Problems and Possible Solutions to the Wood Waste from the Wooden Housing Production in Brazil

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ABSTRACT

Brazil has experienced a crescent seek for housing alternatives in relation to masonry, and the wooden houses have demonstrated as a very rational and sustainable possibility. However, the production of building parts and components can present environmental liabilities, both if the timber companies which compose this chain do not have efficient plans for the management of their generated waste and if these companies do not present technologically advanced production lines. These wood wastes from the civil construction activities are found in the pure and natural modes or through the chemical modification of wood. Both residual examples can pollute and result in irreversible environmental problems if assertive actions are not applied for their control and discard. Nevertheless, this study aims to discuss the problem about the topic of wooden waste from civil construction, as well as share proposals to help in the mitigation of this Brazilian current question.

INTRODUCTION

Today, Brazil has presented an increasing search for timber housing as a more sustainable alternative than masonry. Wooden buildings have various models, which include from a pure design present in timber and to examples mixed with other materials.

Wood waste volume generated in construction is still expressive, due to its massive utilization as structures, walls, roofing, fencing, flooring, windows and doors, stairs, etc. Because of these multiple uses, a visible amount of wood waste material is generated in this application, both by artisanal production practices as the low level of industrialization of these components and parts.

Thus, in Brazil, the buildings still produce large amount of waste due to the errors in the project execution, unskilled and or minimally-skilled labor, inadequate packaging and transport of the wood and its composites, or by the absence of management activities, which involve this building production.

WOOD WASTE

Wood waste is solid residue of the organic composition and of industrial origin (Pereira et al., 2010). This lignocellulosic waste can be used to produce higher added value goods, e.g., crafts and reconstituted products (Franco et al., 2010).

The industrial waste has been an environmental problem to be solved, even in timber chain, whereas the wood has a high potential of reuse (De Araujo et al., 2014). This contrast amplifies the unconcern by the timber industry with the waste subject and its possible environmental liabilities in Brazil.

Despite of the wide and deep Brazilian laws, most Brazilian timber companies do not care about their waste generated by their activities. Then, De Araujo et al. (2015) state the absence of waste management for timber chain is a chronic problem present in Brazil, whereas the local Governments rarely stimulated the industrial clusters with assertive policies to mitigate this problem.

Timber construction generate two wood wastes: pure or chemically modified.

DISCUSSIONS

Despite the positive characteristics of biodegradability and high reusability, the pure wood waste, if generated in large quantity, handled and disposed without any prior plan, can cause an environmental liability.

The waste generation of chemically modified wood – from treated wood or wooden panels – should be controlled because this material has constituents potentially harmful to the environment. Thus, the entire production process involving the handling, manufacturing or disposal deserves exclusive attention, due to the possible release of dangerous substances and contaminants.

PROPOSALS

Through these problems, it is necessary to indicate proposals to help the timber housing sector reach the efficiency of other industrial sectors, such as:

- To encourage the wooden housing manufacturers to identify, quantify and select their wastes, according to composition, volume, and identification;
- To create public policies with assertive goals to:
  - Encourage the industries in the selective collection of their wood waste produced in their manufactures, with view to their effective separation;
  - Educate about the correct disposal and reuse of the many possibilities of chemical waste, clarifying all the implications of improper reuse;
  - Stimulate the technological improvement of the machinery from forest-timber chain, enabling the reduction of the wood waste generation;
- To establish a technical standardization for timber production processes to optimize the wood use, reducing the volume of waste generated;
- To encourage the reuse of waste to generate new small manufacturers of recycled sustainable higher added value products;
- To encourage the research and formation of new companies, via incubators and technology parks, which properly recycle toxic waste to produce goods;
- To stimulate the creation of new associations in order to agglutinate these industries, assisting them in symbiosis through partnerships.

CONCLUSIONS

It is expected the Brazilian Government can contribute with assertive measures and laws to encourage and to strengthen the wooden housing companies to act in order to seek for greater production efficiency and a better management of various wastes generated by the timber housing sector and its forestry chain.

REFERENCES