

Part of the study topic: “Management of collecting agriculture biomass residues in Lombok”
Origin of the pro project: Feedstock supply study for bio-CNG power plant in Lombok”
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Summary of the report

Rice husk appears to be an enormous agricultural waste in Lombok besides corn cob. Likewise, the generation of rice husk in East Lombok as well as West Lombok potentially supports the deficit of corn cob in several months. The availability of waste shows that East Lombok has the remaining rice husk up to 52,605 tons. The availability of rice husk in East Lombok accumulates in March and April, which is accounted for 73.8% of all months in 2019. On the other hand, the remaining rice husk in West Lombok is 36,477 tons. The availability of the waste in West Lombok in March and April is 42% of all months in the same year.

The huge availability of rice husk, nevertheless, should be only at emergency condition. Using rice husk as the main feedstock is considered inefficient as compared to corn cob because its bulkier which will burden transportation cost as well as storage. The volatile matter of rice husk is much lower (60-65%) as compared with corn cob (87.90%).

In order to facilitate the collection of corn cob, tracing of the location of corn cob is important. The location of corn cob can be traced from the supply chain of corn. It was found that many farmers sell their corn when corn plant is still standing in the field. The traders will harvest themselves the corn employing their own labors. Some traders bring mobile thresher machine to the field for threshing, abandoning the corn cob in the field to save transportation cost. Nevertheless, such a method cannot be applied to all locations because of some reasons, including accessibility and thresher machine limitation. They bring the corn on cob to their warehouses for threshing and drying, some of which may be brought to sell directly to large trader if the field is close. The next location of corn cob is at farmers' houses, since there are some farmers bringing corn on cob to their houses to thresh and dry themselves in order to sell the grain kernel for getting higher price

Rice husk may be present at several locations following those bring the husky rice, namely farmers, collector traders, fixed mill, and large traders (**Figure 2**). Large traders are usually equipped by rice mill to hull the husky rice they buy. Rice husk also presents at fixed mills which cater hulling service as well as make rice trading. Some of rice husk can also be found at farmer house, particularly those bring the rice husk from mobile mill which caters milling service. Mobile mill owner will ask the farmers to bring back the rice husk because of insufficient space on the milling truck.

There were several companies have been explored to be the partners of the bio-CNG plant, namely PT GNE, PT SRA, DNA cooperative, and PT DPP. They are the companies which have experience in running various businesses. However, based several indicators in assessing some partner candidates, only PT GNE and PT DPP are considered to have the best capability of being potential partners.

PT GNE is local government enterprise established in 2006, based on Local Regulation No. 2 in 2006. The former name of the institution was Wisaya Yasa before changing into PT. Gerbang NTB Emas (PT GNE). PT GNE is a potential partner to be a feedstock supplier. It has distinguished eminence as it is a healthy local government enterprise and has several divisions supporting the roles that is expected, namely Mahadesa business which supplies rice for non-cash food aid (BPNT) – In collaboration with Bulog West Nusa Tenggara division. PT GNE has several warehouses for the commodity which can be utilized for corn cob storage.

Currently, PT GNE manages provision of 3.4 million ton of rice from Gapoktan and rice traders in West Nusa Tenggara. In the provision of rice, PT GNE is supported by local government with finance, warehouse, Information Technology facilities. In near future, PT GNE will make collaboration with local government to establish feed factory using corn as the main raw material. This means that besides having access to rice husk, the enterprise also will control part of corn cob across the province. With the capability of managing business so far and its broad network, PT GNE can be the candidate of feedstock supplier. Based on the criteria set up by Weber et. Al. (1991), PT GNE is considered to meet the criteria of the supplier candidate.

The next partner is PT DPP, a company that runs business in corn processing since 2017. PT DPP located in East Lombok, is a progressive company with wide work areas including West Lombok, East Lombok, and Sumba Island. The company has one unit of corn processing, while another two units and one silo are in the process of establishment. In 2019, the company has sold 8,000 tons of corn grain, which will be increased four times after establishment of silo and employing new equipment. The company also has good relationship with many traders so far.

PT DPP has processing and drying technology to produce high standard quality of corn. The company has the opportunity to extend corn trade, for which the company has a plan to buy larger quantity of corn. Collecting corn cob will be relatively easy for the company since it usually buys corn in the kind of corn on cob. Therefore, the more corn the company buys, the more quantity of corn cob is generated. In order to procure the corn, PT DPP develop a production cluster area by developing fostered farmers covering 200 Ha of land, supported by credit of 1.4 billion. It is planned next year that the fostered farmers to be extended supported by credit from KUR (credit for people's business) from BNI (Indonesia National Bank), Mandiri Bank, and Bank of NTB.

Above description shows that PT DPP is capable of being the candidate of feedstock supplier for bio-CNG plant. PT DPP has expressed the willingness to participate in supplying corn cob through annual contract.

Nevertheless, each company has weakness which can disturb their roles as the partners of bio-CNG plant. The weakness of PT GNE is absence of experience in corn business, while the weakness of PT DPP is that it still needs much enough time to develop a cluster area in West Lombok.