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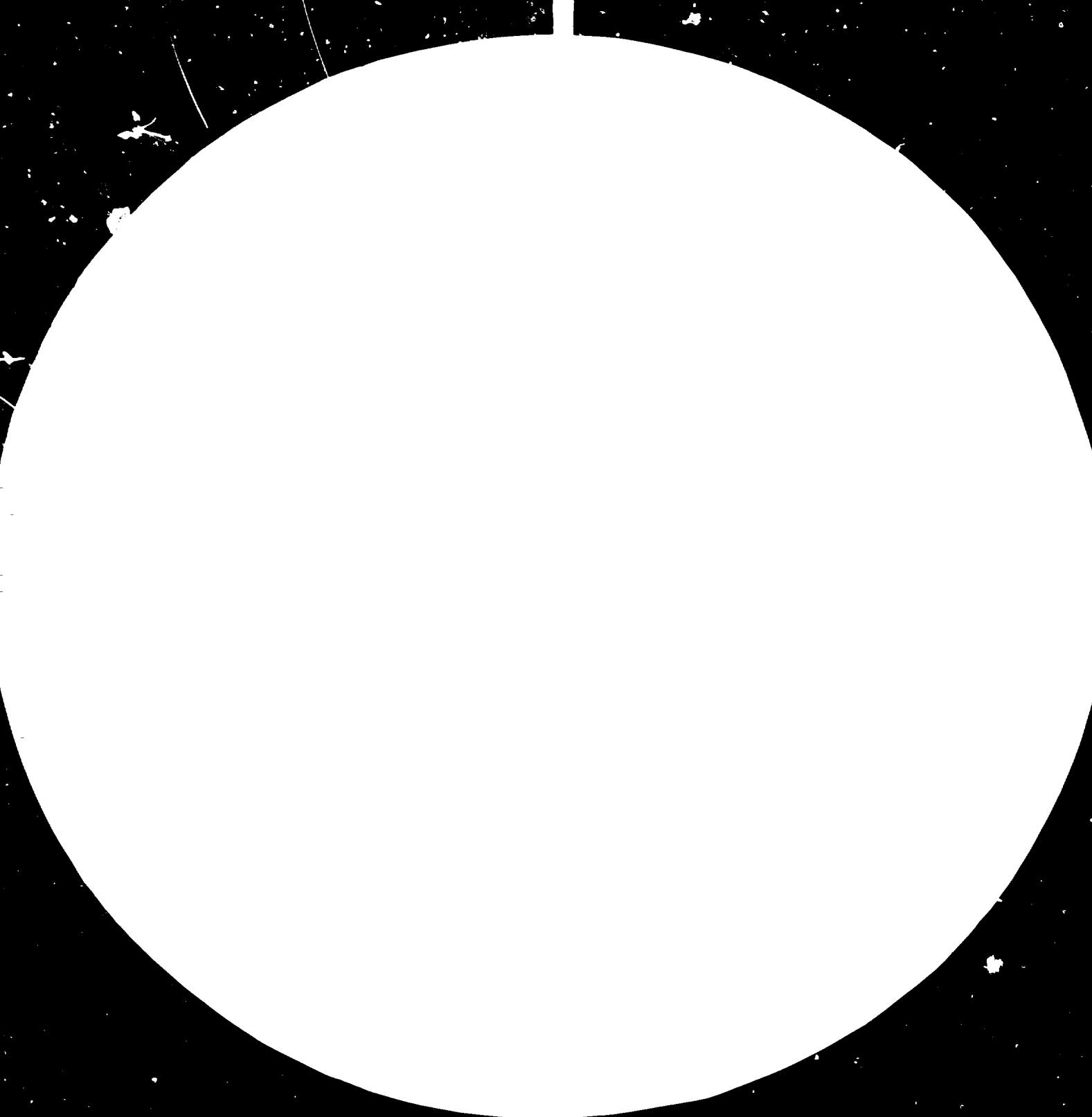

