

**International Journal
of
Research and Innovation
in
Social Science
(IJRISS)**



Sugarcane Cultivation in The Besuki Residency of Java, 1830-1870

M. Syahrul Mudlofar, Nawiyanto,* Dewi Salindri

Program Studi Ilmu Sejarah, Fakultas Ilmu Budaya, Universitas Jember

*Corresponding author

ABSTRACT

This study examines the sugarcane cultivation in Besuki Residency in 1830-1870. The cultivation was a capital-intensive, state-led plantation system, initiated by Johannes van den Bosch, Governor General of the Dutch East Indies in 1830-1834. Sugarcane cultivation began to be carried out intensively as an export commodity production system. Previously, sugarcane cultivation was run by planters establishing direct relationships with villagers, as implemented for example by A. G. de Rock in Pajajaran in 1829. The pattern had changed due to the implementation of the state-led sugarcane cultivation system. The new system was run through a two-way contract involving the government, sugarcane contractors, and farmers. The contract scheme of the system constantly changed. With the mobilization of farmers and their lands in the production system, the sugarcane cultivation system in the residency of Besuki had a big impact on the pattern of land tenure, the pattern of labor relations, and the penetration of the currency system through wage schemes and production incentives for indigenous officials the so-called cultivation percentage.

Keywords: sugarcane cultivation, state-led cultivation, land tenure, Besuki residency, colonial period.

INTRODUCTION

Besuki Residency is astronomically located at 113° 38'-114° 38' East Longitude and 7° 36'30" North Latitude to 8° 46' South Latitude. Its geographical boundaries are formed by the Indian Ocean in the south, the Bali Strait in the east, and Java Sea in the north. It shared its western boundary with the Residency of Pasuruan. The area of the Besuki Residency is located in the eastern part of Java Island. Administratively the Besuki Residency covered Probolinggo Regency, Besuki Regency and Banyuwangi Regency in the period 1811-1855 (Roorda van Eysinga, 1844:234-236).

The landscape of the Besuki Residency is dominated by mountains in the middle and is a natural boundary between regencies in the region. Just east of Panarukan there is Mount Baluran which is dry and rocky. From the west side of the Tengger Mountains complex, the Hyang Mountains and Kendeng Mountains line up to the east corner (*P. Melvill van Carnbee, 1856*; See also, J. Hageman, 1852:74-76). Around these mountains small mountains scatter. These small mountains are generally humid and cool, but the small mountains along the north coast between Gending District and Wringin District are dry and rocky. (Putri Agus Wijayanti, 2001:18). There are many small rivers that merge into one and become several large river flows from the mountainous plains to the northern and eastern coastal areas of the Besuki Residency (*P. Melvill van Carnbee, 1856*).

Demographically, until the end of the 18th century, the population of the Besuki Residency was far less than other residencies in Java. This demographical feature remained unchanged until the last decades of the 19th century (Nawiyanto, 2003; Nawiyanto, 2009:174-187). The increase in population began to be significant when Panarukan was rented by Han Tjan Pit. The land grant policy and tax exemption for the first 3 years invited migrants from various regions to settle down. The immigrants mainly came from the opposite island, namely people who came from the island of Madura (Putri Agus Wijayanti, 2001:22-24). In 1802 the population of Besuki Regency and Panarukan Regency was 41,534 people (S. van Deventer J. S. Z., 1866a:1-2), this number in 1813 fell by 1/5 to 33,396 people due to the rebellion against Chinese landlords

in Probolinggo (Putri Agus Wijayanti, 2001: 22-24).

In 1815-1826 the population of the Besuki Residency more than doubled. In 1815 the population of the Besuki Residency was around 113,232 people (Thomas Stamford Raffles, 2008:617-618). In 1826 the number increased to 245,860, then reached 296,386 in 1830 (*Tijdschrift voor Neerlands Indie*, Deel I, 1839:162). The Madurese were the most dominant tribe, then the Javanese and Osing tribes are also quite dominant, and there are other tribes such as Balinese, Bugis and Mandar in the Besuki Residency. (P. J. Veth, 1878:1040).

Sugarcane was part of the cultivation system based on the resolution of the Governor General of the Dutch East Indies dated 13 August 1830 (Robert van Niel, 2003:39). The sugarcane industry became more massive after the cultivation system was implemented in accordance with *Staatsblad 1834 No. 22* which was a mandatory planting rule for farmers to plant commodity crops that sell well in the European market. The sugar industry is intensively cultivated in 13 residencies in Java, especially in the Oosthoek region (Eastern Tip of Java). (R. Z. Leirissa, dkk, 1996:55).

Sugarcane planting in Besuki Residency was already found when the area was leased to Han Tjan Pit. This area was given by to the East-Indies Company (VOC) on November 11, 1743, based on the agreement between the Governor General of Kompeni Van Imhoff and Paku Buwono III from the Surakarta Palace. (J. G. W. Lekkerkerker, 1931:4-5). In 1768 the Besuki District and its surroundings began to be leased to Han Bwee Ko, while the Panarukan District and its surroundings were also leased in 1777. This lease was obtained due to the good relationship between Han Siong Kong/Han Tjien Kong (Ngabehi Soero Pernollo) and the head of the Eastern Salient (Hendrik Breton) who was appointed as Panarukan police chief. The reign of Han Bwee Ko/Han Boie Ko and Han Tjien Kong became a red carpet for his family. In 1778 Han Bwee Ko died, the land lease was continued by his son Han Tjan Pit. In 1811 the Probolinggo land was sold to Chinese landlords by Daendels due to being tempted by the profits from renting out the Besuki and Panarukan areas. (Salmon Claudine Lombard, 1991: 62; Heather Sutherland, 1973:144-147; *Tijdschrift voor Neerlands Indie*, Deel I, 1865:447).

Han Tjan Pit was basically not very interested in planting sugarcane because he was worried that it could disrupt rice production for export to Madura. Rice production was the main production of Han Tjan Pit so he could continue to lease this area. According to W. H. van Ijsseldijk, until 1799 sugar shipments from Han Tjan Pit were always below 500 *pikul* [1] per year, far below the sugar shipments sent by Johannes Coert. (J. K. J. De Jonge, 1884:539-545). In contrast to Besuki Regency, according to Elson in the general report of the Besuki Residency in 1823 in Probolinggo Regency, 3 traditional factories had operated, all three of which were owned by Chinese people. The factories operated only to meet local quotas and small-scale trade. This cultivation practice practiced by the Chinese grew and fell with the fluctuations in the price of sugar (R. E. Elson, 1984:22). In 1829 there were 7 factories with a total planting area of ??64 junks in the Besuki Residency. These mills together produced 2.778 *pikul* of sugar in the year (Anonim, 1846:74).

