumers accept LUS wood products as suitable for their needs. From what the Evaluation Team knows about the wood market, the Evaluation Team would like to make the following observations:

Industrial wood consumers, at least those in developed countries where up-to-date technologies are used and a large range of wood products are in demand, do not really care about species since many timber properties can be improved by technology for specific end-uses. Or else, they will find other uses in other

applications (if not as solid wood, then used as reconstituted wood, panels or other engineered wood products).

This class of consumers is mainly concerned with:

- ✓ availability of wood products of certain species (or species group)
- ✓ quality of the supply on a regular basis
- ✓ continuity of a regular supply over the long term

It is then a matter of securing their financial investment and earnings in the long term.

The individual end-user accepts a wood product not a species, and, except in some special cases, he is not too concerned about the wood species constituting the end-product. By end-product, the end-users' demands often involves aesthetics (color, finishing, etc.), quality, reliability and price. Some manufacturers of wood products recognize this to the extent that they utilize technologies and techniques which make some less valuable species meet those requirements in specific end-uses.

The competitors of the tropical LUS are often the well-known tropical commercial species, and these can be defined as precisely as one could want, and it is also known why they are at such high levels of demand. Temperate hardwoods and even softwoods are also competitors.

It is known that when any consumer makes the decision to shift to another to another product, it is often due to price increases caused by scarcity in the market). In some cases, he can no longer find the specific product in the market, or has discovered that he can equally satisfy the same needs with a cheaper product. For the wood market, some tropical timber LUS could possess what it takes to become good substitutes of well-known tropical timber commercial species, and at lower prices.

With the above in mind, one could design a database which will highlight how tropical timber LUS would suit the consumers' needs. The recommendations of the Evaluation Team for the enhancement of the database for it to be user-friendly and useful to wood industries are basically based upon the above analysis of the tropical wood and wood products industries and markets.

As a preliminary observation, the Evaluation Team asserts that even the best database will not solve the problem of the tropical timber LUS, as experienced in some tropical timber producer countries, if those countries do not undertake the following complementary actions:

- For increasing the use/acceptance of the Lesser Used Species in the consumer markets, intensive market promotion efforts should be made. These could include the demonstration of products made with these species in those markets, the supply of trial volumes to targeted industrial consumers, etc.;
- For the supply of the targeted markets with pertinent products, these countries should promote the development of relevant wood industries and/or reinforce the downstream processing industries at the national level;
- For increasing the use of wood and wood products, they should each develop a domestic market for wood and wood products as well.

ITTO should be part of this global strategy, and the current project on the development of the database on tropical timber LUS could serve well for both ITTO and the tropical timber producer countries to adjust and refine their long-term strategies related to the development of sustainable tropical forest industries.

3.3 Recommendations in detailed form

The Recommendations of the Evaluation Team can be grouped into six distinct segments. These are, as follows:

3.31 Species Selection and Data Improvement

Recommendation 1

The differentiation between LUS (which, in reality, is country-specific) and LKS etc. (which is not) is often not very well understood. For example, the species from the genus *Lagestroemia* in a country like Malaysia is known as Bungor. While this ring-porous wood should lend itself easily to commercialization, this did not happen for the simple reason that supplies are scarce. Species from the same genus, however, occur in great abundance in Laos where prospects for commercialization are good. The species in Malaysia is a definite LUS and even an LKS. That same species in Laos will not be an LUS. Many other examples can be cited to prove that LUS is indeed country-specific.

The final selection of the list of species to be included in the database should therefore be sourced directly from ITTO producer countries, in accordance with pre-determined criteria. Without casting any aspersions on ITTO or its resources, it is the Evaluation Team's contention that the best information in regard to choosing the lists for the database should emanate from the producer countries themselves. This is more so in the case of LUS since, as mentioned earlier, these are country-specific. Each producer country should be requested to provide a list of Commercial species, a list of their plantation species and a list of their LUS. The criteria for LUS selection should be of two types.

