



Research Article

Colonial Knowledge and the Emergence of Public Nutrition in Colonial Indonesia (1930s–1940s)

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Abstract

This article analyzes the transformation of nutritional knowledge in Indonesia during the 1930s to 1940s, which shifted from concerns about food supply to issues of nutrition. The economic crisis prompted the colonial government to recognize the decline in the quality of food consumption among the population, caused by various factors. Consequently, the colonial authorities adopted new approaches to understand nutritional problems in society. The central question of this study is how the colonial state translated laboratory-based nutritional science into a systemic bureaucratic tool to manage the population's biological welfare during a period of global crises. This study employs historical research methods and applies a public nutrition approach. The findings show the shift from food supply to public nutrition and the institutionalization of nutritional knowledge through colonial bureaucracy. Thus, nutritional problems can no longer be understood merely as biological issues but must be seen as social phenomena related to economic conditions and patterns of consumption. This shift reflects a new understanding by the colonial state in conceptualizing the welfare of the population through scientific knowledge. Finally, this study implies that the institutionalization of nutrition served as a fundamental element of late-colonial state formation, where scientific knowledge was integrated into the mechanisms of administrative control and social engineering.

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INTRODUCTION

Nutrition is fundamentally the study of how food functions within the human body. It is a biochemical process in which essential substances derived from food are transformed into the raw materials and components necessary to sustain life (Mudambi & Rajagopal, 2007, p. 4). From this perspective, human health and development rely heavily on nutritional intake, which serves to strengthen the immune system and enhance productivity.

But how do we know that "something" is good for us and accept it as a truth today? We often assume that nutrition is a well-established and natural science, as if its principles are universal truths that have always existed in the way humans understand food. However, this assumption is challenged by Jean Mayer, who stated that "Nutrition is not a discipline, but an agenda." This suggests that nutritional knowledge is not formed neutrally; rather, it is shaped by specific interests, needs, and socio-historical contexts (Neswald et al., 2017, p. 1)

Modern nutritional science itself developed in the West through a long historical process, beginning with the chemical revolution in France during the late 18th century and evolving into a discipline capable of explaining diseases as nutritional deficiencies, a development marked by the discovery of vitamins in the early 20th century. This knowledge did not remain confined to scientific centers but spread alongside colonialism to various regions, including colonial Indonesia, where scientists began to assess the population's nutritional status using data from various research fields. As a major rice-producing nation, the issue of *beri-beri* and vitamins became a critical topic, drawing the attention of prominent scientists such as Eijkman, Grijns, and Hulshoff Pol, which led to local food varieties, previously just part of the daily diet, becoming objects of study to be classified and analyzed for their nutritional content. However, because laboratory approaches such as molecular biology and biochemistry had limitations in addressing community-level problems, an alternative perspective emerged, viewing nutrition as a social issue embedded within society. This shift catalyzed the

emergence of public nutrition, a field where nutritional challenges are examined through disciplines such as economics, politics, anthropology, and policy analysis to address nutrition at the population level (Rogers, [2001](#)).

In the context of colonial Indonesia, the limitations of laboratory-based medical approaches became increasingly evident with the widespread outbreaks of *beri-beri*, which became a primary concern for the Dutch East Indies government. This was reinforced by Christian Eijkman's findings that the cause of *beri-beri* was not a virus or bacteria, but a nutritional deficiency of vitamin B1. This issue could not be resolved simply by providing a uniform food supply. Furthermore, the situation was exacerbated by the Great Depression of the 1930s. In Java, this economic crisis caused a shift in consumption patterns from cereals (rice and maize) to tubers (cassava). These tubers were considered to have a lower protein content compared to maize and rice (Boomgaard, [2000](#)). This sudden dietary decline among a population whose nutrition was already deemed poor raises the question of why and how the colonial government sought to understand the population through observation and measurement under the colonial power system, ultimately exercising that power through the production of knowledge.

