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PROMOTIONAL ACTIONS AND TECHNICAL SERVICES
TO END USERS FOR THE DEVELOPMENT OF
WOOD-BASED PANEL INDUSTRIES

By

The Secretariat of UNIDO

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INTRODUCTION

The development of wood-based panel industries in developing countries is more often than not hampered by the lack of local markets to absorb the production. This applies to those grades of plywood which are not exportable, and to the particle board (and to a lesser extent fibreboard) which cannot compete on the world markets because of the high freight rates involved and the non-competitive costs of production in developing countries due both to the effects of economies of scale and to higher resin costs.

The very rapid acceptability of wood-based panels in the developed countries did not merely come about by the fact that they replaced sawnwood for many of its traditional end uses because the lower costs of labour involved reduced the price of the finished product, it was also because of the considerable behind-the-scenes work of promoting these panels done by the professional and trade associations in the countries concerned.

This short paper aims at identifying the action that has to be taken by all concerned to develop the wood-based panels industries in developing countries.

(1) Product Quality

Whereas end users have traditionally accepted sawnwood with its natural defects (knots, shakes, resin pockets, etc.) because the wood is a naturally occurring product - they are reluctant to accept defects in wood-based products since they are no longer naturally occurring but man-made products. As man-made products the end users expect a more homogeneous product with clearly predictable properties - the more so because of the higher unit cost of these products. To ensure this, the producers have had to establish quality grades (or company standards)
for their products, and these have led, in their turn to the establishment of national standards. It has rarely, if ever, been the reverse.

Because of the special needs of certain groups - e. g., concerning the use of particle board as a subfloor - performance criteria and quality label schemes have been introduced in certain countries. This led to the introduction of quality assurance schemes operated by 'third parties'.

Unfortunately the majority of wood-based panel producers in developing countries attempt to enlarge their share of the market by selling their products on a price basis. To meet competition and still make a profit the quality is invariably lowered, resulting eventually not in the expected increase of the market but in its decrease, due to the creation of consumer resistance. What developing countries should do is to emulate the action taken by the developed countries and create national standards, set at levels which are high enough to ensure quality of products but which, on the other hand, are attainable by the majority of the existing industry.

Once national standards are approved and enforced, the next step would be the creation of quality labels, and the quality assurance schemes that normally follow naturally from them. The existence of such schemes, coupled with the licensing of quality inspectors by a central body greatly facilitates entry onto foreign markets. The rapid development of the European markets for tropical sawnwood from South East Asia (when compared with that of sawnwood from Africa) is to a large extent due to the existence of standards that have been enforced through a serious, competent and well administered system of independent inspectors, and the existence of mechanisms for arbitration.

No such systems exist yet for wood-based panels, but it is strongly recommended to establish these if the producers in the developing countries envisage entering the overseas markets for boards with more value added (e. g., boards faced with decorative veneers, melamine laminates, PVC; phenolic foil-faced boards used for shuttering, etc.).
Finally, the existence of a well established national standard, accepted on the major overseas market because of the seriousness with which it is applied, may result in panels being accepted by specifiers in developed countries for non-standard end uses. Thus new markets are opened since the producer of the manufactured product would otherwise not have used boards from developing countries in the first place.

(2) End Use Specifications

The development of wood-based panel industries in the developing countries could be greatly enhanced if the specifications and designs of the products were changed to permit their introduction.

Governmental bodies and other large para-statal institutions in many developing countries still use designs and specifications dating from pre-independence days. These do not take into account advances made in their country's industrialization, and are better suited for craft and not industrial production. Often these only allow the use of solid wood, where wood-based panels would now be indicated. Because of bureaucratic inertia, changes to these specifications are not initiated by the authorities concerned, and the industry, as a body, does not lobby or canvas to bring about these changes. Naturally, if a firm proposes changes, the authorities feel it has some vested interest and refuses to make them.

Another problem encountered with specifications of manufactured products which could use wood-based panels in developing countries is their detailed and restrictive wording. Many developed countries have adopted the performance type of specifications which determine what resistance, etc. the product should have without specifying in great detail the type of product and its physical characteristics - such as thickness, density, number of plies, etc. This was probably brought about by the rapid technological changes that have happened in industry in the last couple of decades, and could only be introduced in developing countries by their standardization bodies once these countries have
the necessary facilities to test the performance of products. Many developing countries that are large producers of wood-based panels have nevertheless a developed enough industrial infrastructure to permit them to introduce this change.

(3) Marketing Problems

The development of wood-based panels industries in developing countries is often hampered by marketing problems.

First and foremost, factories are often established to produce panels suited to the needs of developed, not developing countries, because an in-depth market survey of the specific requirements of the local market has not been made, and the installations have been bought on the assumption that "since it is suitable for an advanced country we could benefit from it". This results, more often than not, in the panel having to be used for end uses for which it was not intended, since the market for which the product was initially developed simply ceased to exist in that country. (An example of such a case occurred in a developing country using extruded particle board for furniture, because, after the factory was established, it appeared that the anticipated demand for partitions did not materialize.) There is therefore a pressing need to develop expertise in the developing countries to carry out this type of market survey.