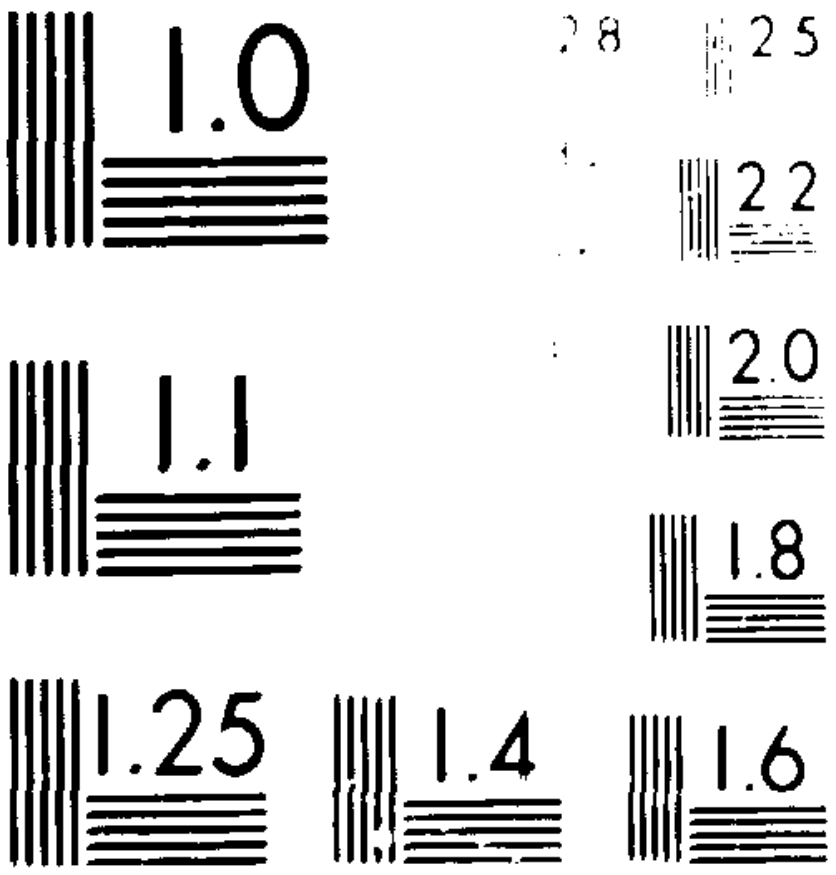
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OVERALL VIEW OF THE PROBLEMS CONNECTED WITH THE PROMOTION OF COMMERCIALLY LESS ACCEPTED SPECIES *

Discussion Paper

by

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1 THE CURRENT MARKET SITUATION

Tropical woods are not one commodity; they provide a range of materials, competitive with both softwood, temperate hardwoods and other materials. They provide materials of varied density which are used in every major wood-using industry, other than for high volume structural use in low-cost housing. They do not compete with the low and medium quality softwoods for roof and floor construction in this field. They do, however, compete with high quality softwoods, with temperate hardwoods, and with other materials in high class construction and joinery, in furniture and miscellaneous manufacture.

The pattern of the market in tropical woods is still very largely based on the availability of well established species which are either:

1) species of high occurrence, of generally good form with properties broadly suitable for utility and decorative/utility applications,

or

2) species of lower occurrence, possibly with not such good form, or with somewhat less accepted general properties, but possessing some highly desirable property such as decorative character or extreme durability.

The market for these well established species can be depicted as in Figure 1 in terms of use and price (excepting the cross hatched decorative band at the top of the left-hand side). Five use-classes are indicated, and the widths of the bands represent ranges of prices, increasing from left to right.

The five use-classes are as follows:

1) Decorative species, having good colour and at least some significant character. Most species in this highly priced class have good utility properties though strong decorative properties may be accompanied by less good utility properties.

2) Constructional species, which will generally be of high density, and often too high for good utility properties. The higher priced species in this class are generally very strong and durable, being suitable, for example, for marine construction.

3) Heavier utility species, which are typically strong species suitable for furniture and joinery framing. Such decorative value as they have may influence their use and price.

4) Lighter utility species, which are used for miscellaneous purposes and typically have some decorative value, though more in terms of colour than character.

5) Speciality species, which are extremely diverse.

Species of lower occurrence tend to feature at higher price levels decorative, constructional and speciality classes on the basis of their outstanding properties.

In the course of time a number of previously unused species were identified in established forest areas and have become well established in the market. Other areas have become the sources of species originally new to world markets but now well established. Some of these species certainly qualified in the past for the descriptions lesser known or lesser used, but their viability as commercial species makes then untypical of the commercially less accepted species which are today's problem. It must be rather doubtful whether there are now any species of high occurrence and good properties which remain to be recognised, though it is certainly possible that there are species of lower occurrence that will be found to be quite as marketable as several of today's higher-priced species on the basis of some outstanding properties.

The first requirement that can be established regarding the problem of the lesser-used or lesser-known species is to identify and evaluate those that need be in no way commercially less accepted. This is a matter of research into both occurrence and properties and will be referred to again later. Prospects for such species will be progressively improved by the reducing availability of currently used species.

Since the grouping of species will be referred to in later pages, it should be mentioned here that there is already significant grouping of utility species from SE Asia, including practical colour gradation.

The existing market is dominated by a small number of what might be called 'commercially essential' species, ie those which may be expected to be found in most or all of the stockholdings of timber merchants handling tropical wood. In volume terms these species are dominant, but they are necessarily supplemented by a number of more specialised species which are leaders in their fields and which will be found in the stock-holdings of merchants specialising in those fields. In any particular market there will also be a number of other species for which there are established outlets and which survive the pressures of market cycles along with the commoner species. Further species are to be found on offer in a more hopeful or possibly transient manner and may be looked upon as being commercially less accepted to the extent that they command prices which are perhaps lower than objective comparisons of their properties might suggest. The cross hatched band at the top of the left hand side of Figure 1 indicates the likely presence on the market of potentially decorative species commanding prices below the decorative price band.

Some of these less common species will be in the course of introduction to the market, and have still to achieve full market acceptance. To this extent they are temporarily commercially less accepted and this is a situation that may be made more difficult by restricted availability and high shipping costs.