In 1830 there were 12 private sugar factories in the Besuki Residency, 5 of which were owned by Europeans using iron cylinders and water wheels in the sugar cane milling process, while 7 factories owned by Chinese people processed sugar cane using sugar mill buffaloes. A number of 8 sugar factories agreed to contract sugar production for the government with certain conditions. One rule was that planting wages were classified into 3 categories based on the quality of the cane; the first quality costed 160 florins, per *bau* [2], the second quality costed f. 120,- per *bau*, and the third quality was valued at f. 100,- per *bau*. The area of ??sugarcane cultivation in 1830 was 700 *bau* of paddy fields and 500 *bau* of dry land (“Bijlagen Verslag van de Bezoeki en Banjoewangie, 1832”, Besuki No. 24, ANRI Jakarta). In practice, the sugarcane cultivation influences the socio-economic life of the people in the Besuki Residency which was dominated by Madurese.

This study employed the historical method consisting of for major stages: source collection, criticisms, interpretation, and historiography (Nurhadi Sasmita and Nawiyanto, *et al.*, 2012). It draws upon primary historical sources including colonial archival materials and official publication, and complemented by a number of secondary sources. This paper is going to examine the following questions: How was the dynamics of sugarcane cultivation in the Besuki Residency during the state-led sugarcane cultivation system? What were the impacts of the implementation of the state-led sugarcane cultivation in the local population of Besuki in socio-economic terms?

DYNAMICS OF SUGARCANE CULTIVATION IN THE BESUKI RESIDENTIAL DURING THE FORCED CULTIVATION PERIOD

Discussions related to the sugar industry in Java during the forced planting period were divided into two, namely state-led cultivation (*gouvernement-suikercultuur*) and private sugar factories (*particulier-suikerfabrieken*). Even though it was called *gouvernement-suikercultuur* basically the sugar factories involved in it were private sugar factories established with capital assistance from the Dutch East Indies Government.

Land and Sugar Cane Plantation Organizing Instruments

Land is an important aspect of agriculture, so that in the early 19th century awareness of land ownership became so important for the life of farmers. Transformation of awareness that land was no longer just a necessity but something that had to be at stake because land gave many special rights to its owners. In particular, the state has the privilege of collecting production taxes in the form of money or labor (R. E. Elson, 1997:123).

According to Eindresume's report, agricultural land in Java was classified according to the type of ownership, namely privately owned land or private property, communal or communal land and *bengkok* (land for village administrator)s. The type of land ownership in the Besuki Residency was dominated by individual land. The communal land ownership was only found in Regentchap Probolinggo in a very small portion (*Eindresume I* :110 dan *Eindresume II*: 257-259). This communal land, which was located in the Kraksaan and Dringu Districts, also emerged as a result of the communalization of individual paddy fields being converted into a permanent *kring*[3] complex. (*Eindresume II*: 257-259).

In other districts, the *krings* were not permanently placed, but are rotated periodically every 3-4 years ("Kolonial Verslag, 1862"). The land rotation system was used as a result of the efforts of sugar producers in reducing losses because sugarcane demands fertile soil types and good irrigation systems (R. E. Elson, 1994:140). This meant that for 4 years a certain amount of land were used for planting sugarcane while rice planting would be diverted to other land which was prepared to replace it. As a result of the land rotation system every 3-4 years in the Besuki Residency, some farmers had to plant sugarcane on other people's land. Sugarcane farmers who had to plant on other people's land had to pay a certain amount f. 12 per *bau* as a compensation fee to people entitled to land planted with sugar cane, while in Probolinggo District compensation is given in the form of land (*Eindresume I*:319-320).

In order to realize the system of forced cultivation of sugar cane the colonial government executed a two-way contract, namely a contract with sugar producers and to growing farmers through local native officials. There are 2 general principles aimed at making these contracts acceptable to the village community; 1.) The village would be freed from the burden of renting land for the first year, then a kind of down payment would be taken from the handing over of agricultural produce which was carried out later. 2.) In the following years the village would be freed from the burden of land rent which was calculated according to the price of

sugarcane submitted (Robert van Niel, 2003: 22). Lease contract with villages aimed at regulating sugarcane cultivation on particular locations of the villages, took care of the canes and brought the canes to the factories (Robert van Niel, 2003: 40).

The duration of the contract for sugarcane was generally 5 years, this was according to the duration of the contract as shown in the case of T. B. Hofland, the owner of the Baijoeman Sugar Factory in Tongas District (S. van Deventer J. S. Z., 1866b: 699-700). Conditions for contract approval were basically not based on direct orders from the Dutch East Indies Government but on the free will of the public, namely whoever the sugar producer was willing to supply sugar at the lowest price (M. Leidelmeijer, 1997:114). In 1840 all sugar factory contracts were renewed and terms changed, the mandatory delivery of sugar which was originally valued at f. 10 per *pikul* becomes f. 12 per *pikul* (*Nieuwe Amsterdamsche Courant*, “Algemeen Handelsblad”, No. 2950, 21 April 1841). The aim was for the Dutch East Indies government to have a monopoly on sugar production.

In 1847 the Dutch East Indies Plantation Inspector, G. Umbgrove, proposed the need for formal communalization of land in the Residency due to the inefficiency of the land rotation system. According to G. Umbgrove, the technique of rotating land according to local customs and maintaining individual ownership in the Besuki Residency was the reason for the uneven distribution of land, village heads and village officials in the Besuki Residency generally control large areas of land due to their position and inheritance. (J. Millard, 1869: 94-95). This proposal was not realized to respect the customs of the people, objections would arise if their rights were removed. Forced change of this could lead to rejection of the *cultuurstelsel* (*Eindresumé* II:42-44).