The growth of the wood-based panel industries is often stymied by the lack of suitable distribution channels (especially for the local market). This occurs typically in those countries that have a small and dispersed sawmilling industry, which mainly sells directly to end users. The country does not have, therefore, the distribution channel of retailers which exists if it, for example, were an importer of sawnwood. Because of the low purchasing power in most developing countries, and of economies of scale in the wood-based panel industry, the factories have to distribute their products over wide areas of the national territory.
Existing retailers of timber products and/or building materials stores - if the former do not exist - often do not have the financial means to carry stocks of the complete range of the wood-based panels manufactured, or if they do, order them in very small quantities affecting batch size in production. They often oblige the manufacturers to sell on credit, not only increasing his sales costs and need of working capital, but also involving additional commercial risks.

Because of the smallness of the retail outlets, and their lack of sophistication in marketing, they do not have the knowledge to provide technical advisory services, resulting in more cases of wrong applications of wood-based panels (and the ensuing consumer resistance) as well as cases of using non-wood sheeting materials when wood-based panels could have been used advantageously both from technical and cost points of view. This can be overcome by producing technical brochures describing the properties of the wood-based panels and their correct applications. Consumer resistance to the use of wood-based panels - especially particle board - is very often brought about by not only totally wrong applications, but by the use of inadequate hardware fittings resulting in failure of the manufactured product to perform as expected. Retailers of wood-based panels normally do not stock this type of special hardware (such as special screws and hinges for particle board), because, (a) it is not their line of business, (b) they do not have commercial links with overseas suppliers to import these products, and the overseas manufacturers are not interested in approaching them directly because of the smallness of their orders, and (c) this hardware is not yet manufactured in the country, and nobody has attempted to interest potential local manufacturers in starting to produce these items locally. Although this is not their direct line of business, manufacturers of particle board in developing countries should give this matter the attention it deserves even if it means their importing (or arranging for the local manufacture of) the special hardware, and distributing it to their retailers, at cost, as part of their technical service.
Yet another major problem affecting the development of the use of particle board in developing countries is the size and level of technical development of the furniture industry - the main potential end use for this type of panel. In many countries, most of the furniture is still produced by craftsmen in single pieces or very small series, using craft methods or basic machines. They have no facilities for veneering, edge banding and precise boring (for use of dowel type of joints) - let alone for folding the panels - thus obviating many of the production advantages which have assured the rapid development of the use of particle board in furniture in the developed countries, and explaining the slow acceptance of particle board in developing countries.

In many instances, particle board is used with thick solid wood edge lippings, applied after machining a groove in the edge of the panel, and this lipping has to be sanded to make it flush with the panel, resulting in so much additional work that the cost benefit of using particle board is eliminated. Such lippings are also needed if standard hinges are going to be used.

Furthermore, because many small producers cannot veneer the particle board sheets due to lack of presses (even cold setting presses), particle board is excluded from a large market. Because they do not have the multi-head precise boring machines, dowel construction is not strong enough, and users of particle boards for furniture have to revert to far more complicated and labour intensive "ad hoc" connecting methods. Finally, the mere size of the standard particle board sheet makes it unwieldy for use by the single craftsman, who, when using only hand tools often complains of its dulling effect on his saws.

To overcome these problems, manufacturers of particle boards in developing countries should seriously consider investing in equipment to cut-to-size, veneer, edge band and drill panels thus not only greatly increasing their sales potential, but also the value added to their products.
Another service which they could provide to their clients is to maintain, at cost, the latter's carbide tipped saws and cutterheads, thus ensuring, through the use of carbide tipped tools, that the edges machined in their boards are of a better quality and enhancing the value of their products.

Although all these measures are, strictly speaking, outside the manufacturer's normal line of business, they have to be carried out by manufacturers in developing countries if they are to "market" (as against merely 'sell') their products.

2 Training

The diffusion of wood-based panels in developing countries is hampered, among others, by incorrect applications and incorrect working methods. This can be overcome by the provision of appropriate training courses at various levels.

First and foremost, the users of the panels should be trained in its correct end use, on the differences in properties between these panels and the solid wood it replaces, and on how to process it correctly, giving always the comparison with the current practices.

The training of persons who could potentially use wood-based panels at the present time should go hand in hand with the training given in vocational schools. This would imply the changing of curricula in vocational schools and the re-cycling of teachers to impart to them the new information.

At the same time, technical information - in an appropriate format - should be made available to furniture designers and architects, to ensure that they make a full and correct use of the wood-based panels produced in the country.

The training of the workers would best be done by the extension offices of the local Small Scale Industries Institution catering to
the entrepreneurs in the woodworking field. The local wood-based panel plant - or the manufacturers' association, if there is one - would train the extension officers and make available the handouts, which have to be in the language used by the workers and have sufficient illustrations to be intelligible to craftsmen with a limited education. In case that no Institution can be identified to provide this type of training or, in case that the Institute is unwilling to collaborate, than the producers of the panels should offer the services of one of his technicians familiar with the correct use of panels, to his larger clients as part of his technical and after sales service. In any case, the handout material should be prepared by the factory producing the panels.

