Topic: An Assessment of Current and Possible Future Production Potential of Cassava Feedstock for Bioethanol Production in Cambodia

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ABSTRACT

Cassava is one of the most important upland crops being promoted to produce bioethanol in Cambodia. However, most cassava production is used for animal feed, exports, and industrial feedstock. This study evaluates the current cassava feedstock and possible future expansion area with the estimation of future cassava production potential for bioethanol production in Cambodia. The current potential of cassava feedstock for bioethanol production was estimated based on current consumption and export. However, the land suitability assessment for cassava crop was estimated mainly based on FAO framework. In addition, the GIS application of overlay analysis technique integrated with weight and score of each factor, based on AHP approach, was subjected to identify suitable area which taken into account of mean temperature, annual rainfall, soil fertility, soil drainage, soil depth, and slope data. Furthermore, restricted area, 2002 LULC map, spatial cassava distribution map, and 2014 forest cover map were used to overlay with land suitability map for identifying the suitable area and possible future expansion area in order to come up with future possible cassava production. Preliminary results indicated that 45% of current cassava production can be fermented to bioethanol production of 520 million liters per year. Based on abundant land (forestland change to non-forestland) of each province, approximately 1.45 Mha (0.83 Mha and 0.61 Mha under S1 and S2) were found as the potential area for future expansion which can produce 26.5 million tonnes of fresh root (corresponding to 4,028 million liters per year) of possible bioethanol production. This production can fulfill the demand projection while the supply potential can be exported to the global market. These results obtained potential production and land suitability map for cassava plantation which can serve as references for cassava production planning as well as for evaluating the national potential of energy crop and bioethanol supply in Cambodia.

Keywords: Bioethanol, Cassava production, Cambodia, land suitability, zoning map