Firstly, species should be relatively abundant for commercial-sized shipments. (*The question of availability is always difficult, as not many countries have been carrying out forest inventories recently. Some form of Availability Class rating could be used, based on information from native sources if inventory data are not available. Such a proposed Class rating is given in Recommendation 4*). Secondly, species could be less abundant but with high intrinsic value. Elaboration on the rationale behind this criterion is given in Recommendation 10.

Some data about LUS are already available in certain ITTO projects, albeit obtained not for this specific purpose.

An alternative approach to better facilitate the acquisition of such listings from the producer countries is for the subcontractor (or ITTO) to prepare, for each country, the draft lists, and have the lists sent to the respective forestry agencies in each country for comments/verification/amendments/additions/acceptance.

Once the final list is generated, the subcontractor can then begin renewed work for the collation and entry of data for all the species selected. The necessary data would consist of the basic information on the species, such as, commercial/scientific/common name, features of the standing tree, properties of each species, if available, tentative end-uses at the domestic level, etc. and all the other types of data that the subcontractor needs. It should be noted that the types

of data for each species have been expanded, as detailed in the recommendations given hereinafter. Other useful information, if and where applicable, could be allowable annual cuts in concessions operated by companies and the related business contacts, allowable annual cuts for each species in the whole permanent forest area, etc.

It is important that ITTO producer countries be strongly involved in the database development process, for the database will be an important tool that they can rely on in order to design their “marketing mix” strategies for their LUS as well as all the other species they will be proposing for the database.

Recommendation 2

For the database, the “LUS” label should be de-emphasized since, as explained earlier, an LUS in one country can in fact be a commercial timber in other countries. The database should include known commercial species for the purpose of comparison or bench-marking. The Name used by the subcontractor i.e. “Tropical Timbers Database” seems very apt. As indicated in Recommendation 1, plantation species should be included as well. Given the eventual inclusion of all commercial species, the database can eventually become the ultimate reference for all its users with any kind of interest in tropical timbers.

Recommendation 3

Likewise, the separation of species into the three geographical zones appears to serve little purpose and might tend to limit user-search. On the other hand, amalgamation into a single entity leading to direct identification with individual countries would be more useful, especially to the industry user of the database. Sourcing of species can therefore be widened considerably.

Recommendation 4

In the input of data for any species, the Evaluation Team recommends, in the existing “Add a Species – General Information” input form, the deletion of the geographical zone, and add, for each country, the Availability Class (could be 3-5 classes, e.g., Abundant, Good, Fair, Poor, Scarce). The same field of Availability Class should also be included in the existing Input Form dealing with “Species Selected”. These additions will serve to inform the user of the different degrees of Availability for the species in the countries listed in the Output Form.

It is also useful to add a Value Rating, e.g., Precious, High Value, Medium Value, Poor Value. While it is recognized that this will be not well-defined and is variable over time, even such a possibly subjective or judgmental rating will contribute to the matching of species and will also provide an important indication to the user.

Recommendation 5

In the Input Form dealing with “Wood Properties”, the Evaluation Team recommends the inclusion of information that are peculiar to certain species. Information such as the presence of Included Phloem should be included for *Koompassia* spp. *Dyera costulata* contains Latex Traces, while certain *Dyobalanops* spp. and *Neobalanocarpus heimii* will have needle holes. The timber Jongkong from Sarawak has lenticular flecks which may be regarded as a defect. Indeed, even the well-known *Shorea* spp. (e.g. Dark Red Meranti) are being traded

under a “PHND” (Pin Hole No Defect) specification to upmarket buyers in Europe. The new users will therefore be aware of such species-specific features.

Recommendation 6

The current information in the database should be cross-checked thoroughly, since, as reported in Part 2 of this Report, even the very light sampling of data integrity revealed the existence of errors.

In situations where the variability of a single property or data item for the same species as reported by different sources is high, such data should be reported in the database as a range of known values for that property or data item.

Regarding technological properties, a “WARNING” should be given by the database for those data not scientifically reliable, on the basis of the scientific soundness of the experimental work performed as reported in the references which supplied the properties. Indeed, some data items are available based only on “local native knowledge” without scientific testing.