In Indonesia, several authors have touched upon nutrition in their writings, particularly within a historical context. Fadly Rahman ([2023](#)) discusses how nutrition became a vital element in the formation of an Indonesian food identity. Baha'uddin, in his thesis ([2005](#)), briefly explains the nutritional status of the population as a consequence of the Cultivation System (*Cultuurstelsel*), which led to crop failures and famines from the mid-19th to the early 20th century. Furthermore, Pratiwi ([2024](#)) highlights how nutritional science and the definition of "healthy food" marginalized indigenous Indonesian green foliage in public consumption patterns. While these works are significant in opening a discourse on nutrition in Indonesian history, they generally do not yet position nutrition as a construct of knowledge shaped by scientific logic, socio-economic conditions, and colonialism. Moving beyond existing scholarship on food policy and identity formation, this article explicitly examines nutrition as a form of colonial knowledge, exploring how the Dutch East Indies government and experts constructed the indigenous diet as a public, bureaucratic issue through extensive field studies.

METHOD

This article is a study in the history of knowledge focusing on public nutrition, specifically as it was conceptualized within the colonial context. As proposed by Swislocki ([2011](#)), This is referred to as "nutritional governmentality", a framework in which the state utilizes nutritional knowledge to conceptualize political objectives and manage the health of the population. This research employs the historical method as outlined by Kuntowijoyo, which consists of several stages: topic selection, heuristics, verification, interpretation, and historiography. Primary sources were gathered from the National Archives of the Republic of Indonesia (ANRI), including records from the *Inventaris Arsip Tekstual Algemeene Secretarie Serie Verslagen 1825 (1830-1940) No. 409*, which contains food survey reports and food situation assessments in the Indonesian Archipelago from 1931 to 1933. Furthermore, digital archival research was conducted via [delpher.nl](#) to access reports published by the Departement van Economische Zaken, including research findings from Kutowinangun and Gresik. Additional sources include technical reports published by the Instituut voor Volksvoeding, such as the Goenoeng Kidoel Rapport and Sagalaharang Rapport, as well as contemporary newspapers including *De Standaard*, *Bataviaasch Nieuwsblad*, and *De Telegraaf*.

In analyzing these historical materials, this study treats archives not as isolated data, but as interconnected components of a late-colonial biopolitical project. Bound between 1930s and 1940s, the source selection focuses on documents that mapped food consumption during intense economic and ecological crises. Rather than objective datasets, official surveys and records from the Algemeene Secretarie and Departement van Economische Zaken are interpreted as administrative mechanisms that translated state anxieties into manageable social problems. To deconstruct this nutritional governmentality, the analysis tracked the recurrence of biological thresholds, evaluative vocabularies, and bureaucratic categories used by experts to define "proper nutrition." These technical reports from

the Instituut voor Volksvoeding were cross-referenced with contemporary newspapers to examine how this knowledge was publicly disseminated and debated. By reading these materials together, this study exposes the operational loop through which quantitative field surveys transformed the private domestic sphere of the indigenous population into legible justifications for state-led interventions.

RESULT AND DISCUSSION

Great Depression and the Food Situation

The global depression of the 1930s caused severe economic hardship worldwide, including in colonial Indonesia, particularly within the export trade industry. Prices of trade commodities dropped significantly, compounded by a sharp decline in demand. The colonial economy was hit exceptionally hard as numerous plantation companies in Java and East Sumatra faced bankruptcy (Padmo, [1991](#), p. 147). This 1930s crisis was driven by external factors stemming from the global economic collapse. Its devastating impact was clearly evident in the prolonged duration of the crisis, the drastic loss of income, and the widespread scarcity of food. This crisis could only be mitigated through adjustment policies implemented by the colonial government (Lindblad, [2016](#), p. 26).