The teachers of the vocational institutes could best be trained by a visit to the factory producing the panels, coupled with a couple of technical lectures. It should be complemented by the appropriate technical documentation - at a higher level than the former - and by the preparation by the factory of visual aids and demonstration material which should be handed to the schools free of charge, together with samples of all the boards produced. Assistance in preparing the teaching material and in the drawing up of the curricula could be offered, but it would be expected that, once the teachers have grasped the peculiarities of the wood-based panel utilization, they would be in a position to do this on their own.

Furniture designers and architects could be motivated to increase the use of wood-based panels in their designs by inviting them to attend functions where films and slides are shown, giving examples of innovative end uses applicable to the conditions in that country. If and when an innovative end use of wood-based panels has been developed in the country, the company's public relations and sales staff should see to it that it is brought to the attention of furniture designers and/or architects as appropriate.
(5) Promotional Campaigns

The increases in the utilization of wood-based panels — both in developed and developing countries — cannot be assured only by training producers in their correct utilization and modifying specifications to allow for their use. These efforts should go hand in hand with promotional campaigns through publicity in mass media — the press, radio, television and cinemas. These campaigns could be co-ordinated with those of other branches (for example, in publicity for a product using a wood-based panel, the manufacturer could be induced to stress that the wood-based panel in question has been used).

Full use should be made of the use of wood-based panels in prestige buildings or other innovative end uses. The structural use of wood-based panels in general can be promoted through use in buildings that have access to the general public: fairs, exhibition halls, markets, public buildings, etc.

Whenever a new end use has been accepted by the government or a large utility corporation (for example, moulded plywood seats in buses of a public transport corporation), the fact should be publicized in the local press, and, in case they exist, in the appropriate professional journals.

The development of innovative uses of wood-based panels could be promoted through organizing design competitions for structures and/or furniture which use them, and by interesting local architects and furniture designers in participating in these competitions. Prize money should be from the local producer (or the manufacturers' association if it exists). Efforts should be made to ensure that the winning projects are implemented and that they receive maximum publicity.
The above programme of promotional actions and technical services to end users can only be implemented if the industry in each country creates and operates an imaginative and adequately financed association grouping manufacturers of wood-based panels to implement it. It must be stated that wherever such programmes have been carried out in the developed countries - and all the developed countries have had to have such programmes to develop markets and new end-uses for their wood-based panels - these were executed through their manufacturers' associations. In fact, the national manufacturers' associations of Europe have found it useful to create European Associations grouping the national manufacturers' bodies (FESYP, the European federation of national associations of particle board manufacturers', FECPA, the European federation of national associations of fibreboard manufacturers; and FEIC, the European association of manufacturers of plywood). In the United Kingdom, a special multinational body (FIDCR) has even been created for the promotions of fibreboard.

All these associations have a small group of active and technically competent staff that compile statistics, assess them, prepare material for discussion and are active at exhibitions, fairs and technical meetings including those on national Standards. Many of these have committees that cover technical, quality control and standards, marketing, raw materials and labour problems.

To implement such a programme of action, a well equipped laboratory is needed to undertake any research and development work to cater for the special needs of the industry. This might include adapting processes for special properties of the locally available raw materials and/or development of new types of boards to suit the local markets (e.g., boards with additional protection against fungal and insect attack, against high humidity, or boards that have been developed to suit the purchasing power of potential
Laboratories exist in many developing countries which, with limited additional investments in equipment and training of its technicians could be upgraded to meet the special needs of R and D and quality control and quality assurance schemes. (These laboratories will also be entrusted with quality assurance schemes and quality labels.)

It must be realized that overseas buyers would have more trust in quality controls, inspection, and a quality assurance scheme and a quality label that is operated by a laboratory with no direct links with the industry.

The financing of such promotional programmes - and the financing of the manufacturers' associations - is best assured when it comes through a levy on production. This does not mean that this should be the only source of funds for the measures proposed in this paper. This levy on production could (and should) be complemented by grants from the Government - to finance, inter alia, such activities as research and development work, market surveys, etc. and from fees for the inspection of goods. Cases exist in some countries where the government, through an excise tax or other levy on production collects the funds needed to run the promotional activities. In that case a national committee, grouping representatives of the government, the industry, the end-users, is formed. It has been found that these promotional campaigns are most active when the governmental representation is at a minimum, the object being that the government helps to collect the levy, but leaves it to industry to decide on how it is spent. This is achieved by allowing industry representative to be the majority on such committees.

(7) Conclusions

The technical consultation, for which this paper was prepared, strongly confirmed the view that stimulation of domestic markets was essential for proper development of the wood-based panels industries. This was especially important in countries whose forest resources were under pressure considering that particleboard and fibreboard are based on residue materials.