Tabel 1: Sugar Factory in Besuki Residency 1830-1852

| Factory | Owners | First Year of Operation | First Planting Area (bau)) | Factory Location (District) |
|----------------|---|-------------------------|----------------------------|-----------------------------|
| Baijoeman | T. B. Hofland | Before 1831 | 845 | Tongas |
| Soember-kareng | D. van Aalst | 1839 | 472 | Ketapang |
| Oembol | M. Von Franz Uemort | Before 1831 | 447 | Probolinggo |
| Wonolangan | Chs. ETTY Sr. | Before 1831 | 260 | Probolinggo |
| Gending | J. G. Goldman | Before 1831 | 172 | Gending |
| Padjarakan | A. G. De Rock | Before 1831 | 306 | Pajarakan |
| Kandang Djatie | L. Spengler | 1839 | 576 | Kraksaan |
| Djabong | Oen Kiking | 1835 | 240 | Djabong |
| Lemadjang | C.F.C. Praetorius | 1851 | 250 | Lumajang |
| Paiton | J. Condor | Before 1831 | 231 | Paiton |
| Paiton | Oen Kiking | Between 1830-1835 | 239 | Paiton |
| Olean | J. du Puy dan J. C. van der Zweep | 1852 | 150 | Situbondo |
| Pandjie | Mr. J. H. Cremer $\frac{3}{4}$ bagian dan J. D. Franssen van de Putte $\frac{1}{4}$ bagian. | 1849 | 450 | Kapongan |
| Boedoean | S.F. Riems | 1840 | 400 | Mlandingan |
| De Maas | A. Van Hoboken | 1848 | 400 | Besuki |
| Wringin Anom | Chs. ETTY Sr. | 1845 | 600 | Panarukan |

Sources: “Algemeen Jaarlijks Verslag over de Cultuur in de Residentie Bazoekie over den Jaar 1835”, Besuki no. 25, ANRI Jakarta; “Algemeen verslag van de Residentie Bazoekie over den Jaar 1840”, Besuki no. 31, ANRI Jakarta; “Stukken Betreffende Het Onderzoek der (bij besluit van den Gouverneur-Generaal van Nederlandsch Indie, van 8 December 1853, no. 10) Benoemde Commissie voor de Opname der Verschillende Suikerfabrieken op Java, lampiran D dan E”; “Statistiek Der Residentie Bezoeki 1861”, Landsdrukkerij No. 137 A, Kitlv.



Pandjje Sugar Factory in Kapongan (Source: KITLV, No. 822063)

Five years later, after the Boedoen Sugar Factory appeared to survive, Chs. Etty Sr. entered into a new contract with the government to build a new factory in Wringin Anom, namely in 1845. The first contract, Chs. Etty Sr. was for an area of 600 *bau*. The higher value of *kring* was possible because he has been trusted by the government with his experience managing the Wonolangan Sugar Factory in Probolinggo. Several other contracts followed afterwards, namely the contract from the De Maas Sugar Factory in 1848 for a planting area of 400 *bau*, then P. G. Pandjje in 1849 for a planting area of 450 *bau*, then finally the Olean Sugar Factory in 1852 with a planting area of 150 *bau*. In 1856 the planted area decreased to 2.200 *bau* not because of the withdrawal of the practice of planting sugarcane but because Probolinggo Regency was separated into an autonomous region. This also affected the number of sugar factories operating in the Besuki Residency, leaving only 5 sugar factories (“Stukken Betreffende Het Onderzoek der (bij besluit van den Gouverneur-Generaal van Nederlandsch Indie, van 8 December 1853, no. 10) Benoemde Commissie voor de Opname der Verschillende Suikerfabrieken op Java”).^[4]

Wages and Labor

In the sugar industry in Java, including in the Besuki Residency, the supply of labor was initially supported by the government. The types of work in the sugar industry were quite diverse from the planting season to post-harvest processing. This type of work usually consists of planting and tending sugar cane, cutting cane, manufacturing work, transporting to government warehouses and supplying firewood, clay, stones and other equipment (C. Fasseur, 1997:276).

The labor recruitment process was carried out by the colonial government with villagers around the factories and *Kring*. Villages that had been contracted as a supply of labor by the government were then channeled into sugarcane plantations and sugarcane milling factories to maintain the continuity of the colonial sugar industry cycle (Robert van Niel, 2003:59). In practice, so that there was no rejection from the population of the employment contract, the Dutch East Indies Government made use of “traditional lines of authority in rural areas to obtain the willingness of farmers” (G. R. Knight, 1998a:74). Availability of local officials in labor mobilization was purchased with a production percentage bonus scheme or commonly known as *cultuurprocenten*. The form of utilization through this traditional authority was in the form of an

employment contract relationship with the village head or local officials as representatives of the villagers. As a result, what arose was a bias in the division of labor in work for mandatory cultivation and compulsory service work for the government because the workforce deployed in plantations and factories is a mandatory work group (R. E. Elson, 1998: 45).

According to the rules, land-owning farmers who were involved in the forced cultivation system will be conditionally burdened with 3 forms of compulsory labor, namely *heerendiensten*, *cultuurdiensten* and *pantjendiensten*. According to besluit van 28sten march 1834, no. J (Staatsblad van Nederlandsch-indie No. 22, 1834:77-78) in addition to the wage scheme regulations for sugar cane cultivation, there is also an appeal to residents to mobilize cheap labor, building materials and fuel for factory entrepreneurs. This appeal certainly strengthens the allegation that all kinds of “work related to planting sugarcane, is done using forced labor”. (Sartono Kartodirdjo dan Djoko Suryo, 1991:5). As a result, compulsory work in Kring as a planter and in a factory as a laborer was a consequence of living in the area around a sugar factory. Working in the ring and factory wa like a tax on the residents in the neighborhood where the sugar company operates.

This condition of course placed Javanese farmers as a commodity that is quite vulnerable because apart from being involved in the gouvernement-suikercultuur they also had to spend time for *heerendiensten* so that the free time to grow their own subsistence crops is increasingly limited. A safer condition is if the affected farmers join as free workers in the sugar factory so that they are freed from the obligation of hereditary, but this kind of thing was difficult for farmers to pursue due to the limited demographics of the population of Probolinggo and Besuki Regencies (“Stukken Betreffende Het Onderzoek der Suikerfabrieken op Java”).

Work in the planting to harvest phase began with land clearing that started before the actual planting season. This work includes digging waterways, constructing access roads (G. R. Knight, 1998a:106), soil fertilization (if needed) (“Kolonial Verslag, 1866”), making furrows and gutters for planting cuttings, irrigating the soil and plants regularly and constructing fences to keep away wild pigs. If according to the schedule, the planting period was going to be completed at the end of September, followed by maintenance until the sugarcane is ready for harvest. Plantation maintenance usually only requires 3-6 people for each smell of land (“Kolonial Verslag, 1865”).