The above section has been written mainly on the basis of the consideration of markets for sawn timber since these are the broadest and most diverse markets for tropical wood. Similar considerations, however, apply in the case of plywood though to a more restricted extent since the number of outlets is smaller and the purchasers are themselves part of the timber industry. While the market opportunities may be no less in volume terms, the spectrum of marketing considerations is narrower, and this is even more the case in relation to the use of tropical woods for other panel products, and for pulp.

The market for timber, as for all raw materials, is affected by economic cycles of several years' duration, and is currently low. Typically, interest in lesser-used species increases on the upturn of the cycle and collapses on the downturn when the market can supply all needs in preferred species and before the problems of new species are likely to have been wholly overcome and user loyalty established. It must make sense for producers to make greater efforts to satisfy reduced demand from a smaller resource by extracting and marketing more timber from less forest area. The greater use of currently unused or lesser-used species is crucial. The problems of achieving this by substitution of lesser-used species for established ones are enormous, with both internal competition within the international timber trade and external competition with other materials. The alternative strategy of expanding the market for tropical wood in ways that will absorb currently less accepted species must have attractions. As things stand, the rate of introduction of new species has actually declined during the current recession. While one might expect the penetration pricing of new species to excite interest in hard times, the operating costs associated with these species are now lower than with established species and possible price differentials are limited.

2 LESSER-USED AND COMMERCIALLY LESS ACCEPTED SPECIES

2.1 Discussion and definition of terms

In the previous section the well established species have been discussed. The remaining tropical wood species have at times been variously described as secondary species, lesser-known species and lesser-used species. At this meeting the term 'commercially less accepted species' is being used and this is a good choice.

The lesser-known tag has the merit of emphasising the fact that all species need to be adequately known both as regards occurrence and technical and decorative properties. Its use led to calls for more research into technical properties and to a lesser extent for greater species determination of inventories of growing stock. While it is probably unrealistic to expect the discovery of some general purpose species of

significant occurrence, it may well be that such research will result in the identification of species with certain outstanding properties along with adequate occurrence which can be successfully established on the market. This would then leave for consideration those species of known properties and occurrence which are likely to remain lesser-used unless special marketing consideration is given to them. The essential problem is that these species are likely to remain commercially less accepted without special attention. The special merit of this designation is that it focuses attention on the essential reason why there are "species not being put to their best advantage". The quoted phrase is probably the best, simple, broad definition of the species under discussion, while the term "commercially less accepted" emphasises those species that are likely to remain disadvantaged, even after competent promotion according to current procedures and based on adequate knowledge of properties and occurrence.

Commercially less accepted species can accordingly be defined as those "unused and lesser-used species which continue not to be put to acceptable advantage after they have been competently promoted according to the best methods available and on the basis of adequate information concerning occurrence and properties".

The correct process of consideration of unused or lesser-used species may therefore be stated as follows:

1) Where practicable in the time available, obtain adequate information on occurrence and properties

2) When (1) has been completed, or as an alternative first action, and when reasonable market prospects can be foreseen, promote according to the best available methods and on the basis of (1), where previously carried out

3) Where reasonable prospects cannot be foreseen, or where promotion fails to put the species to acceptable advantage, include it within an action programme for commercially less accepted species which should include (1) where not previously carried out.

2.2 Information requirements

Continuing emphasis needs to be placed on the importance of correct information being available and being in the hands of the right people.

A great deal of information concerning the technical properties of many hundreds of species is already available from research establishments around the world. Best use will be made of future limited research resources if duplication is avoided and trouble is taken to identify the true gaps in current information. Priority should be given to the determination of likely successful usage and to the channelling of maximum effort into the provision of the information that the likely user will require, using the methods and units of measurement that he customarily employs. For example, research in depth into the mechanical properties of a particular species in the solid form may be largely wasted if the eventual utilisation of the species is likely to involve chipping, defibration or pulping.

It should also be recognised that it is the eventual user who will finally become the expert in the utilisation properties of the species. He may well be assisted by research in depth into those properties by a research institute but the need in the first place is the successful introduction of the species to him for practical trial. Earlier research should be that which will help to steer such trials towards a successful conclusion. In the case of sawn timber such research might well concern drying or machining properties, or perhaps moisture movement, rather than strength properties. On the other hand the reverse may be true if the species is destined for structural application. The economic use of research resources will be assisted by the earliest identification of any outstanding property of a species together with any positive disadvantage that the species may have.

A single outstanding property together with the promise of reliable continuous supply is held to justify the effort of learning to cope with the technical disadvantages. Further, it is doubtful whether any species available in large quantity need fail to find profitable use, with the possible exception of low density perishable species.

Attention has frequently been drawn in the past to the importance of reliable and continuous supply of species, but the need for technical research into the properties of species has generally been emphasised unduly by comparison with the need for research into the occurrence of the same species.

