

The utilization of woody biomass in Java, Indonesia

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The ASEAN (Association of Southeast Asian Nations) member countries have high agricultural productivity and rich forest resources. Intensive forestry is practiced in Java, Indonesia. Thus we selected Java as our study area, and studied the availability of woody biomass on the basis the project “Feasibility Studies on Biomass in ASEAN Countries” granted by Ministry of Education, Culture, Sports, Science and Technology, Japan. In this presentation, we report on the current utilization of the logging and wood industry residues.

The national forest of Java is under the control of Perum Perhutani, which is a government forestry corporation. In a planted pine (*Pinus merkusii*) forest which is under the control of Perum Perhutani, the branches that are less than 10 cm in diameter and the stumps, which constitute approximately 10% of the total volume, are not harvested and are utilized freely by the local residents. They collect these residues and substitute them as their cooking fuel.

We surveyed a factory that produced 10,000 m³ of plywood and 5,000 m³ of laminated lumber every month, mainly for exportation to Japan. The yield of the plywood is 50%, and the other half of the raw material forms residues, such as a log end or a log core of veneer. These residues are utilized for the production of blockboard and approximately 4,000 to 4,500 m³ of these are utilized every month as a heat source for timber drying; and they are partly sold for \$40/month.

In the case of a sawmill in which 50 workers are employed, the product yield from teak is approximately 50% to 60%. The residues are used in the same factory as a fuel for drying raw wood by burning them. During a shortage of residues for use as a fuel, branches or industrial residues are purchased at a rate of \$14/m³.

From our survey at the logging site, the plywood industry, and the sawmill in Java, it was evident that almost all the woody residues are utilized as fuel. In the present situation, it is unadvisable to convert the use of woody biomass for any other purpose because the current system is more

efficient in terms of cost and energy consumption. We should practice a more efficient method for improving the efficiency of energy conversion from woody biomass.