The Economic Depression (*Malaise*) of the 1930s resulted in widespread economic decline across Java due to the loss of employment in the plantation sector and a sharp drop in smallholder farmers' income. In West Java, residencies dependent on coconut and tea, such as Banten and Buitenzorg, faced severe hardships, while in East Java, the closure of sugar mills and the decline of the forestry sector led to a drastic loss of wages in regions like Kediri, Surabaya, and Besoeki (Algemene Secretarie, [1931a](#)). This condition created a financial imbalance where household expenditures exceeded income, forcing the population to resort to debt and deplete their savings to survive. Consequently, this mass impoverishment triggered a genuine welfare crisis, ranging from the threat of famine and malnutrition to increased mortality rates across various regions (Boomgaard, [2000](#), p. 33).

Generally, based on reports from various regions in Java, food availability did not face significant difficulties. However, concerns arose in several areas due to crop failures, with similar conditions observed in Sumatra, Kalimantan, and other regions (Algemene Secretarie, [1933](#), p. 2). The average annual calorie consumption between 1927 and 1929 was 617,000, while during the crisis period of the 1930s–1940s, it stood at 620,000. For protein consumption, the figures were 13.47 and 13.40, respectively (Algemene Secretarie, [1931b](#)). These data suggest that the consumption of staples, specifically calories and protein, remained relatively stable. Nevertheless, Peter Boomgaard notes that a shift from cereals to tubers, coupled with changes in planting patterns, exports, and consumption in Java during the 1930s, led to a decline in average protein intake among the population. This decline was not fully offset by the increased availability of soybeans, despite their high protein content (Boomgaard, [2000](#), p. 30).

The decline in rice availability was not caused by a reduction in per capita production. Instead, the drop in rice consumption occurred during the late 1920s and early 1930s, a period when Java transitioned from a rice importer to a rice exporter. This shift happened because lands previously used for sugar production became vacant following the bankruptcy of sugar mills and were subsequently converted into paddy fields. However, the authorities viewed this increase with concern, as it actually signaled widespread poverty; farmers were selling their rice yields in large quantities out of a desperate need for cash (Boomgaard, [2000](#), p. 30-33). Consequently, this increase in production did not necessarily lead to improved dietary consumption for the population. Furthermore, rice surpluses and increased cultivation were not experienced uniformly across all regions.

In response to these conditions, the Colonial Department of Home Affairs compiled reports on the food situation in several regions deemed at risk, which were subsequently analyzed by the Central Bureau of Statistics. Based on this data and the initiatives of the Kleine Welvaartscommissie (Small Welfare Commission), an analysis was developed regarding potential food supply issues in Java and Madura (Algemene Secretarie, [1931a](#); [1931b](#)). This scheme enabled a centralized assessment of the

food situation in areas requiring attention, while simultaneously allowing for the monitoring of developments in the following months. To obtain these assessments as quickly as possible, certain assumptions had to be established. These evaluations were based on the unfavorable harvest yields of monsoon-season paddy cultivation resulting from adverse weather conditions.

The reports revealed that the food supply in Java and Madura did not rely solely on wet-rice cultivation (*sawah*). Other crops, such as upland rice (*padi gogo*), maize, cassava, and sweet potatoes, also played a significant role (Algemene Secretarie, [1931b](#)). Therefore, in the event of a harvest failure, these secondary crops were expected to fill the gap and meet food requirements. To assess this situation, researchers utilized harvested area and planted area as key indicators. In other words, they examined the total land area that had been harvested or was currently under cultivation for these various crops. By combining the decrease in wet-pice acreage with changes in the acreage of other food crops, they were able to calculate a percentage representing the total planted area. From this, they could evaluate the extent to which alternative food crops were able to compensate for the wet-rice shortage in 1931.

The results of the analysis indicated that approximately 70 regions were projected to face food insecurity due to a decline in wet-rice production or a reduction in paddy acreage that had been replaced by other crops. Among the affected areas was the Priangan region, where seven districts were categorized as “highly threatened”. Although the stocks held by farmers remained sufficient, there was a need for caution regarding the unknown stock levels of traders and landless residents. Along the northern coast of Java (*Pantai Utara*), 15 districts experienced significant harvest failures. However, in these areas, the cultivation of maize and cassava helped prevent widespread food shortages (Algemene Secretarie, [1931b](#)). Ultimately, these complex agrarian disruptions and regional dietary substitutions demonstrated that measuring agricultural output alone was no longer sufficient, thereby triggering a critical epistemic shift within the colonial administration toward the systematic study of public nutrition.