It was the early exploitation of tropical forests that divided species into the primaries and the secondaries based largely upon occurrence. It was the large numbers of small quantities of individual species that presented a problem and led to the selective or highly selective felling of the few dominant species that did not present the same problem. Despite this, progress in the greater use of the forest resource must come by enabling the better and wider use of species which are currently less commercially accepted. This would increase the volume and value extracted per hectare thus lengthening the lifetime of the natural forest and reducing the unit cost of extraction. The progressive reduction in the availability of established species should facilitate the marketing of a wider range of species. However the diversity of the species composition of heterogenous forests and their dispersal through the forest continue to create problems that need to be solved.

Research will be better directed if there is regard for the volume and distribution of occurrence of the species since this may indicate likely constraints on its utilisation. However, more importantly from a marketing point of view, this information is necessary to establish and protect the availability of adequate supplies of a species to market outlets. This is necessary to maintain a balance with demand so that there is continuous rather than spasmodic supply, and so that continuity of demand is not lost through interruption of supply. Resource and marketing research are both necessary and any lack of information regarding inventory can only compound marketing problems.

Consideration of these two information requirements prompts the question "Which is the more important problem regarding the commercially less accepted species, their occurrence or their technical properties?" Analysis shows that a random selection of commercially less accepted species. will not appear technically very different from a random selection of established species except as regards the volume and distribution of occurrence. While it would be wrong to suggest that the study of

individual species as regards technical and decorative properties would not favour the established species, it should also be appreciated that several highly priced established decorative species present some considerable problems regarding processing or use.

2.3 Possibilities of grouping

The low occurrence of a large number of species obviously suggests the possibility of grouping, something that has already been done effectively in several parts of the world including the tropics, for both utility and structural purposes. Only the truly decorative uses should be thought to be necessarily unsuitable for grouping. Colour gradation is practicable particularly if the concept of grouping is to permit and encourage specifiers and designers to allow the use of any one of several species for the whole of any particular job, rather than the mixing of species on one and the same job. For purely utilitarian and structural purposes it should be technically possible to mix species without limit from within a group though even here it may facilitate the acceptance of grouping while still achieving considerable benefits, if mixing with a job is discouraged. Successful grouping will require careful selection of species from both the technical and commercial points of view. Appropriate technical properties need to be carefully established but the final selection of species to make up a group will need to take into account commercial as well as technical considerations.

Grouping for utility purposes is likely to be best achieved on decisions made in producing areas or regions rather than in accordance with international agreement on a global basis. Nevertheless, a global meeting supported by adequate research and development could well be the basis of guidelines for grouping for utility purposes, and adherence to the guidelines would help to harmonise the grouping criteria used in different regions without imposing unacceptably rigid rules. Global agreement regarding grouping for structural purposes is more likely to find favour.

When numerous disparate species have to be grouped purely for structural purposes, the decision as to where to place group boundaries inevitably becomes arbitrary. The Australian system already has international repute and covers a great range of timbers and world regions, and its adoption or adaptation for world use should be considered. However, structural

design in many countries is dominated by a few important temperate softwood species, and it is necessary to evolve a system of grouping that is very efficient for use with the most common softwoods, but that can also take account of the full range of other species including tropical hardwoods.

2.4 Promotional methods

The most important form of promotion of lesser-used species must in the final analysis be that carried out by the sellers of the wood in the market-place. There is however much scope for the generic marketing of tropical wood on a cooperative basis as is common with so many raw materials and commodities. There are probably two main reasons for this:

1) Both producers and consumers of raw materials may be wide-spread and numerous; the multiplicity of the direct links between them can only result in a fragmented marketing process lacking coordination and common purpose despite the obvious community of interest.

2) The direct links may be largely manned by commercially oriented persons and companies who may tend to lack the more technical skills necessary for promotional activities.

Generic promotion has three main functions as regards the end user and specifier:

1) it must create awareness of the product

2) it must offer the maximum assistance to encourage its proper choice, specification and use

3) it must use persuasion to ensure that the assistance it offers is used.

Essential promotional activities include:

1) Marketing research
2) Publication of technical and promotional literature
3) The provision of information on request

4) Exhibitions, seminars and courses aimed at the education of the specifier and user

5) Development of end-uses appropriate to the market concerned

6) Representation of the interests of tropical wood on standardization committees

7) Advertising and obtaining editorial publicity

The timber trade itself will also have training requirements which are linked to the promotional activities listed above and which should be catered for by those responsible for promotion.

Several guidelines may be mentioned regarding promotion:

1) Effective marketing operations must be carried on in the individual consumer countries, in the language of the country, in the context of local needs, and with a strong local flavour

2) Such marketing can best be done on a collaborative basis with existing local organisations

3) Promotional bodies may differ from country to country, in some cases providing little more than a presence and in others being actively engaged in marketing operations chosen to suit the individual need

4) The most effective means should be adopted in each country to engage in the marketing activities discussed in this paper either by local operations or by the adaptation to local needs of promotional material made available from elsewhere

5) Effective contributions can be made towards promotion by institutes or individuals who have been responsible for practical research into the properties of the species being promoted. A physical presence at seminars and exhibitions can be most helpful, while practical evidence of their work in the form of suitable exhibits providing a practical demonstration or indication of properties is likely to be appreciated.