The planting fee received by growing farmers varied each year depending on the estimated appraisal that is carried out before the sugarcane was harvested. Assessment of planting yields was classified into 3 different types according to production estimates. This yield classification was based on soil quality. The assessing party is the commission (controller) appointed by Resident Besuki, this working group was a group of Dutch employees at the lowest level. During the evaluation process, the controller was witnessed by the two district heads and officials and village elders concerned (Robert van Niel, 2003, 42). The planting wage scheme had been regulated in every sugar contract between the government and sugar entrepreneurs where the contents are adjusted to the location and general provisions of 1834 (*Staatsblad van Nederlandsch-indie* No. 22, 1834:67-73). One of them was the payment scheme at the Baijoeman Sugar Factory which was mentioned in the previous section. The payment scheme at the Baijoeman Sugar Factory was received in the form of money for the first 2 years and in the form of cane seeds for the next 18 years from the Baijoeman Sugar Factory contract. The classification of sugarcane yields in P. G. Baijoeman is as follows (S. van Deventer J. S. Z., 1866b:175):

- The first type of sugarcane was a piece of land which is estimated to produce 40 *pikul* of sugarcane, valued at f. 120 per bau.
- The second type of sugar cane was a piece of land which is estimated to produce 30 *pikul* of sugar cane, valued f. 100 per bau.
- The third type of sugarcane was a piece of land which was estimated to produce 10 *picols* of

sugarcane, valued at f. 80 per bau.

Sugar cane was ready to be harvested when it is 10 months old. In this phase, work responsibilities are controlled by the sugar factory. Work began with felling sugar cane, the cane that has been felled is then tied into bunches with varying weights. Each bunch usually consisted of 10-15 stems weighing around 40-80 cattiees.[5] In this job it was assumed that each person was able to cut 550 sticks per day with a daily wage of 12 cents.[6] The felling of sugar cane for each *bau* required 16 workers with a work rotation system according to a certain duration of time for each group of 4 people, besides that a Chinese foreman was also assigned as a field supervisor. Furthermore, the canes were brought to the sugar factory by cart, each cart was ridden by a charioteer and pulled by 2 cows or buffalo. Every day several groups of transportation were needed depending on needs. Each transportation group consists of 3 carts which loaded and unloaded twice per day. Wages payment for this transportation service was 36 cents per day. Transport work consisted of transporting sugarcane to post-harvest factories and transporting sugar from factories to government warehouses. Sugar milling jobs were not known in detail, but the unskilled laborers who worked in the factory receive a wage of 12 cents per day with the same work rotation system. Two Chinese foremen for this matter were also deployed for each *bau* as supervisors of the planting to transportation process with wages worth f. 30 per month (“Kolonial Verslag, 1852”). Meanwhile, according to the rules, crop failure due to unexpected events was the responsibility of the Dutch East Indies government. However, the payment scheme for sugar cane production under 10 *pikul* or crop failure has never been explicitly regulated in any contract. As a result, farmers who were contracted as sugar cane growers are increasingly vulnerable at their subsistence level. This condition was exacerbated by the compulsory *heerendiensten* work where people are usually mobilized as coolies in sugar factories, although they received decent wages, they cannot sustain their subsistence level if a crop failure occurred.

In 1856 the daily wage for manual workers at the factory was 15 – 20 *duit* for the day shift and 20 – 30 *duit* for the night shift, in Probolinggo District *stokers* and *kalken*[7] paid 35 – 40 *duit* per day. Wages for sugarcane felling and transportation workers are paid using a piece rate system, namely $\frac{1}{2}$ *duit* per bunch, while transportation costs for $1\frac{1}{2}$ – 2 *duit* per bunch, wages are paid per day (“Kolonial Verslag, 1856”). In 1860, sugarcane felling workers were paid 16 $\frac{1}{2}$ cents for the day shift and 25 cents for the night shift, as a comparison wages in the Probolinggo Residency ranged from 25-30 cents per day. The value of this wage was the same as the wage given to *vrijwillige arbeiders/vrijarbeid*[8]. The value of the wages by the Dutch East Indies Government was considered adequate with the price of rice and other food prices (“Kolonial Verslag, 1860”).

Cultuurprocenten

It has been mentioned before that to attract the willingness of farmers, the Dutch East Indies Government offered wages and made use of traditional channels of authority. This traditional line of authority was purchased by the Dutch East Indies Government to aggressively recruit workers and boost the productivity of export crops. The willingness of local officials was purchased through the *cultuurprocenten* system, namely a remuneration system in the form of money calculated based on the percentage of export crop production from the area under their authority. Incentives were also given to local level colonial officials for the same purpose, even with a fixed down payment (J. J. van Klaveren, 1953: 116).

The rules regarding the system were first promulgated in 1832 in the Resolutie der Hooge Regering van den 5den December 1832, no. 1, which stipulates setting aside an amount of 50 cents per *pikul* of sugar as a bonus for officials relating to cultivation at the local level. The value distribution is further contained in the general principles of compulsory planting in 1834. Residents, assistant-residents and regents each receive f. 0.10 per *pikul* of sugar, then controller worth f. 0.05 per *pikul* of sugar, while the share of the *wedana* and other native officials who become their subordinates is accumulated in the amount of f. 15 per *pikul* of sugar. This value is a minimum standard that can change according to local circumstances (*Staatsblad van Nederlandsch-indie*

No. 22, 1834).

In 1850 according to the *Staatsblad voor Nederlands-Indie 1849 no. 39* starting in 1851 the allocation of *cultuurprocenten* remuneration was adjusted. Residents, resident assistants, controllers and district-level native rulers each receive 8 per *pikul*. *Wedana*[9] and his subordinate *Mantri*[10] who are associated with the sugar industry each receive 10 *duit* per *pikul*, while *bekel* and his subordinates are accumulated at 10 *duit* per *pikul*. This, like the previous rules, was a minimum standard set by the Dutch East Indies Government, conditions on the ground could have been different.

Table 2: Perbandingan Nilai *Cultuurpocenten* dan Total Pengeluaran dalam Industri Gula Pemerintah di Keresidenan Besuki Tahun 1854-1868

| Year | <i>Cultuurprocenten</i> | Total Expenses. (f.) |
|------|-------------------------|----------------------|
| 1854 | 88.780,77 | 1.937.992,92 |
| 1856 | 26.274,33 | 626.334,61 |
| 1860 | 30.852,21 | 490.777,52 |
| 1862 | 37.311 | 483.841,84 |
| 1863 | 27.249 | 473.957,26 |
| 1864 | 23.582,54 | 486.195,14 |
| 1865 | 26.111,41 | 477.740,94 |
| 1866 | 27.396 | 566.590,29 |
| 1867 | 27.772,28 | 556.390 |
| 1868 | 27.056 | 563.724 |

Sources: “*Kolonial Verslag, 1854-1868*”.