This method of assessment marked the emergence of a preventive logic within colonial food policy. The state began to rely on agronomic indicators and statistics to map regional vulnerabilities, while simultaneously monitoring food conditions on a regular basis. However, such aggregate data on planted and harvested areas could not capture actual household consumption or explain why nutritional issues persisted in regions statistically deemed “secure.” Driven by concerns over declining dietary quality and its impact on productivity, the colonial state began to realize that nutrition was shaped by complex socio-economic interactions rather than mere food availability. This shift in perspective laid the foundation for a more profound need for nutritional research at the community level, research that did not rely solely on laboratory work but also on field observations of the population's daily lives.

As the gap between food availability and the population's health status became increasingly apparent, traditional approaches to addressing food issues began to be questioned. It became clear that nutritional problems did not stem solely from food scarcity, but rather from how food was produced, distributed, and consumed within a specific economic context. To bridge this gap, field research emerged as a vital tool for understanding nutrition at the community level. The studies conducted in Kutowinangu and Gresik marked early efforts to view nutrition not merely as a medical or agronomic concern, but as the result of a complex interaction between consumption patterns, agriculture, and the economic conditions of the people.

This marked the initial emergence of efforts to understand public food and nutrition holistically, moving beyond scientific indicators generated solely in the laboratory. Other factors, such as household economic conditions, daily consumption patterns, land tenure structures, and labor relations, also became recognized as determinants of nutritional quality within society. Consequently, nutritional issues could no longer be understood as isolated biological phenomena; instead, they were seen as an integral part of the population's social and economic life. Nutrition evolved into a public issue that demanded a new approach for its management. Therefore, this shift served as the foundational basis for the emergence of public nutrition studies and approaches in Indonesia.

This transition marks a fundamental epistemological shift in colonial governance, a move from a traditional focus on food security to the complex problematization of public nutrition. While food

security concerns itself with the macro-availability and quantity of supply to prevent famine, public nutrition redefines the problem as a matter of biological quality and social management. By this logic, a region could be 'food secure' in terms of calories, such as through massive cassava consumption, yet remain 'nutritionally crisis-prone due to poor protein and vitamin intake. This shift allowed the colonial state to move its intervention from the granary to the household, transforming nutrition into a strategic tool for managing the very quality of the population's life and productivity

The Formation of Early Understanding of Public Nutrition

Numerous publications since World War I indicate that food and nutritional issues in Colonial Indonesia began to be understood within a broader framework, rather than being viewed through a purely medical lens. Initially, this attention remained fragmented across various perspectives. For instance, Van Heel published a review noting the food balance at the end of 1917 and early 1918, which showed a more abundant supply of plant-based foodstuffs than in previous years. In the same year, Kluyfer produced an analysis suggesting that the development of the coconut oil and sugar industries could adversely affect public nutrition. Later, in 1924, De Langen published an explanation of the relationship between disease and nutrition from a geographical perspective. While many other studies on nutrition were published during this period, their fragmented nature eventually prompted research efforts that sought to integrate nutrition, consumption, and the economic conditions of the population into a single analytical framework. Among these, the most pivotal study and arguably the most comprehensive of its time, was *Geld en Productenhuishouding, Volksvoeding en Gezondheid in Koetawinangoen* by Ochse & Terra, Donath, and De Langen (van Veen, A. G. & Donath, [1936](#), p. 142).