3 THE INTRODUCTION OF NEW SPECIES : CURRENT SITUATION AND TRENDS

The introduction of new species needs to be considered in respect of the several forms of processing to which logs are put but first of all the export of logs must be discussed as a means of placing lesser-used species on export markets.

3.1 Log export

While some producing countries have very strict policies controlling the export of logs, others accept the initial export of logs to finance the costs of early industrial development. Others have permitted the export of logs of less saleable species while prohibiting the export of established species in log form. In strict financial terms log export is normally the most profitable activity of an integrated timber export industry complex and is typically used to subsidize the activities that provide greater socio-economic benefits. It is worth distinguishing between the established species and the commercially less accepted species in determining the most appropriate strategy regarding log exports.

Importing countries that traditionally import a large proportion of sawn timber rather than logs and which have no significant plywood industry with raw material needs, still have a market for timber sawn locally from the round to satisfy the more specialised requirements such as matched panelling. There is also evidence that new species can be introduced to a market more easily if there is local availability of logs of that species. This probably results from the ability of the supplier to match the potential customer's needs as closely as possible whereas it is quite likely to be found more economic later to import sawn timber for the same end-use, thereby transferring the added value to the producing country.

Log exports are frequently destined to be peeled for plywood manufacture. The use of commercially less accepted species for plywood manufacture is discussed further in 3.3. Log producers, without access to veneer peeling facilities that can be used for trials of miscellaneous species, will be at a distinct disadvantage in price negotiation with potential customers since the true peeling properties and compatibilities of species will only be known to the plywood manufacturer on the basis of his trials.

Durable species of small diameter may well find use as poles on export markets as well as at home.

3.2 Sawn wood and manufactured products

This section deals both with the sawn products of mills in producing countries and with further manufactures which may be produced from sawn wood in either the producing or importing countries. Whether the sawn wood is used very much in the form in which it leaves the sawmill (for example, in construction) or whether it is substantially further processed as in furniture or joinery, the marketing requirements regarding export and home use are similar in principle. It is a mistake to think that sawn timber for the home market need not be energetically marketed.

Sawn timber provides a wide spectrum of marketing possibilities since there are both many possible end-uses, and a typically competitive merchanting trade selling to buyers whose commitment to timber is conditional against competition from other materials. Other markets to be considered later in this section have typically narrower marketing possibilities to fewer customers who are both committed to timber and expert in its use. The treatment of the market for sawn timber in this paper is therefore more substantial than for other products.

The marketing of a new species of sawn timber typically passes through several stages, in the first of which hand samples and information regarding the properties of the species are presented to the potential customer. The customer may receive larger samples for experiment and then perhaps small parcels at a discount price. Unfavourable comment is sometimes made when the customer comes face to face with the intended standard price, and it is recommended that a true indication of eventual price level should be given in the first place or that the basis of discounting the price of trial parcels is made clear.

A recent study carried out in the UK concerning the successes and failures in the introduction of new species to the UK market in recent years indicated that the best general approach was the insertion of a species into the stockholding of a merchant who is known to stock a wide range of species. The study identified a number of factors which were positive indicators of likely success or failure.

Indicators of likely success were suitability for a specific end-use, the familiarity of the merchant with the source of the species and his confidence in it, and a price advantage in conjunction with specific suitability.

Indicators of likely failure were reliance on price advantage solely, vague thinking that the species will fill a gap, and reliance on the concept of species substitution.

Merchants have three main criteria in judging the prospects for a new species and these rank more or less equally. The three are; occurrence and likely reliability of supply, the suitability of the species for specific end-uses, and ease of processing. Merchants are also concerned with the likely grading and specification of supplies.

Marketing problems are likely to be due to variability, light colour, low density, non-durability and any interlocking or uneven grain.

The amount and quality of information available regarding the species may well affect the possibility of introducing the species to a potential user but does not seem to have any significant effect on the outcome of that introduction, once made. The user himself will quickly become more expert in the utilisation of a particular species for his particular end-use than any research institute could achieve by providing information on properties.

The motivations of end-users in trying out new species are price advantage, suitability for end-use, some shortage of the species they normally use, and less importantly the resemblance of the species to some species in current use.

The typical objections of end-users to trying out new species are that their present supply is satisfactory, they cannot visualise the species being suitable, their customers will resist the introduction of new species, inadequate initial information, and past experience of unsatisfactory trials of unfamiliar species.

Most specialised end-users are unlikely to try a new species unless it has some outstanding property of significant relevance to their end-use.

It should be appreciated that individual species get a reputation regarding their suitability for specific end-uses and for specific processing. Unsuccessful trials should be avoided by a correct choice of use and through the availability of data which will steer the user towards correct methods. Potential users are often interested in hearing details of use of the species in countries of origin, even though the use may be a craft rather than an industrial application.

The end-user's unit production costs will rise according to the number of different species that he has in use since production control is simpler and less costly the fewer species being catered for. The cost of inventory also rises with the introduction of new species, and these are two reasons for caution on the part of the end-user in accepting or even trying a new species.