Recommendation 7

The database should also include information about the type of restrictions, if any, that producer countries impose on the export of their timber products. This is of vital importance to prospective buyers. It is obviously pointless for a consumer to be able to identify precisely the occurrence of an LUS, or for that matter, any species in a certain producer country, but without the knowledge that export restrictions exist that would render trading impossible. For instance, the database will show a large listing of species for Malaysia but the Peninsular Malaysia Region does not permit the export of any species in the form of logs. Even for sawn timber, say, Rubberwood, the country has an export quota.

Another example can be found in the case of Indonesia. During the pre-IMF years, Indonesia disallowed exports of both logs and rough-sawn timber but the situation has since changed to satisfy IMF requirements. Numerous other examples can be cited and this kind of information can change quite often.

3.32 New Format for the Database

Given the additional data that will be included for each species and the likelihood of numerical expansion of the list of species, it is clear that the existing format will have to be refined to capture all these data. In addition, with the emphasis emplaced on the industry user, there will be a need to re-examine and revise the Data Input forms, the Query forms and the Output forms. If the foregoing recommendations on Species Selection and Data Improvement are accepted, the subcontractor will have to devise a new Data Input form for data capture.

Recommendation 8

Given the wise emphasis to create a database more user-friendly and useful to the industry user, there is a need to re-fashion the Query Forms and the associated Output Forms. The Evaluation Team recommends that the most important or Main Query Form should be dealing with End-Use, making this as the principal search parameter. In this regard, it will be necessary to generate a very comprehensive list of distinct end-uses. This list must be prominently located and it is suggested

that this should appear as the first item in the Main Menu of the database. A sample of a possible Main Menu is shown in Annex 3.

Selection of this item should bring up the Main Query Form. This form should also have secondary search parameters, such as, Options (presenting a choice of colour, etc.) and the other parameter of Location (presenting a choice of All Tropical Countries, or a list of individual countries by name). A Schematic showing a possible Query form and the corresponding Output form is shown in Annex 4.

Other Query Forms could be based on Trade Name, Scientific Name, Country etc. for outputs that will provide listings of species. Schematics showing possible Query forms and associated Output forms appear respectively in Annexes 4, 5 and 6.

Recommendation 9

As mentioned earlier, for the Main Query Form, it will be necessary to generate a very comprehensive list of distinct end-uses. This effort will involve the definition of precise properties that will match each end-use to be displayed in the Output form. For instance, for an end-use like the manufacture of Luxury or high-class solid wood furniture, the properties would include low shrinkage, low movement, fine texture, good workability, medium density, moderate-scale MOR. The secondary Option could be the choice of colour, some preferring white or cream to others preferring red or dark red. Obviously, for another distinct end-use such as bridge-construction, matching properties would be very high MOR/MOE, high durability, very high compression and tension properties while features such as texture etc. would not be important.

Such an approach means that the computer programme itself will identify the distinct end-use and then associate this with the species. The end-user will then be able to identify all the species for a distinct end-use and this can lead to marketing or trading by species-grouping thus ameliorating the very decisive availability factor.

Recommendation 10

The Main Query Form also has the capability to generate value-enhancement of species that are not so abundant. This will be mutually beneficial to both the producer and the consumer. As an example, a manufacture of cellos requires species of very precise and special properties, but not in large quantities. With the database, he can find the species and the country from which the species is available. The niche-market becomes facilitated. The value-enhancement factor can be exemplified in the Malaysian context where many species are grouped together and sold very cheaply as MLHW (Mixed Light Hardwoods). Within such a shipment can contain small quantities of, say, *Chukrassia tabularis* or, known locally as Surian Batu. This species is in fact a valuable species much preferred in India where it is known as Chikrassy and is used to make quality wooden chests. It is recommended that this feature be given a high level of prominence in the promotion of the database.

Recommendation 11

There should also be a separate Query form and its associated Output form that enables the database user to obtain information about the type of restrictions, if any, that producer countries impose on the export of their timber products. As stated earlier in Recommendation 7, this is vitally important to prospective buyers. A Schematic for this Query form and the corresponding Output form appears in Annex 8.