Table 2 shows a comparison between the government’s sugar industry total spending and *cultuurprocenten*. The expenditure figure for this *cultuurprocenten* is much higher than the expenditure figure for labour. In Table 4.10 expenditure on labor is in the range of 0.1% to 0.95% percent, while the expenditure rate for *cultuurprocenten* ranges from 4.5% to 7.7%, the expenditure rate for this *cultuurprocenten* is on average dozens of times higher higher than spending on labour. Expenditures for the highest *cultuurprocenten* occurred in 1862, which was around 7.7% and was so wide apart from expenditure for labor with a percentage of around 0.19%. During that period the average wage and production per smell were not the highest in the same timeframe, worth f. 34.53 per *bau* and f. 44.72 *pikul* per *bau*. According to the rules, the *cultuurprocenten* value is based on the regional productivity value, but this value actually shows a disproportionate comparison. As a result, the percentage of incentives for colonial and native officials became unclear.

Sugar Cane and Sugar Production

High productivity was the only reason for the survival of the sugar industry during the forced cultivation system. If only the productivity of sugar cane in Java was disappointing and it became unprofitable for the Dutch East Indies Government to expand production, it would certainly be diverted to other types of productive crops. The survival of the sugar industry in the Besuki Residency during the forced cultivation period is proof that the planting of sugarcane in the Besuki Residency brought quite a profit to the Dutch East Indies Government, even though the planting was carried out on individual land (S. van Deventer J. S. Z., 1866c:161).

From 1835 to 1840, the cultivation of sugar cane in Besuki district was stopped and the sugar factory that was there stopped operating. The reason is because the air in Regentshcap Besuki is not good for the health

of Europeans and Chinese. Sugarcane planting was then diverted to indigo planting, but because indigo planting was not more productive than sugarcane cultivation, sugarcane cultivation in Besuki Regency was developed again in 1840 (S. van Deventer J. S. Z., 1866b:699-700).

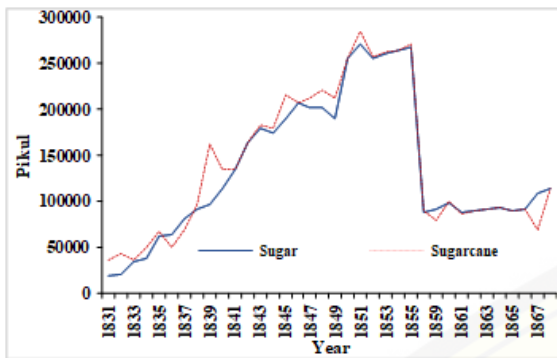


Fig. 1. Sugar Cane and Sugar Production in the Besuki Residency in 1831-1868

Although sugar production in the Besuki Residency recorded fantastic figures, this did not always go hand in hand with the productivity of sugarcane cultivation. This is clearly seen in *Fig. 1*. The lines on the graph often intersect one another and show conflicting trends. In 1836, 1840 and 1867 sugarcane production in the Besuki Residency decreased, but on the contrary, sugar production increased. Between 1837 and 1839 sugarcane production increased dramatically to more than 150,000 pikul. In 1840 sugarcane production decreased due to the flood that occurred in Probolinggo Regency during the rainy season in 1839 and damaged the irrigation system (I Nyoman Suaryana, 1989:91), sugar production increased slowly again in the range of 50,000 to 100,000 *pikul* and only reached 150,000 in 1842.

The difference in line patterns in *Fig. 1* is caused by differences in the level of development of factors of production. The technology for processing sugarcane into sugar continues to develop so that sugarcane processing becomes more efficient, while sugarcane production during the forced cultivation period depends entirely on the availability of land, favorable natural conditions and is done manually with human and animal labor. For example, in 1836 Chs. Ety, the owner of the Oembol Sugar Factory and the Wonolangan Sugar Factory, brought in steam-powered airtight sugarcane processing pans to improve the quality of the sugar produced (S. van Deventer J. S. Z., 1866b:703). One of the innovations in sugarcane production occurred in 1835, initially the sugarcane seeds were planted 1.5 meters apart and each furrow was about 3 meters apart. This was considered inefficient in terms of space utilization so that the spacing was changed to 2 square feet each (“Algemeen Verslag van de Residentie Bezoeki over den Jaar 1835”).

Unforeseen circumstances that impacted sugar production also sometimes occurred, one of which was flooding and burning of sugar cane in the cane during the 1840-1850s. In 1835 a major flood hit the Besuki Residency area causing sugarcane and rice crops to be damaged by the flood (*Groninger Courant*, No. 56, 14 Julij 1835). A bigger flood occurred in 1847, the flood occurred due to continuous heavy rain from 11 February to 22 February, causing the rivers to overflow. 8 bridges in Besuki Regency were flooded while 2 other bridges were washed away so that community access was completely blocked. After the flood receded, another flood came on March 6, as a result, the paddy fields were submerged and the crops were damaged (*Leeuwarder Courant*, “Nederlanden” No. 44, 1 Junij 1847). The impact of the flood can be seen in *Fig. 1* where the sugarcane harvest in 1848 seemed to have decreased compared to the previous year.

In 1850 around 291 *bau* from a 1000 *bau* sugarcane plantation complex was burnt in Panarukan. Burning sugar cane on kring was done little by little until it reaches that area. No further information is known, but records in Colonial Verslag 1850 state that the burning was caused by the envy of the residents (“Algemeen Verslag van de Residentie Bezoeki over den Jaar 1850”; “Kolonial Verslag, 1850”). The Kring that was

burnt is most likely *Kring* from the Pandjie Sugar Factory. The location of the Pandjie Sugar Factory was included in the administrative area of the Panarukan Regency and began operating in 1849. However, the statement about malice was a one-sided testimony in the report of the Dutch East Indies Government without supporting strong evidence, apart from that in Fig. 1 this phenomenon does not appear to have such a significant impact.

THE IMPACT OF SUGARCANE PLANTATION IN THE BESUKI RESIDENTIAL

The *gouvernement-suikercultuur* system that entered suddenly accompanied by an increase in currency circulation caused major changes to aspects of public production and consumption. This system led to transformations in land tenure and labor, while the rate of population growth continued at a rapid pace. Even for the farming class, the introduction of a wage system applied to various types of work in the sugar industry helped change habits to become more consumptive (R. E. Elson, 1984: 83-84).

Sugarcane is actually a type of plant that deviates from the subsistence level of Javanese rural farmers. The Besuki Residency, which was not spared from the *gouvernement-suikercultuur*, made some of the available fertile land for planting sugarcane, while the land was originally designated for producing rice or secondary crops. In response to this, the residents involved in the *gouvernement-suikercultuur* in the Besuki Residency generally apply a planting rotation system once every 4 years (“Kolonial Verslag, 1862”). The solution is not without a bad impact at all. A bitter argument was expressed by G. R. Knight which led to big questions about the truth behind colonial archival documentation. The period for sugarcane growth until it is ready to be harvested is one year, while the preparation for planting until all the cane is cut down is 14 to 20 months, depending on the readiness of the workforce involved and the *kring* area. As a result of the duration of the growing season and land rotation, G. R. Knight concluded that the area of *kring* was actually twice that of colonial documentation (G. R. Knight, 1998b: 45).