The effort that is necessary to introduce new species to potential users is quite costly for the importers or merchants involved, and this consideration reinforces the concern for the reliability of supply. Trading arrangements which provide for some exclusivity of supply to the importer or merchant concerned could be thought to be reward for his effort while also possibly being beneficial to the producer. Such arrangements would help cope with a small but potentially reliable volume of supply of an individual species.

Those interested in introducing new species of sawn wood to furniture industries in developed countries should appreciate that these industries are now geared to panel products and veneer which have substantially reduced the demand for sawn wood.

Possibilities of grouping have been discussed in a previous section, while the possible use of availability categories is discussed later. If the occurrence of a species is not high it should either be considered as a candidate for grouping or be aimed at some specific end-use for which it is particularly suitable. Such a species should not be marketed so as to emulate general purpose species when its availability cannot possibly support this role.

3.3 Veneer, plywood and other products

Producers that find difficulty in selling more than a few favoured species of sawn timber may quite feasibly use a mix of other species for plywood manufacture, particularly for core veneers. Apart from the heaviest species only a few species are unsuitable for peeling and the possibilities for use depend on knowledge of peeling and drying properties, and production control skills in handling a mix of species. Species that command a satisfactory price as sawn timber may also need to be used for face veneers to satisfy requirements of quality, colour and character, but plywood manufacturers should be capable of providing a use for larger quantities of other species, particularly since face veneers can be made quite thin. Log form and diameter are of course important.

Sliced veneer can be produced from most species but a very definite decorative character is needed to justify this form of processing and the marketing of decorative veneer of new species is likely to be both long and difficult, since the market is governed very much by familiarity and fashion.

A wide variety of other panel products require the structure of the wood to be broken down. Wood chipboard, fibre building board and medium density fibreboard are the three main types, while wood cement board or blocks provide a rather different sort of product for constructional use. Wood cement products may be manufactured on quite a small scale with low technology equipment, while the others demand heavy investment in sophisticated processing that is difficult to carry out economically on a small scale. There can be species problems in all these processes, including wood cement, though medium density fibreboard would seem to be particularly species tolerant.

Plywood, chipboard and medium density fibreboard all make considerable demands on the availability of suitable adhesives and the need to import these may prejudice the viability of these options. The possibilities of producing adhesives locally should be explored, and there are several choices available regarding the import of raw materials combined with partial processing locally.

One significant benefit arising from the use of logs for products of this type is that the diameter and form of the log is comparatively unimportant by comparison with sawmilling and plywood manufacture.

Possibilities exist for the combined use of veneers and a variety of core materials, while waferboard and oriented structural board are further panel products which may yet appear as manufactures in tropical countries. Both the latter are potential substitutes for plywood.

The manufacture of pulp from tropical hardwoods needs similarly high investment in sophisticated plant and is highly species dependent. While many tropical hardwood species have been shown to be suitable for pulp manufacture, their use is unlikely to make headway without the vertical integration of interests and long term trading arrangements. The same comment applies to the production of chips for shipping to pulp manufacturing plants in importing countries.

A variety of minor products from the forest are quite likely to be satisfied by commercially less accepted species.

3.4 Energy and fuel-wood

The forest is an energy as well as a material resource. A large proportion of all wood harvested is used as fuel-wood, though this is not likely to be so true of forests being systematically harvested for industrial wood. Nevertheless, a substantial proportion of wood that is felled is either left in the forest to rot or is removed for use as industrial fuel-wood. Much of this material is quite unsuitable for sawmilling or plywood manufacture and can only be used for the production of heat or power. Where a complex contains plants which can accept smaller diameter, badly formed logs, then these same plants have very substantial energy needs and the satisfaction of these needs is a very important part of the material balance. Regardless of species, approximately one half of the input to sawmills and plywood plants emerges as residues and the availability of this material restricts the need for logging residues from the forest. The transport of logging residues to the mill site can be more expensive than the unit transport cost of well sized logs.

It would be wrong to suggest that the use of commercially less accepted species for energy production will necessarily be a sound proposition, but the fullest study should be made of the energy balance of the enterprise, and the satisfaction of energy needs outside the industry to assist regional development might be considered.

The sawmiller without other integrated processing has little practicable use for his residues, let alone forest waste or defective logs.

4 THE INTEGRATED MARKETING OF THE PRODUCTS OF THE FOREST

4.1 Economic optimisation

The purpose of a forest industry enterprise must be to maximise added value while having regard to the values attributed by government to the resource itself, to socio-economic benefits, and the weighting to be applied to foreign exchange costs and earnings or to import substitution made possible. The best criterion is probably added value per hectare harvested. Consideration should be given to the residual value of the forest, however difficult this may be.

Maximisation of added value requires choices to be made between alternative uses of the timber, and selling prices must be estimated for each option to be considered. Marketing research is therefore a necessary part of any feasibility or pre-feasibility study.

Both local and export markets for timber products should be taken into account, and the characteristics of each examined. Local markets can provide readier outlets for species that are commercially less accepted on export markets.

