ABSTRACT

Indonesia has serious problems of educational infrastructure. There are thousands of improper school facilities and lack of school number both in rural and urban areas which cause many children deprive their primary education. In 2011 number of mediumly damaged classrooms reached 182,500 while 110,598 ones were severely damaged. Due to this condition finding a good solution which can provide cheap building cost, quick and sustainably implementation is urgently necessary. One of the answers is bamboo to be used as school buildings.

This research proposed a design of a bamboo school building. Internal forces were analyzed by Structural Analysis Program 2000 v.11. As structure elements Wulung bamboos (*Gigantochloa atroviolacea widjaja)* were used and its strength capacities were controlled based on Load Resistance Factor Design concept, refer to SNI-5 2002 for Timber Construction Design Procedures in Indonesia. Construction cost was estimated based on SNI meanwhile the cost for constructing bamboo structure was estimated based on survey data from the bamboo contractors (Sahabat Bambu and BambuAwet.com).

A bamboo school building has successfully designed. Wulung bamboo with 10 cm diameter were used for almost all parts of building structures and architectural components. The cost estimation for constructing this bamboo school building ranges from Rp 740,000.00/m^2 to Rp 800,000.00/m^2 in Yogyakarta per May 2013, depend on the design type. The cost approxiamtely 50% save compared to the conventional building (in which estimated as much as Rp 1,500,000.00/m^2 in Yogyakarta). The save might be much higher if it is compared to the cost for constructing conventional building in other areas especially in rural areas or backward regions, such as Papua, where conventional school building costs about 3,844,000.00/m^2

Keywords : educational infrastructure problem, bamboo school design, construction cost estimation.