The research was conducted in the Kebumen Regency, specifically within the Kutowinangun District. While the Kutowinangun study originated strictly as a localized agricultural assessment designed to map horticultural extension services and identify crop varieties, its scope fundamentally shifted. Initially, the Kutowinangun study was not intended as a nutritional survey; rather, it was designed to map horticultural extension services to identify crop varieties and their economic significance for farmers. However, this objective shifted upon the discovery that agricultural practices and home gardens in the region possessed highly diverse vegetation. The government viewed this diversity as a potential added value to the local diet. Consequently, after gaining the trust of the local community, the assistant horticultural consultant expanded the scope of the study. At this stage, the research evolved into a systematic field study that gathered data on food consumption, the economic value of foodstuffs, and household economic conditions. Through this empirical expansion, what began as a routine agronomic survey transformed into a study of profound political-economic significance; it ultimately served as a primary weapon in Volksraad (People's Council) debates concerning the establishment of the minimum cost of living for the native indigenous population. Official government data at the time set a cost-of-living standard deemed sufficient only to meet the daily needs of a single indigenous adult, an assumption that the Kutowinangun research began to challenge empirically.

The in-depth research on household economy and food consumption in Kutowinangun (1932–1933) was conducted by J. J. Ochse and G. J. A. Terra, targeting both farming families and wage laborers through a multidisciplinary approach. The researchers meticulously recorded all sources of income, from land yields to labor wages, alongside household expenditures, including food consumption, taxes, and ceremonial costs (Ochse & Terra, [1934](#)). By employing methods such as daily food weighing, recording grocery expenses, and observing snack consumption, this study successfully mapped the correlation between land ownership, family economic structures, and the nutritional quality of the community's diet at the village level. Subsequent research involved an observation of the dietary intake among wage-laborer families, who possessed significantly less land than the farming families. The ingredients consumed in their daily meals were weighed every day. Additionally, the researchers recorded the expenditures incurred for purchasing these food items. The weight of snacks (*jajanan*) was also documented. Alongside these measurements, structured interviews were conducted with the respondents (Ochse & Terra, [1934](#), p. 8-10). In 1933, the dietary study was extended to 15 farming families, followed by further research involving five wage laborers.

The research yielded fascinating results. It demonstrated that the 15 farming families achieved a food self-sufficiency rate of 40%, which subsequently increased in 1933 (Ochse & Terra, [1934](#), p. 132). Consequently, the ability to meet food requirements independently provided greater variety in their consumption patterns. Due to direct access to their own land, fruits and vegetables held a significantly important position in the farming families' diet, accounting for 22.8% of their total food mass. In contrast, for wage laborers, this figure stood at only 14%. The primary staple food consumed consisted mainly of rice, accompanied by various side dishes such as long beans, shallots, and chili peppers. For snacks, cassava-based products were generally the most common (Ochse & Terra, [1934](#), p. 92).

Among wage-laborer families, access to garden produce tended to be more limited compared to farming families. Consequently, their food security was heavily dependent on the market. Surprisingly, however, the diet of wage laborers was assessed to be richer in protein. Furthermore, the snacks (*jajanan*) they consumed were of significantly higher nutritional quality, as they tended to be higher in fat and protein (Ochse & Terra, [1934](#), p.116). Although the economic depression severely impacted the finances of all families, reflected in deficits among the wealthier groups and the necessity of debt for the poorer ones the community demonstrated resilience by substituting their food sources. These findings indicate that nutritional quality is not solely determined by food availability or nominal income, but rather by access to land, household production structures, and consumption adaptation. These elements subsequently became the foundational pillars of the public nutrition approach.

The observations conducted in Kutowinangun offered a novel perspective on addressing nutritional issues within society. Consequently, these studies were expanded to other regions, specifically the Gresik Regency. Experts maintained that efforts to improve agriculture and public food security, particularly in Java, must be grounded in a profound understanding of technical conditions, economics, and most importantly the consumption patterns of farming communities. Since a significant portion of agricultural yields, approximately 70 percent, was consumed directly by the households and had not yet fully entered the cash economy, market prices were not the primary factor in determining food choices (Ochse & Terra, [1937](#)). Therefore, agricultural objectives were not solely directed toward increasing production or profit, but rather toward ensuring adequate nutritional fulfillment. To identify these nutritional deficiencies and deficiencies, dietary surveys were deemed essential as the foundation for formulating agricultural and food policies, while the findings from one region could serve as a calibrated reference for other areas with similar conditions.

