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## Hamungaya Sugar Mill: Too Sweet to Sweat

Felipe Pachoco, the owner of the Belison, Antique, Philippines-based Hamungaya Sugar Mill, was sipping a cup of hot coffee and looking out onto his land. He watched as workers arranged the sugarcane, stocked firewood for the furnace, stored water in tanks, and arranged tools in their proper areas inside and outside the mill in preparation for the day's operations.

After receiving notice from Iloilo Supermarket that it would stock Hamungaya Sugar Mill's muscovado,<sup>i</sup> Pachoco's mind was filled with thoughts of how to automate operations at the mill and expand his sugarcane crop as a source of raw material.<sup>1</sup>

Looking ahead, Pachoco was hoping to penetrate leading supermarkets in Metro Manila, as well as international markets by improving his muscovado production and developing muscovado-based products such as candy, syrups, coco jam, chocolate, and cakes.

i Muscovado is the generic name for all brown sugar.

## The Hamungaya Sugar Mill

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Hamungaya Sugar Mill was established in 2003. With an engineering background, Pachoco actively participated in the planning, design, and purchasing of materials for the mill to keep construction costs to a minimum. He received a loan from a family friend to finance the construction.<sup>2</sup> The total project cost was PHP 300,000 (6,365 USD)<sup>ii,3</sup> For a picture of the mill during its maiden operation, see **Appendix A**.

## The Mill Operation

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Pachoco had five hectares of sugarcane as a source of raw material for muscovado (see **Appendix B**).<sup>4</sup> The sugarcane was manually loaded onto three cast iron rollers driven by a 12 horsepower engine where it was crushed, extracting sugarcane juice (see **Appendix C**). After the juice was extracted, it was filtered by a screen net that separated the pulp from the juice as it flowed through a trough and settled into cooking vats where it was boiled. The cooking vats measured 30 inches deep and 60 inches in diameter and were arranged in a series of three or four.

As the sugarcane juice was boiled, its color changed from dark brown to light brown and it became dense. The heated juice was then transferred from cooking vat to cooking vat with a large bamboo dipper until it became more concentrated. When it reached the final vat, the temperature was lowered to 90°C to keep the sugar from becoming caramelized. Once ready, the resulting syrup was placed in a stainless steel curing tub where crystals formed. Following crystallization, the muscovado was placed on a table to dry and was then pounded into granules, weighed, and packaged.

Pachoco's sugar mill was not automated. To automate operations, he would have to put operating equipment in place such as a cane loader, filtering system, and a system to transfer sugarcane juice from one cooking vat to another.

## Healthier Sweetener

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The generic name for all brown sugar powder is "muscovado." Muscovado is a pure whole, unrefined, non-centrifugal cane sugar. It is called "poor people's sugar." According to the Philippine Department of Agriculture, muscovado sugar is a healthy alternative sweetener.<sup>5</sup> Its nutritional qualities are comparable to honey. Muscovado is a natural high energy food source that quickly replaces lost vigor.<sup>6</sup> It contains vitamins A, C, B1, B2, B3, B5, and B6 plus antioxidants, proteins, and soluble fiber.<sup>7</sup>

Muscovado has a strong molasses flavor. Because it does not undergo purification and centrifugation it is coarse and sticky. Its uses vary and it is an important ingredient in native Filipino delicacies, beverages, jams, and root crop delights. It is also an essential ingredient in chocolate and caters to the growing demand for organic health food.<sup>8</sup>

## Sugarcane

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Sugarcane was grown in 22 provinces and 12 regions of the country, covering 400,000 hectares, which was farmed by approximately 60,000 sugarcane farmers. Negros Island accounted for 61% of total

ii As of June 28, 2016 1 USD = PHP 47.13.

production.<sup>9</sup> Muscovado was also widely produced in Antique, Sultan Kudarat, the Ilocos region, the Bicol region, Tarlac, and Negros Occidental.<sup>10</sup>

### **Muscovado Milling**

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There were 166 existing muscovado mills in the Visayas.<sup>11</sup> Antique had the biggest share of muscovado mills at 146; Negros Occidental had eight; Negros Oriental, six; Iloilo, five; and Capiz, one.<sup>12</sup> The milling season lasted approximately eight months, starting in October and ending in May.

### **Visioning and Strategy Formulation**

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Because Pachoco wanted to penetrate local and international markets, he had to determine what would be required to automate operations. He would also have to consider increasing his crop area as a source of raw material. Additionally, he contemplated how he could diversify operations by producing muscovado-based products. How would he accomplish all of this? He had a lot on his mind as he drank the last drop of his coffee.

**Appendix A**

Hamungaya Sugar Mill during its Maiden Operation in 2013



*Source: Pachoco, Felipe G.*

## Appendix B

### Pachoco's Source of Sugarcane



Source: Pachoco, Felipe G.

### Appendix C

#### Manual Loading of Sugarcane



*Source: Pachoco, Felipe G.*

## Endnotes

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- 1 Pachoco, Felipe G. Personal interview. 15 Apr. 2016.
- 2 Pachoco.
- 3 Pachoco.
- 4 Pachoco.
- 5 Department of Agriculture. "Muscovado Sugar Alternative to a Healthier Sweetener." 27 Feb. 2014. Accessed April 8, 2016. <<http://www.daprdp.net/muscovado-sugar-alternative-to-a-healthier-sweetener/>>.
- 6 "Muscovado Sugar." Accessed 15 Apr. 2016. <[http://www.datupaglas.com/articles\\_health/muscovado-sugar.pdf](http://www.datupaglas.com/articles_health/muscovado-sugar.pdf)>.
- 7 Levine, Blanche. "Muscovado Sugar is Packed with Sweet Nutrition." NaturalHealth365. 30 June 2012. Accessed 14 Sep. 2016. <<http://www.naturalhealth365.com/real-sugar.html/>>.
- 8 Department of Agriculture.
- 9 Netfim. "Planting Time." Accessed 14 Sep. 2016. <[http://www.sugarcane crops.com/agronomic\\_practices/planting\\_time](http://www.sugarcane crops.com/agronomic_practices/planting_time)>.
- 10 BusinessWeek. "SRA Holds 1st Visayas Muscovado Sugar Convention." 24 Nov. 2014. Accessed 14 Sep. 2016. <<http://www.businessweekmindanao.com/2014/11/24/sra-holds-1st-visayas-muscovado-sugar-convention/>>.
- 11 Daily Star. "Muscovado Sugar Industry Growing by 22% Annually." 25 Nov. 2014. Accessed 6 Apr. 2016. <<http://visayandaily star.com/2014/November/25/businessnews3.htm>>.
- 12 Daily Star.