Governments may provide incentives for the use of less accepted species, and the effect of these on the economics of use should be taken into account.

4.2 Forestry aspects

It would certainly seem that the harvest per hectare from natural forests could be considerably increased in typical circumstances, probably by ten to forty percent, depending upon the homogeneity of the stands. However, higher extraction rates become progressively more detrimental to subsequent regrowth rates. The residual value of the forest must reduce as more timber is extracted, but the science of forest management is not exact enough to enable this to be quantified, though studies have been carried out which provide data likely to be valid for certain circumstances. On the other hand, the greater extraction of less accepted species may facilitate increased subsequent growth or the immature preferred species.

It has been said that the goal of forest management should be to integrate and harmonize the protective, productive and social roles of forest resources. Productivity is the most easy to measure but this must cover a whole range of forest products and services. The effect of the greater extraction of less accepted species on the whole of these integrated objectives must be very difficult to assess. Nevertheless, forest departments should try to take into account the objectives of subsequent forest management when considering the problems of commercially less accepted species.

4.3 Home use or export

One reason for the difficulty of marketing the lesser used species in importing countries is the length and complexity of the supply chain which is well served by the more trouble-free characteristics and general availability of the well established species. It has already been noted that the less favourable characteristics of generally available species can typically be coped with, but the handling of a larger number of species in small individual quantities is rather more difficult. Local markets are likely to be decidedly easier in this respect, particularly since there can be closer vertical integration between the primary forest industry and wood-based manufacturing industries. Individual smaller scale requirements can be satisfied more directly.

It is possible that local wood-based industries may be inefficient, poorly trained and equipped, and possibly incapable of coping with the more troublesome characteristics of some species. It is important that the training is provided to help improve any such situation and that equipment should be adaptable to cope with the use of such species. Equipment should be properly selected and maintained and provision must be made for the availability of spare parts. Saws and cutters need to be properly maintained and drying techniques correctly applied.

It is often recognised that it would be helpful to have a larger number of uses for wood and wood-based panel products in producing countries and that the larger volume uses that might be encouraged in the construction industry would be particularly helpful. Quite typically, there are consumer prejudices in producing countries against the use of wood in housing and there is need for promotion of the concept. Other constructional uses such as industrial buildings and bridges could also be encouraged.

Codes and Standards relating to housing and construction could well be examined to ensure that they do not tend to frustrate the use of a wider selection of species. At the same time, genuine problems such as resistance to termite attack and fire protection should receive full attention. One useful aspect of the use of wood in tropical climates is that the less dimensionally stable species are less troublesome in respect of movement than in temperate climates.

4.4 Government incentives

The Governments of producing countries should seriously consider the provision of incentives towards the greater use of commercially less accepted species. These incentives may be direct or indirect, and possibly the most important indirect incentive is Government encouragement and pressure on the local construction industry to make greater use of wood and wood-based panel products of local manufacture.

The more direct incentives might include the exclusion of the commercially less accepted species from log export bans, quotas or duties, and discrimination in favour of these species to reflect their lower value as standing timber. This discrimination could either be in terms of stumpage charges or export taxes.

Investment incentives might be provided for secondary industry which could make use of commercially less accepted species while at the same time encouragement should be given to the development of both domestic and export markets for the finished products of these industries.

Government incentives should be market oriented and based on appropriate marketing research. One problem might certainly be the definition of commercially less accepted species for this purpose. Occurrence will be the main guide, and it should not be difficult for a Government to produce a list of species classified as being commercially more accepted so that the less accepted classification can be applied to the large number of remaining species. The commercially more accepted species are likely to include a number of species of lower occurrence which nevertheless have outstanding properties and which command higher prices.

5 ACTION PROGRAMME FOR THE COMMERCIALLY LESS ACCEPTED SPECIES

The need for an action programme to facilitate and encourage the better use of commercially less accepted species has been mentioned in Section 2.1. Parts at least of such a programme should be well suited to the objectives of UNIDO.

In the expectation that this meeting will be discussing the possibilities and priorities within such a programme and the practicability of achieving action-oriented solutions to problems, this paper finishes by presenting a list of possible areas for action at either the national or international level by governments, UN and other international organisations.

The possible work that might be included in such a programme is listed in order of mention earlier in this paper, and reference is made to the Sections of the paper in which they appear; key points are underlined:

1) Two types of research should be encouraged regarding a) technical properties, with emphasis on outstanding features and main disadvantages; b) resource research emphasising the species composition of the forest with emphasis on those parts of the forest available for earlier harvesting

   Research into the properties of less accepted species should avoid duplication and should be firmly guided by realistic commercial requirements. (Section 2.2)

2) Global meetings might be held to provide guidelines for grouping and where found appropriate to encourage international standardization such meetings should be preceded by appropriate research and development. (Section 2.3)

3) Further and up-to-date consideration could be given to the question of generic promotion of tropical wood and wood products, so that such promotional methods are available for use on species where proper application might remove their 'less accepted' classification. (Section 2.4)

