

# Consumption and Potential Calculation Needed for Firewood in Indonesia

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East Nusa Tenggara is an area with a difficult topography and high use of firewood. There are 81.26 percent or 862,047 households in the area have used the firewood. Kupang city in East Nusa Tenggara has high number of industries; medium to big industries total to 14 units and 902 small units and home industry.

"The Kupang regency is a firewood supplying area. During this time there have been no studies being made on the use and production of firewood there," said Ermi Erene Koeslulat, S.Si, in the Auditorium of Faculty of Forestry UGM on Tuesday (25/10) during her doctoral promotion in Forestry Sciences.

Ermi Erene said to meet the firewood supplies, planting is needed in critical and non-productive lands. Defending her dissertation entitled *Characteristics of Energy of Eight Types of Trees from Kupang Regency for Planning the Biomass Energy Management*, Ermi said one important criterion in developing the forest for energy goal is related to the type of trees to be grown. Trees with low biomass water content, maximum dry biomass production, and high volume became the criteria to consider.

Others are characteristics of firewood energy such as calor value and combustible nature, ease of burning, the duration of firewood being burnt are the criteria to determine the best types of tree. Selection of the best tree can be done by comparing those criteria.

"One of the methods to do is the hierarchial analysis, analytical Hierarchy Process. One of the goals of this research is to find the tree from the best diameter class based on characteristics of energy as well as relations on physics chemistry," she said.

From her research, Ermi concluded that the potential of firewood in Kupang regency is 38,059,350 kg/year or 38 thousand tonnes/year, while the consumption of firewood among households in Kupang regency and Kupang city or industry in Kupang regency reached 148.65 million tonnes, so it creates a deficit of firewood which is as high as 148.41 million tonnes. Based on the criteria, which is the growth of tree diameter, productivity of biomass, index of firewood (FVI), content of volatile matter and bonded carbon, it is known that the quality firewood is nilotica.

"Hence, the use of nilotica needs to be increased bearing in mind the high potential in Kupang regency. Other priorities are *Kasuarina*, hummingbird tree, *takah*, white leadtree, *Schleichera oleosa*, *Gmelia* and redwood," said the staff from Environment and Forestry Research and Development Agency in Kupang.

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