Recommendation 12

Another Query Form should provide a succinct profile or overview on the timber industry that exists in each producer country. This should such information as the infrastructure for timber exports, tariff and non-tariff barriers and other trade related information. Inclusion of such an overview will help consumers decide on the choice of country from which they would prefer to make their purchases. It is also useful for similar information to be available on consumer countries. In this regard, it would help producers decide to which consumer country they should be directing their promotional efforts. Such information would be entirely consistent with the “triangular business arrangement” suggested by the Japanese trader as mentioned in Part 2. The Schematic for this Query form and the associated Output form is shown in Annex 9.

3.3 Programming, Software and Internet Issues

Recommendation 13

Given the relative complexity of the proposed re-fashioned database, it would appear to the Evaluation Team that, with particular regard to the Main Query Form and its associated Output form, there could be a need to incorporate into the programming work, a model to be built within the database. This model would enable the database to sort the species by any end-use, based on their technical and technological properties. The model would define an optimal set of minimal requirements in which a species would fit, in order to suit the given end-use. This model would thus perform as a rough expert system for the best value-added utilization of wood species in specific wood products

Recommendation 14

Mention has been made earlier about the choice of Software. The IT expert from the subcontractor has acquired the Developer Version of Microsoft Office 2000 which permits the usage of the Run-time version of Microsoft Access 2000 which is the database engine. Basically, this permits the user the install the programme legally into his own hard disk.

Confirmation is needed to ensure that the programme can be installed in the computers of many prospective users with older operating systems or platforms and to verify that the programme can be installed and used in such computers. The database software should therefore be able to cater for computer systems with “less-than-current” operating systems and hardware configurations. For example, there are still many users having computers running on the MS Windows 95 platform, with 16-32MB RAM, 1-2 gigabytes HDD, clockspeed about 150MHz. Some may not be equipped for multi-media usage, in which case they will have to

acquire a sound card, speakers, software for sound reproduction, etc. should they wish to listen to the narration.

Recommendation 15

It is proposed that the CDROM be turned from a “silent one” to a Multi-media format. Given the fact that currently the database uses only about 250MB of storage, inclusion of sound will not surpass the maximum capacity of a CDROM which is about 640MB. It is not recommended, at this stage, to include video in the format. The narration in the M-M CDROM should obviously be consistent with the printed manual and the HELP folder in the database.

Recommendation 16

With regard to the possibility of having an Internet version of the database, this should be entirely possible and is indeed encouraged. Again, it is the task of the IT expert to ascertain whether the database engine for the CDROM version would be suitable for website use, or whether other web-authoring tools are necessary. Given the size of the site requirements and also the existing ITTO website, it may be more advantageous for ITTO to have a co-location arrangement with an Internet Presence Provider. In this event, ITTO will be having its own machine with the IPP and not have to share space with the IPP's other clients. ITTO will enjoy higher security and will be in complete command on many aspects which the IT expert can elaborate better.

3.4 Promotion and Management of the Database

Recommendation 17

Judging even from the limited interaction with industry in Japan, it is quite clear that there will be doubts as regards the usefulness of the database. The Evaluation Team is of the opinion that for the database in its final form of the first version to be successful, there is a need for a series of demonstrations especially to prospective industry users in Japan. A Japanese version is therefore essential. After the English and Japanese versions are tested for a few months and if there is enough constructive feedback, it would be wise to update the version in both these languages, and then have this version translated into other important languages, such as, Spanish, French, Chinese, Korea, etc. Demonstrations can be conducted by IT-literate timber technologists in all ITTO member countries. It has to be expected that there will almost certainly be a need for further improved versions, as new data and new ideas emerge. This will particularly apply to the Web version where it is not constrained by space but only in download time.

Recommendation 18

It is recommended that ITTO manage the database, both the CDROM and Web versions, especially in regard to the collation of feedback and the response to queries. Technical adjustments can be contracted out to specialists.

Recommendation 19

It is the hope of the Evaluation Team that all the foregoing recommendations will be tabled for discussion at the upcoming Experts Group Meeting scheduled to be held in Malaysia in February 2001.