Table 3: Comparison of Land Area with Rice and *Palawija* Planting Area in Besuki Residency

| Year | Total Area of Land | Rice | <i>Palawija</i> | Unplanted | New Land Exploration for Next Year |
|------|--------------------|---------|-----------------|-----------|------------------------------------|
| 1854 | 126.557 | 114.567 | – | 4.267 | ? |
| 1856 | 69.414 | 48.670 | 16.701 | 1.635 | ? |
| 1860 | 73.041 | 49.280 | 17.861 | 3.539 | ? |
| 1862 | 74.725 | 49.420 | 18.924 | 3.476 | 361 |
| 1863 | 90.600 | 49.262 | 37.804 | 1.029 | 905 |
| 1864 | 71.904 | 48.403 | 19.233 | 1.699 | 505 |
| 1865 | 74.198 | 51.852 | 19.415 | 491 | 569 |
| 1866 | 88.596 | 52.489 | 31.860 | 851 | 440 |
| 1867 | 94.344 | 52.381 | 37.636 | 665 | 1.396 |
| 1868 | 92.417 | 52.326 | 37.373 | 718 | 1.662 |

Sumber: “Kolonial Verslag, 1854-1868”.

The availability of land for planting rice and secondary crops was not fully affected by the *kring* area, this is clearly seen in Table 3 where the area for planting rice continues to increase. In fact, the accumulative percentage of *kring* area ranges from 3 % to 7 % compared to the area of rice cultivation. The highest percentage occurred in 1854 with a value of 6.7 %, namely when the Probolinggo Residency was still included in the Besuki Residency. This percentage then gradually decreased until it stabilized below 4 %. But if this calculation is doubled, according to G. R. Knight’s conjecture, the value will eventually stabilize around 8 %. According to this assumption, the alleged violation of the planting area is certain to occur. In

1854 the percentage involving the Residency of Probolinggo reached 13.3 %. Then if the districts that are not included in the ring are eliminated the results obtained will be quite astonishing (“Kolonial Verslag, 1854-1868”).

The violations did not stop there. The village head in the rural social structure occupies the most strategic position in village politics. As a result of the implementation of the *gouvernement-suikercultuur*, the role and position of the village head has become stronger. According to the *Eindresumé* report, in general it is not too difficult to reconstruct new land so that it can be owned by newcomers. Willingness to cultivate the land and permission from the village head is enough to obtain the status of ownership of a land, this is a common practice in the Besuki Residency. This fact encourages the opening of new lands under individual ownership status. In contrast to this, the land acquisition process is more complicated due to restrictions on sales to foreigners. The purpose of this may be part of the village head’s interest in retaining his profit from the percentage of the *gouvernement-suikercultuur* (*Eindresumé* I:42-45). This means that the more landowners, the more compulsory labor and land for compulsory cultivation.

The village head’s failure to promote *gouvernement-suikercultuur* could invite punishment from the colonial government. Village heads who failed to be accused of being uncooperative were then arrested, whipped and arrested. Village politics and this kind of abuse have given rise to various reactions from farmers within the *gouvernement-suikercultuur* environment. The climax of the farmer’s reaction sometimes ended in the act of burning sugar cane on the *kring* due to pressure from the obligations imposed on them (R. E. Elson, 1984:52).

In 1834 some of the dry cane which was ready to be harvested in that year was burned by sugar cane loggers to reduce their workload. It is hoped that by burning the land, the intensification of the *gouvernement-suikercultuur* can be suppressed (*Anonim*, 1835:104; R. E. Elson, 1984:55). This attempt by the farmers to refuse proved fruitless, because the area planted with sugar cane in the period 1832-1855 continued to increase. This was because the case of burning sugar cane on *kring* was considered not to represent a general rejection of the *gouvernement-suikercultuur* because in the period 1834-1836 an increase in population also occurred in the districts where part of the *kring* area. Population growth in these districts is an average of 6.4 % per year (R. E. Elson, 1984:59).

In line with the expansion of the *kring*, cases of burning sugar cane at the *kring* have also increased. The burning of sugarcane on *kring* in Probolinggo Regency increased significantly in the period 1840-1850. According to R. Elson in the period 1844-1846 there were 367 cases of burning sugar cane in dry (R. E. Elson, 1979: 221). In that period, the opening of the *kring* and the construction of a new factory in Besuki Regency were also accompanied by similar cases. In 1844 alone there were 144 cases of burning sugarcane on *kring* in Besuki Regency (“Algemeen verslag van de Residentie Bezoeki over het jaar 1844”). In 1850, cases of burning sugarcane on *kring* in Probolinggo Regency began to decrease, namely 22 cases, while in Besuki Regency the number of cases of burning remained high, namely 109 cases. (“Algemeen Verslag van de Residentie Bezoeki over den Jaar 1850”).

This kind of practice seems to have continued throughout the period of forced cultivation, although it is not known exactly how many and in what detail the cases occurred because not all archival sources record this phenomenon. For example, on August 27, 1861, a newspaper reported a case of burning sugar cane in a basket belonging to the Boedoan Sugar Factory in Besuki Regency. At least the loss reaches 15 odors in a case of burning. This newspaper reported that the fire started from a single hotspot which spread due to delays in handling and gusts of wind (*Bataviaasch Handelsblad*, “Batavia” No. 75, 1861).

Apart from these negative things, other businesses as a result of the sugarcane cultivation policy which could multiply profits have also emerged. One of them was a business opportunity caused by the need for transportation animals and ploughing animals. This opportunity was put to good use by livestock owners of

the type of cattle and buffalo, they rent cattle for these needs. The phenomenon of renting livestock for transportation of sugar cane has increased since planting was mandatory. In several factories, livestock owners were recruited as permanent workers for the sugar factories as transporters. These permanent workers for transporting sugarcane began to be found in the 1860s. Meanwhile, the renting of livestock to plow the land occurred because farmers did not always have their own plowing animals (G. R. Knight, 1998a:85).

