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Assessment of Availability and Cost of Energetically Usable Crop Residues in Nigeria

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Abstract

With the ever increasing market demand for agricultural products in Nigeria, most of the agricultural residues are often allowed to rot away or not efficiently used. It has therefore become necessary to carry out an assessment study of crop residues availability in the country. Assessment of available crop residues is helpful in revealing its status and helps in taking conservation measures and ensures a sustained supply to meet the energy demand. It is also necessary to estimate the costs of various operations performed in making the residues energetically available.

An assessment of the potential availability of selected residues from maize, cassava, millet, plantain, groundnuts, sorghum, oil palm, palm kernel and cowpeas for possible conversion to renewable energy in Nigeria has been made. An attempt was also made to estimate the costs of these selected crop residues in Nigerian context. It is estimated that nearly 58 million tonnes of these residues were potentially available in the year 2004 with a primary energy potential of about 21 million tonnes oil equivalent. The residue availability for 2010 is projected to be about 80 million tonnes. These residues, when converted to energetically usable forms, can complement the existing fossil energy sources in Nigeria by more than 80 %. The cost estimates for the production of these wastes vary from US $ 1.00 per tonne to US $ 2.74 per tonne, depending on the farm residue and the transportation distance. This paper has provided baseline data necessary for future planning in the use of renewable energy sources in Nigeria's energy sector.

Keywords: Agricultural residues, Nigeria, production cost, renewable energy

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