3.5 Possible Spin-off Benefit

Recommendation 20

One of the most important spin-off activities could be the direction this database could provide for research and development activities. A trial sorting by Family Names, incorporating the geographical zoning, shows that certain species/genera belonging to a certain botanical Family are already commercialized in one zone while it is not the case in another zone. R & D institutions can therefore re-direct and focus their efforts to determine the extent of parity or equivalence. This process can be extrapolated to genus or even species levels, thereby adding positively to the pool of useful data. It is recommended that R & D institutions be made aware and make good use of this feature of the database.

3.6 Need for Contractual Negotiations and Extension of Time

Recommendation 21

From what the Evaluation Team could gather about the existing project arrangements, implementation of many of the recommendations embodied in this Report would be beyond the current scope of the project. Activities related to the implementation of the above recommendations should thus be considered as an extension of the scope of the project, and there should be a proportional extension of the duration of the project. Obviously, these arrangements need to be negotiated between ITTO and the subcontractor. Without the knowledge of the number of species to be selected, the Evaluation Team is of the opinion that the duration of the revised project should be extended by a period of about six months.

4.0 PRIORITY RANKING

The recommendations of the Evaluation Team entail both the revision and enlargement of the scope of work, plus the likely expansion of the final list of species or timbers to be included in the database. The Evaluation Team made 21 recommendations in all, some involving major work while others are rather simple to implement. Some do not even require any inputs from the subcontractor.

Given this rather involved proposed re-fashioning of the database, ITTO has requested for priority ranking to be accorded to these recommendations.

The Evaluation Team, while not disagreeing with this request, nevertheless wishes to point out that the most of the recommendations impinge on one another, and, as such, most of the individual recommendations can be construed as an integral parts of a whole, composite package. It is also noteworthy that the recommendations are grouped separately by subject matter. This facilitates a division of responsibility among the constituent members of the subcontractor's team of experts.

In light of this, the Evaluation Team is of the opinion that it might be more prudent to make the database as comprehensive and complete as possible for it to have a high degree of usefulness. If broken into too many phases, it might be more arduous and perhaps costlier to implement.

Notwithstanding the foregoing observations, the Evaluation Team has identified three recommendations that could be deferred. Recommendation 16 on the inclusion of the industry profiles of both the producer and consumer countries could be included at a later stage without having to make many adjustments. In any case, deferment in the implementation of this recommendation is indeed necessary, given the enormity of the task of collection and compilation of the data from all ITTO member countries. Considering that this is an important ingredient for the eventual database, the subcontractor should make allowance for its easy inclusion at a later date while making adjustments to its programming work.

Another two recommendation that could be deferred is Recommendation 11 dealing with the conversion of the CDROM to a multimedia format, while the third is Recommendation 17 pertaining to the creation of the Web version for the Internet.

5.0 SUMMATION

As required in the Terms of Reference, the Evaluation Team scrutinized the work that has been carried out to-date by the subcontractor. Specific issues mentioned in the Terms of Reference were dealt with.

Since the database should be user-friendly and useful to the industry user in particular, it was considered necessary to hold discussions with some members of the Japanese timber industry. Time, however, limited the level and depth to which these could be taken, and in consequence, the interaction was too limited to be considered as representative.

Based on all its findings as well as valuable inputs from ITTO itself, the Evaluation Team came up with twenty-one recommendations. These covered, *inter alia*, the selection of species, the need for data improvement, the need for re-fashioning of the database and likely adjustments to the programming.

Certain recommendations could be deferred, if need be. In particular, the recommendation that involves the collection and collation of data on country profiles will probably need to be. This will need much time to gather the data, but the subcontractor should allow for its later inclusion when carrying out adjustments to the programming.

The duration set aside for this evaluation exercise was a little short and this factor tended to limit the extent and depth of scrutiny for the Evaluation Team. This limitation notwithstanding, the Team managed to cover all the aspects required and, at times, perhaps exceeded the scope of its work. In this regard, the Team has proposed a different approach to the development of the database and has gone to the extent of giving examples of what could be achieved. It must be stressed that the seven Annexes in the Report may not be as complete as the Team would want, but were all the Team could produce within the duration of the evaluation. There is therefore the need to go through the full spectrum with the subcontractor.