The research in Gresik was conducted using the same methods and procedures as those employed in Kutowinangun. Commencing in April 1935, the study acknowledged that Gresik possessed geographical and agricultural conditions distinct from Kutowinangun. Various regions exhibited differing geographical characteristics, which determined the food sources and dietary patterns of the population. In the Gresik region, wet-rice fields (*sawah*) generally yielded only one annual rice harvest, with maize typically serving as a supplementary crop. Dry fields (*tegalan*) produced yields only during the western monsoon; however, where irrigation was available, these fields could provide two harvests during the eastern monsoon. Irrigated dry fields produced an abundance of vegetables, particularly pumpkins and similar varieties, while the home gardens along the Solo River yielded a significant supply of coconuts (Ochse & Terra, [1937](#), p. 82).

Regions lacking irrigated dry fields (*tegalan*), such as Glagah, Bungah, and Karangbinangun, exhibited dietary patterns deficient in vegetables and fruits. However, these areas were rich in legumes imported from external regions. Conversely, areas with extensive floodplains and well-maintained home gardens, such as Kalitengah, possessed diets rich in vegetables and tubers, yet lacked legumes due to their remote location (Ochse & Terra, [1937](#), p. 82-83). Given these differing ecological conditions and production patterns, the research in Gresik was expected to demonstrate how the public nutrition approach functioned within varying contexts, while simultaneously testing the extent to which the Kutowinangun findings could serve as a benchmark for other regions in Java. Ultimately, while Kutowinangun provided a model for a relatively stable agricultural setting, Gresik revealed how nutritional vulnerabilities were deeply fractured by localized ecological limitations, proving that a centralized food policy had to be highly elastic to accommodate regional micro-climates.

The analysis conducted in both regions demonstrated that the population maintained a high level of dependency on wet-rice fields (*sawah*), dry fields (*tegalan*), and home gardens, not only for their economic livelihoods but also for their daily subsistence. However, this condition appears to have been interpreted through a different lens, as explained by Clifford Geertz:

"In this respect... involution is characterized by a non-rising level, where productivity per person is used as the measure. An increase in yield per hectare was indeed achieved, but that higher output was only sufficient to provide food per capita. In fact, in Java from the 1930s until 1968, that level declined and altered dietary patterns: rice consumption decreased while the intake of maize and tubers increased" (Geertz, [1976](#)).

However, the assumption that the shift toward cassava consumption signifies a decline in the quality of life needs to be re-evaluated through a nutritional lens. Rice is frequently perceived as superior to other carbohydrate sources, particularly in comparison to cassava. However, favoring rice over cassava in such a manner is fundamentally unjust. While raw cassava does contain fewer calories and less protein than raw milled rice due to its higher water content, it must be noted that rice is not consumed raw once cooked, rice also absorbs significant amounts of water. Consequently, when prepared for consumption, the nutritional differences between the two are not substantially significant (Van der Eng, [1998](#), p. 17). Furthermore, the Kutowinangun and Gresik studies demonstrate that home gardens (*pekarangan*) and dry fields (*tegalan*) provided a massive economic contribution to the community, proving that livelihoods did not depend solely on the yields of wet-rice cultivation.

Measuring and Categorizing Public Nutrition

To examine the average dietary patterns of families in Kutowinangun, several factors must be considered. The primary aspect evaluated in assessing community consumption patterns was protein intake. Quantitatively, the amount of protein consumed by the indigenous population could not be described as abundant, yet it was deemed sufficient. However, while sufficient in quantity, the quality of this intake was considered problematic, as nearly all protein sources were plant-based. Given these dietary habits, it could be argued that the indigenous population was generally vegetarian. Animal protein was typically consumed only on specific occasions, most notably during *slametan* (ritual feasts). Animal protein served as a critical indicator because it was perceived to have a higher biological value compared to plant protein. Nevertheless, the rice and soybeans consumed by the community acted as effective substitutes, successfully supplementing the lack of inaccessible animal protein (Donath, [1934](#), p. 381).