CONCLUSION

The system of forced sugarcane cultivation in the Besuki Residency succeeded in bringing benefits to the Dutch East Indies government. The variables of the colonial sugar industry's profits can be viewed from the level of productivity and sustainability of the industry. In order to achieve a positive value in these two variables, the Dutch East Indies government formulated various regulations for the implementation of forced sugarcane cultivation which often changed due to the emergence of various anomalies in Java. In addition to the formulation of various regulations, innovations in sugarcane processing technology were also developed. A clearer regulation was stipulated in 1834, in fact the practice of *gouvernement-suikercultuur* in the Besuki Residency had been implemented since 1830, while planting outside the system had occurred before 1830. The success of this practice occurred because the Dutch East Indies Government succeeded in establishing a two-way contract, a contract with sugar factories as contractors for processing sugar and contracts with sugarcane growing farmers as contractors for the supply of raw materials, namely sugar cane, while the position of the Dutch East Indies Government was as a managerial system that strived for the sustainability of the production process. These contracts were monopolistic in nature so that the Dutch East Indies Government was basically the only company in Java, a company that produced as well as exported sugar for the global market.

This system in turn led to a transformation in the pattern of community relations and created a further social divide between land-owning and landless farmers. Moreover, the village level officials who became the bridge between the colonial government and the farmers strengthened their position in the rural social strata, especially through the *cultuurprocenten* scheme. This village elite group generally obtained extensive land management rights in addition to individual land rights so that the distribution of benefits basically stops at the village elite level without being able to be felt by the groups below it.

REFERENCES

1. "Algemeen Verslag van de Residentie Bazoekie over den Jaar 1840", Besuki no. 31, ANRI Jakarta.
2. "Algemeen Verslag van de Residentie Bezoeki over den Jaar 1835", Besuki 25, ANRI Jakarta.
3. "Algemeen Verslag van de Residentie Bezoeki over den Jaar 1847", Besuki 42, ANRI Jakarta, bagian *suikercultuur*.
4. "Algemeen Verslag van de Residentie Bezoeki over den Jaar 1850", Besuki 44, ANRI Jakarta.
5. "Algemeen verslag van de Residentie Bezoeki over het jaar 1844", Besuki No. 39, ANRI Jakarta.
6. "Bijlagen no. 11, Staten der Verschillende Kultures en Elke Desa Bezittingen Inlandsche Hoofd 1842", Besuki no. 103, ANRI Jakarta.
7. "Bijlagen Verslag van de Bezoeki en Banjoewangie, 1832", Besuki No. 24, ANRI Jakarta.
8. "Eindresumé Van Het Bij Goevernements Besluit Dd. 10 Juni 1867 No. 2 Bevolen Onderzoek Naar De Rechten Van Den Inlander Op Den Grond Java En Madoera Zamengesteld Door Den Chef Der Afdeeling Statistiek Ter Algemeene Secretarie, Deel I."
9. "Eindresumé van het bij Goevernements Besluit Dd. 10 Juni 1867 No. 2 Bevolen Onderzoek Naar De Rechten van den Inlander op den Grond Java En Madoera Zamengesteld Door Den Chef Der Afdeeling Statistiek Ter Algemeene Secretarie, Deel II."
10. "Koloniaal Verslag 1850"

11. "Kolonial Verslag 1851"
12. "Kolonial Verslag 1852"
13. "Kolonial Verslag 1856"
14. "Kolonial Verslag 1860"
15. "Kolonial Verslag 1862"
16. "Kolonial Verslag 1864"
17. "Kolonial Verslag 1865"
18. "Kolonial Verslag 1866"
19. "Kolonial Verslag 1867-1868"
20. "Statistiek Der Residentie Bezoeki 1861", Landsdrukkerij No. 137 A, Kitlv.
21. "Stukken betreffende het onderzoek der (bij besluit van den Gouverneur-Generaal van Nederlandsch Indië van 8 December 1853, no. 10) benoemde commissie voor de opname der verschillende suikerfabrieken op Java." Commissie voor de opname der verschillende suikerfabrieken op Java, 1857, Koninklijke Bibliothek No. 558 A4, Kitlv.
22. "Verslag van Bezoeki en Banjoeangie, 1829," Besuki 23, ANRI Jakarta.
23. Anonim. *Blik op Het Bestuur van Nederlandsch-Indie*. Kampen: K. van Hulst. 1835.
24. Anonim. *Staat van den Landbouw op Java Over het Jaar 1829, den Luitenant Generaal, Gouverneur General Over Nederlandsch indie*. Brussels: van C. J. De Mat, 1846.
25. *Bataviaasch Handelsblad*, "Batavia" No. 75, 1861.
26. De Jonge, J. K. J. *De Opkomst van Het Nederlandsch Gezag in Oost-Indie* Deel XII. 'S-Gravenhage: Martinus Nijhoff. 1884.
27. Elson, R. E. "Cane-Burning in the Pasuruan Area: An Expression of Social Discontent" dalam van Anrooij, Franjoen. *Between People and Statistics*. The Hague: Martinus Nijhoff. 1979.
28. Elson, R. E. "Kemiskinan dan Kemakmuran Kaum Petani pada Masa Sistem Tanam Paksa", dalam Booth, Anne dkk (ed.). *Sejarah Ekonomi Indonesia*, penerjemah Mien Joebhaar. Jakarta: IKAPI. 1998a.
29. Elson, R. E. *Javanese Peasant and Colonial Sugar Industry*. Singapore: Oxford University Press. 1984.
30. Elson, R. E. *The end of the peasantry in Southeast Asia: a social and economic history of peasant livelihood, 1800—1990*. New York: St. Martin Press, Inc. 1997.
31. Elson, R. E. *Village Java Under Cultivation System, 1830-1870*. NSW: Allen & Unwin Pty Ltd., 1994.
32. Fasseur C. "Organisatie en sociaal-economische betekenis van de gouvernements-suikerkultuur in enkele residenties op Java omstreeks 1850", *Bijdragen tot de Taal-, Land- en Volkenkunde, Journal of the Humanities and Social Sciences of Southeast Asia*, Volume 133 no. 2/3 1977.
33. Furnivall, J.S. *Hindia Belanda: Studi Tentang Ekonomi Majemuk*. Jakarta: Freedom Institute. 2009.
34. *Groninger Courant*, 56, 14 Julij 1835
35. Hageman, J. *Handleiding tot de Kennis der Geschiednis, Aardrijkskunde, Fabeleer en Tijdrekunde van Java* Deel II. Batavia: Lange & Co. 1852.
36. Kartodirdjo, Sartono dan Djoko Suryo, *Sejarah Perkebunan di Indonesia*. Yogyakarta: Aditya Media. 1991.
37. Knight, G. R. "Kaum Tani dan Tanam Paksa tebu di Pulau Jawa Abad ke-19: Studi dari Keresidenan Pekalongan 1830-1870" dalam Booth, Anne dkk (ed.). *Sejarah Ekonomi Indonesia*, penerjemah Mien Joebhaar. Jakarta: IKAPI. 1998a.
38. Knight, G. R. "Kuli-kuli Parit, Wanita Penyang dan Snijvolk: Pekerja-pekerja Industri Gula Jawa Utara Awal Abad ke-20" dalam Lindblad, J. Thomas (ed.), *Sejarah Ekonomi Modern Indonesia: Berbagai Tantangan Baru*, penerjemah M. Arief Rohman dan Bambang Purwanto. Jakarta: Pustaka LP3ES. 1998b.
39. *Leeuwarder Courant*, "Nederlanden" 44, 1 Junij 1847.
40. Leidelmeijer, M. *Van Suikermolen tot Grootbedrijf: Technische Vernieuwing in de Java-Suikerindustrie in de Negentiende Eeuw*. Eindhoven: Technische Universiteit Eindhoven. 1997.

