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Forest Products Research Studies In Sri Lanka: From a Prospective Point of View

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Abstract

Creation of a versatile, cost-effective and ecological friendly wood panel will find a growing demand. There is no doubt that this kind of a research project will lead to breaking new ground in science. The results of such a project may help to take a substantial step forward in the wood adhesive field. In concluding, it would be helpful not only to save the forest coverage of Sri Lanka but also be a quantum leap forward for a sustainable industrial development in this field.

Keywords: *Forest Products, Sri Lanka*

1. Introduction:

Population is increasing at an alarming rate especially in the Asian and third world region of the globe. As a consequence the necessity for housing requirements for people is also rising, while the usable land area diminishes at an alarming rate on a daily basis due to natural reasons (i.e., erosion etc.). Therefore preservation and maintenance, a delicate ecological balance, is also gaining crucial importance in order to safeguard a healthier environment for the existence of mankind. On these grounds, preservation of natural rain forest resources and reforestation has become an extremely important task. In order to counterbalance the rapid population growth-rate in conjunction with the rapid deforestation-rate, the effective utilization of available forest resources is gaining a very important role in daily life for the present generation. This applies not only to us but also to the whole world as it may help to some extent to retard the global warming and some other related issues. On the other hand the growth rate of a (high quality) tree is a very slow process and generally it takes several decades for the maturation.

On these grounds feasibility studies of utilizing low quality (fast growing) wood species and also lengthening the shelf life of wood products have great importance. Wood (i.e., forest products) is a relatively cheap, very durable, and affordable material and therefore widely used as a building material all over the world. Some typical household uses of forest products can be found in the following set of applications i.e., in furniture, door and window frames, parquet flooring applications, laminated veneer lumber (LVL), laminated beams (glulam) and I-beams etc. Basically forest products can be divided into two categories, i.e., solid wood and composites.

Utilization of different materials for composite production has been a popular alternative to traditional timber in wood based industries. Composite products can be further sub divided into several categories depending on the nature/sizes of particles i.e., particleboard, hardboard, fiberboard, medium density fiberboard - (MDF), oriented strand board - (OSB) etc., It can be foreseen that there will definitely be a vast potential for the wood industry field in the future. Though some institutes have done some research in this field they have abandoned their programs due to various reasons. It is essential to realize the amount of renewable resources we have, and it would be worthwhile to make an effort to initiate a research program in this direction in Sri Lanka even on a small scale. There is a vast potential to investigate the applicability of earlier mentioned fibers, which are plentiful, and nowadays just usually burned. A research effort might relax the importation cost of engineered boards (although a very large percentage is imported at this time) as well as increase the value of the fibers usage otherwise used as mulch, bedding or organic fertilizer. A reconstructed (timber composite) board uses almost every part of the tree and yields far more material per tree than commercial timber. Any variety of fibers can be used, and this can vary from recycled wood (sawdust), paddy straw/husk, corn stalk, soybean stoves, or any kind of fast growing tree species in Sri Lanka for instance, bamboo species and textile waste material for OSB production etc., Normally these boards are tested to match or surpass the standard commercial quality guidelines set forth for building materials under interior and/or exterior conditions.

Usage of adhesives derived from natural or renewable resources such as tannins, protein and carbohydrate, etc., can be given prominence in a research project. This may be classified as a non-food based utilization of crops. Development of locally grown food varieties as adhesives for wood could be considered as a contemporary research project. A significant challenge in this study would be the development of adhesive resins from renewable resources meeting stringent performance requirements at reasonable costs. Although grain food is now grown on a small scale in Sri Lanka, a demand from the resin industry would lead to increased production, hence providing an additional commodity crop for farmers to grow without worrying about marketability and short-term storage. When research efforts materialize into a commercially successful product, Sri Lanka can benefit by introducing a new industry that would provide jobs and an additional market for grain crops with the utilization of waste material. So these efforts may lead not just to experiment with better uses for some abandoned resources, but also to put forward some advanced concepts in this field of wood adhesives. Several innovative approaches may be followed in this attempt. Other protein/carbohydrate rich locally grown, commodity

crops, for instance cowpea, mung bean, green gram etc., may be incorporated in a study. In this effort boards will be made with resins, which are derived from any of the above- mentioned protein and carbohydrate rich local commodities. When new methods are established it may be extremely beneficial to the wood working industry in terms of lowering the cost of production (i.e., resin costs are a high percentage of the cost of the board). Therefore project has a great advantage especially in a tropical country like Sri Lanka. During the course of study patents may be developed on novel ways of utilizing protein and carbohydrate components as adhesives. Woodworking industries may be provided the knowledge for assessing the potential for the developmental work in protein and carbohydrate commodity bases (soy protein/maize starch) in adhesion fields.

Further wood composites are quite naturally liable to liberate indoor air pollutants on most occasions, especially in very humid environments. Studies have shown that this is a long duration process. Regulations controlling air quality have been taken into consideration in most countries. It is felt that development of emission free (formaldehyde etc.,) wood adhesives will be an essential task, in the new millennium, to improve indoor air quality and health/hygiene conditions. Though being citizens of Sri Lanka, we are a little negligent in this regard. The time has come to think in a new dimension on environmental issues, like these. It may therefore be possible to initiate and utilize the scientific findings in developing wood adhesives of high quality that do not liberate harmful gases.

2. Conclusions

Creation of a versatile, cost-effective and ecological friendly wood panel will find a growing demand. There is no doubt that this kind of a research project will lead to breaking new ground in science. The results of such a project may help to take a substantial step forward in the wood adhesive field. In concluding, it would be helpful not only to save the forest coverage of Sri Lanka but also be a quantum leap forward for a sustainable industrial development in this field.