4) Technical studies might be supported into a number of problems including peeling properties, small-scale processing and the local manufacture of adhesives. (Section 3.1, 3.3)

5) Further and continuing study of the species tolerance of products and processes could assist the utilisation of mixed species. (Section 3.3)

6) There should be further study and development of the utilisation of low quality wood and wood residues for the production of energy and fuel-wood. (Section 3.4)

7) Economic case studies of the optimisation of the contribution from integrated forest industries should have particular relevance to the utilisation of less accepted species and the incentives that Governments might provide to their use. (Section 4.1)

8) Considerable uncertainty remains regarding the effect of extraction rate on the re-growth of forests. The substantial attention that needs to be given to the study of forest management should include the need to appreciate better the effect of decisions that are taken regarding the extraction of less accepted species. (Section 4.2)

9) Further assistance should be given to the problems of secondary wood using industries in producing countries and to the incentives that might be provided for them. (Section 4.3)

10) There should be further consideration of the problems of using wood in housing and construction in producing countries, to help solve technological problems and to encourage the greater acceptance of wood housing by the peoples in these countries. (Section 4.3, 4.4)

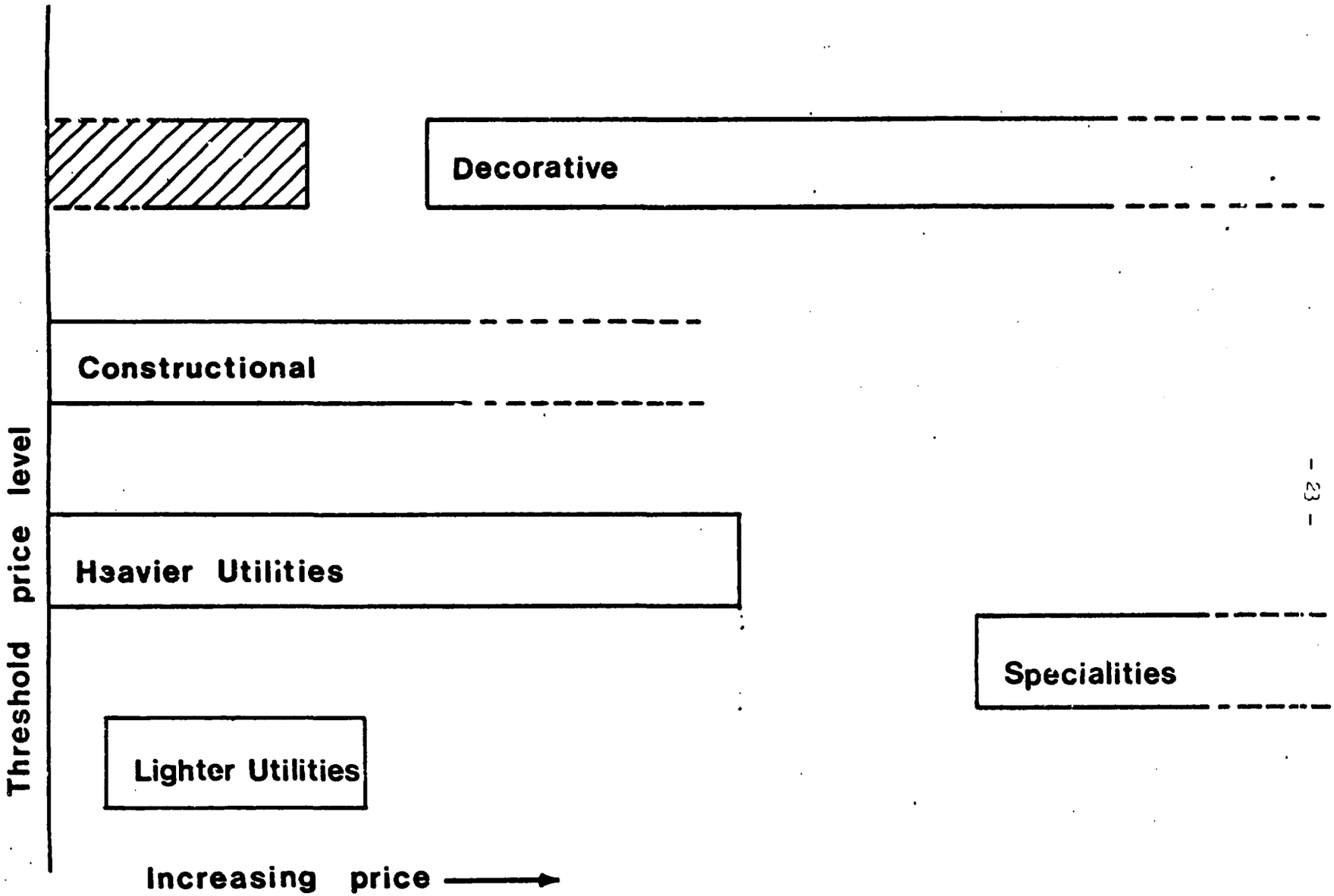
Decorative
Constructional
Heavier Utilities
Specialities
Lighter Utilities
Threshold price level
Increasing price

FIGURE 1