41. Leirissa, R. Z., Dkk. *Sejarah Perekonomian Indonesia*. Jakarta: Departemen Pendidikan dan Kebudayaan 1996.
42. Lekkerkerker, J. G. W. *Probolinggo, Geschiednis en Overlevering*, Amsterdam: J. H. de Bussy. 1931.
43. Lombard, Salmon Claudine “The Han Family of East Java. Entrepreneurship and Politics (18th-19th Centuries)” *Archipel*, Volume 41 1991.
44. Millard, J. *De Suikerindustrie op Java*. ‘S-Gravenhage: Martinus Nijhoff. 1869.
45. *Nieuwe Amsterdamsche Courant*, “Algemeen Handelsblad”, No. 2950, 21 April 1841
46. Nawiyanto, S. *Agricultural Development in a Frontier Region of Java*. Yogyakarta: Galangpress.
47. “Pertumbuhan Penduduk Besuki: Kajian Demografi Historis”, *Humaniora*. 21, 2, 2009.
48. Sasmita, Nurhadi and Nawiyanto, et al. *Pedoman Penulisan Skripsi Jurusan Sejarah*. Yogyakarta: lembah Manah, 2012.
49. Raffles, Thomas Stamford. *The History of Java*. Jakarta: Buku Kita. 2008.
50. *Staatsblad van Nederlandsch-indie* 22, 1834.
51. Suaryana, I Nyoman. “Perubahan Sosial dan Ekonomi Di Besuki (1830-1850)”, *Tesis* pada Program Studi Sejarah Program Pascasarjana Universitas Gajah Mada. 1989.
52. Sutherland, Heather. “Notes on Java’s Regent Families: Part I.” *Indonesia, Southeast Asia Program Publications at Cornell University*, no. 16 1973, <https://doi.org/10.2307/3350649>.
53. *Tijdschrift voor Nederlandsche Indië jrg 3 Eerste deel*. 1865.
54. *Tijdschrift voor Neerlands Indie Deel I*. 1839 Batavia: The Lands-Drukkerij.
55. Van Carnbee, P. Melvill. *Kaart van de Residentie Bezoeki en de Afdeeling Banjoewangi, 1856*. Uitgegeven bij van Haren Noman & Kolff, Batavia, 1856. <https://nla.gov.au/443/tarkine/nla.obj-230936206>, diakses pada 22 November 2020.
56. Van Deventer J. S. Z., S. *Bijdrage tot De Kennis van Het Landelijk Stelsel op Java Deel I*. Zalt-Bommel: Joh. Noman en Zon. 1866a.
57. Van Deventer J. S. Z., S. *Bijdrage tot De Kennis van Het Landelijk Stelsel op Java Deel II*. Zalt-Bommel: Joh. Noman en Zon. 1866b.
58. Van Deventer J. S. Z., S. *Bijdrage tot De Kennis van Het Landelijk Stelsel op Java Deel II*. Zalt-Bommel: Joh. Noman en Zon. 1866c.
59. Van Eysinga, Roorda. *Handboek der Land- en Volkenkunde, Geschied-, Taal-, Aardrijks-, en Staatkunde van Nederlandsch Indie Deel III*. Amsterdam: L. Van Bakkenes. 1850.
60. van Klaveren, J. J. *The Dutch Colonial System in The East Indies* (‘s Gravenhage: M . Nijhoff, 1953), hlm. 116
61. Van Niel, Robert. *Sistem Tanam Paksa Di Jawa*. Jakarta: LP3ES. 2003.
62. Veth, P. J. *Java, Geograpische, Ethnologische, Historische Deel II*. Haarlem: De Erfen F. Bohn. 1878.
63. Wijayanti, Putri Agus. *Tanah dan Sistem Perpajakan Masa Kolonial Inggris*. Yogyakarta: Yayasan Adikarya IKAPI dan Ford Foundation. 2001.
64. Winarni, Retno *Modernisasi Birokrasi Di Keresidenan Besuki Abad XIX*. Yogyakarta: LaksBang PRESSindo. 2018.

Foot Note

[1] The unit of weight, 1 *pikul* = 61.76 kg (Retno Winarni, 2018b:XXIV).

[2] this unit of measurement of land area is commonly used in colonial archives in Indonesia, equivalent to 500 rod² or 7,096 meters².

[3] *Kring* comes from the word *beschikkingring* or exploitation area, an area allocated for a sugar factory as part of a contract agreement with the Dutch East Indies Government (G. R. Knight, 1998a: 86).

[4] Next abbreviated “Stukken Betreffende Het Onderzoek der Suikerfabrieken op Java”.

[5] 1 catty = 617.613 grams. 1 *pikul* = 98.816 catty (Retno Winarni, 2018b:XXIV).

[6] 100 cents = 1 guilder/florin (f). 5 cents = 8 coins or 1 cent = 1.6 coins. *duit* is the unit for copper coins. 8 *duit* = 1 *stuiver* = 5 cents. So 160 coins = 1 guilder (J.S. Furnivall, 2009:XX).

[7] Steam engine maintenance and pickling (“Kolonial Verslag, 1856”).

[8] Refers to outsourced labour; “free” workers who are contracted independently by sugar producers as permanent workers for sugar cane cutting, transportation and factory work without government assistance. The wages of these “free” workers are regulated according to the type of work. This permanent workforce will not be mentioned too much because until 1868 the sugar producers in the Besuki Residency continued to lack permanent workers, the work would not be completed on time without labor assistance from the government. (“Kolonial Verslag, 1867-1868”).

[9] District lord.

[10] Assistant officers for officials above them.