The Team is nevertheless confident that, if its recommendations are implemented, ITTO will possess a database that can become the major reference source especially for industry users.

6.0 ACKNOWLEDGEMENTS

The Evaluation Team wishes to record its deep appreciation for the high sense of cooperation shown by the various members of the subcontractor's team including Prof. S. Uchiyama, Prof. T. Okuyama and, in particular, Dr. A. Tejada and the team leader Prof. Y. Kikata. All discussions were held in an open and cordial manner.

Despite the absence of any prior notice from the Evaluation Team to interview Japanese industrialists, Prof. Kikata managed to arrange meetings with two trading companies, viz. Nagoya Lumber Co. Ltd. and Omni Tsuda, Inc. both in Nagoya, as well as one furniture manufacturing company, Hida Sangyo Co. Ltd. in Takayama.

The Evaluation Team only made the request upon arrival at Nagoya since it was considered important to gauge industry's reaction to the project, albeit in a very limited form. Thanks are due to these companies as well as those personnel met at the Nagoya Timber Port, the Nagoya University and the Human Life Technology Research Institute in Takayama.

The Evaluation Team wishes to thank, firstly, Dr. Ma Hwan Ok, and Dr. Castano for their useful inputs during the initial briefing, and Dr. Douglas Pattie and Mr Yoshiki Takahama of the Wood Products Trade Office for providing additional inputs during the de-briefing session.

Finally, the Evaluation Team members wish to express their gratitude to ITTO Executive Director, Dr. Manoel Sobral Filho and Assistant Director, Mr. Emmanuel Ze Meka for placing their trust on them to carry out this extremely interesting assignment.

7.0 COMMENTS BY THE SUBCONTRACTORS ON THE EVALUATION REPORT

In principle we (the Nagoya subcontractors) agree with the findings of the evaluation team and we find that their suggestions to improve the output of this project should be considered.

As it is mentioned in the report, the producer countries should have a closer participation in the selection of species, as well as, in the provision of up-to-date information concerning the latest restrictions or other subjects that could affect the timber trade. Under PD 58/97 Rev.1 (I) we have tried to gather market information from the Embassies of the ITTO member countries located in Japan. The results have been poor. Another way to attain this aim could be through seminars on this project (Recommendations 1 and 12).

Concerning the geographical division of the species we propose to include this aspect as an additional criteria, but not as a main criteria to divide the database contents (Recommendation 3).

Regarding the reported flaws in the information collected up to now, the revision of the information is our priority and by the date of the Expert Meeting in Kuala Lumpur, a revised version of the database will be available (Recommendation 6).

In case of the detailed market restrictions and other aspects concerning each producer country, these are partially included in the country information. Additional information can be included but it will require additional time to collect, process and add to the database (Recommendations 4, 5, 7 and 11).

Concerning the recommendations regarding the search engines and possible improvements in the layout, we will improve them within the limitations of time (i.e., no new information will be added, but the existent information will be rearranged). As for the layout, easier navigation tools will be included. In the case of data input forms, they were designed for the initial input of information. After the database is established, a different data input system has to be used, (i.e., a more refined format designed to handle a few species in greater detail (Recommendations 8, 9, 13 and 15).

The possible incompatibility problems that could occur in the case of different software versions can be solved after the request of users on a case by case basis (Recommendation 14).

As for the Internet version recommendations, they will be considered for the next phase of the project, after the database is established. The Internet version could be developed through any commercial service available at the market with the support of the staff members of project ITTO PD 58/97 Rev1. (I) (Recommendations 10, 16, 17 and 18).

As a final comment on the evaluation report, information concerning major timber species could be included in the next phase of the project. Depending on the number of species to be added, this task would demand an additional 6 to 9 months work. After this period, 100 to 200 timbers could be included among the commercial species (Recommendations 2 and 21).

Annex 1

Terms of Reference for the Performance Evaluation of ITTO Project PD 58-97 Rev.1 (I) The Establishment of the Database of Tropical Industrial Lesser Used Wood Species

Terms of Reference for Evaluation of Work

- i. To assess the work carried out by the subcontractor on the identification and collection of information on LUS both in and outside of ITTO activities. This assessment shall critically evaluate the first draft of the format of the database (data collection procedures, selection of software, method of data entry, ease of use of the draft interface, etc.). The consultant shall sample and check the integrity, description and market relevance of the species listed in the database and critique the methods of sorting species through the software chosen.
- ii. To provide comments and recommendations on possible enhancements and methods of working by the subcontractor that will facilitate the work toward a finalized database. These comments should also include the possibilities of creating an Internet version of the database for use by interested parties.
- iii. To assess the relevance of the database to the tropical timber trade and appropriateness of the selected species taking into account the available LUS wood raw materials and the market situation in the respective ITTO member countries.
- iv. To provide comments on the copyrights status of the LUS database and to identify any viewpoint that may be relevant to the intellectual property rights of ITTO regarding the finalized version of the database.
- v. Analyze and assess the implementation efficiency of the subcontractor, including the technical, financial and managerial aspects.
- vi. Recommend follow-up actions in order to enhance utilization of the database.
- vii. To identify any issues or problems which should be taken into account in finalizing the LUS database project.
- viii. To prepare and submit a report to the ITTO Secretariat and to the Expert Meeting.

Annex 2

Itinerary and Schedule of Work ITTO Project PD 58-97 Rev.1 (I) The Establishment of the Database of Tropical Industrial Lesser Used Wood Species

- Wed. Nov. 28 Arrival of Dr Isaac Bindzi.
Discussion with Mr. E. Ze Meka.
- Thu. Nov. 29 Arrival of Dr Lew Wing Hing.
Evaluation Team members met up with ITTO Executive Director, Dr Manoel Sobral Filho and Dr Ma Youn Ok in the morning. Detailed discussions continued in the afternoon with Dr Ma and Dr Castaño for the rest of the day, including administrative arrangements and travel arrangements to Nagoya.
- Fri. Dec. 01 Travel by Shinkansen to Nagoya, met on arrival by Dr A Tejada.
Commencement of discussions with the subcontracting team comprising Prof. Kikata and Dr Tejada. Meeting centered around the briefing by the subcontracting team on progress to date.
- Sat. Dec. 02 In Nagoya
Whole day meeting with the subcontracting team, dealing mainly with aspects embodied in Item I) i) of the Terms of Reference.
- Sun. Dec. 03 In Nagoya
Whole day meeting with the subcontracting team, dealing with the examination of Software selection and Sample-checking of data existing in the present database. Meeting with Prof. Susumu Uchiyama, the IT expert of the subcontracting team to gain better insight and to seek clarification.
- Mon. Dec. 04 In Nagoya
Morning visit to Nagoya Mokuzai Co. Ltd, followed by afternoon visit to OMNI Tsuda Inc., a company engaged mainly in timber trading. Visits were intended to gauge industrialists' perception/reaction as regards the ITTO database's objectives.
- Tue. Dec. 05 In Nagoya
Morning meeting with Prof. Dr. Takashi Okuyama, one of the members of the subcontracting team, followed by a visit Aichi Forestry Laboratory. In the afternoon, a visit was made to Nagoya Timber Port and the factory of Nagoya Mokuzai Co. Ltd. assembling products. Visits were made together with Prof. Kikata and Mr J. Noma of Nagoya Port Raft Co. Ltd.

- Wed. Dec. 06 In Nagoya
For Prof Kikata and Dr Bindzi, travel to Takayama. Visited the Human Life Technology Research Institute. Also visited Hida Sangyo Co. Ltd., a furniture manufacturing factory, and had discussions with Mr T. Itaya, General Manager. Dr Lew and Dr Tejada continued discussions and work at Nagoya.
- Thu. Dec. 07 Travel to Yokohama, arriving 1400h.
At ITTO, to settle administrative arrangements, and prepare skeletal Evaluation report.
- Fri. Dec. 08 In Yokohama
Final debriefing and discussions at ITTO with Dr Douglas Pattie, and Mr Yoshiki Takahama from the Wood Products Trade Office of the Japanese Forestry Agency.
- Sat. Dec. 09 Yokohama to Narita
Both Dr Lew and Dr Bindzi leaving Japan for respective home country.