Similar to protein, the fat intake consumed by the Kutowinangun community was not necessarily deficient, although it remained at a relatively low level. When examined qualitatively, the composition of fat in the population's consumption patterns presented more serious concerns than its quantitative aspects. The vast majority of fat intake was derived from coconuts and coconut oil, while the consumption of animal fats was virtually non-existent. Neither coconut flesh nor coconut oil contains lipids, nor do they provide vitamins A and D. If this condition persisted, it posed a serious risk of lipid deficiency within the community. Consequently, while increasing a diet rich in animal-based products was deemed necessary, it remained hindered by economic constraints (Donath, [1934](#), p. 388-389).

Data from the Gresik Regency revealed similar issues to those found in Kutowinangun, characterized by dietary patterns low in protein. However, certain areas in close proximity to the coast exhibited consumption levels of fish that were notably significant. Nevertheless, the majority of the protein consumed in the region was still derived from plant-based products. Fat consumption in Gresik was also primarily sourced from coconuts. When quantified in grams, the average annual consumption in the Gresik area was approximately 20 grams of fat per day per 50 kg of body weight, whereas in Kutowinangun, the figure reached approximately 50 grams of coconut oil per day (Donath, [1937](#), p. 129).

Consequently, the assessment of public nutritional status in Kutowinangun and Gresik functioned not merely as a biological diagnosis, but as a tool for interpreting the socio-economic

conditions of households. Deficiencies in animal protein and specific fats were understood not simply as a result of dietary choices, but rather as the outcome of economic constraints, agricultural production structures, and access to food sources. Within this framework, nutritional status emerged as a public issue, as it was directly linked to poverty, agricultural policy, and the broader welfare of the population. Furthermore, this nutritional categorization functioned as a technique of colonial governmentality, through which the bodies of the native population were quantified and assessed based on specific biological standards. By establishing thresholds for protein and fat, the colonial government secured a scientific basis to intervene in the community's domestic sphere, mapping populations deemed productive or weak, and legitimizing socio-agricultural policies as efforts to rectify these perceived biological deficiencies.

Institutionalizing Public Nutrition

In accordance with studies on the modern state, colonial power operated not merely through rituals and symbolic displays, but through procedures deemed "official" in establishing and expanding state authority across various domains. Through these administrative practices, the colonial state exerted control by defining and classifying spaces, recording diverse administrative affairs, and enumerating as well as categorizing the population (Cohn, [1996](#), p. 3).

Within this context, the establishment of scientific institutions became a pivotal mechanism for the colonial state to institutionalize knowledge and transform it into a foundation for public health intervention. To bridge the gap between laboratory-based scientific research and social realities, researchers conceived the creation of a study center that would oversee both field research in villages and laboratory analysis. In 1934, an organization named the *Instituut voor Volksvoeding* (Institute for Public Nutrition) was established, funded by the *Wilhelmina Jubileum Stichting* (Queen Wilhelmina Jubilee Foundation). The institute was envisioned as an independent government body with full authority to conduct research and extension services in the field of nutrition, characterized primarily as a modern, science-based institution. In this regard, nutrition was framed as a component of public health and placed under the jurisdiction of the *Dienst der Volksgezondheid* (Civil Health Service) (De Haas et al., [1937](#); *Bataviaasch Nieuwsblad* "Instituut Voor Volksvoeding: Entameert Nieuwe Voedsel-Enquetes," [1937](#); *De Standaard* "Verbetering Volksvoeding in Ned. Indie," [1936](#); *De Telegraaf* "Volksvoeding Op Ambon En Celebes," [1938](#)).

The primary mandate of the *Instituut voor Volksvoeding* was formulated into five core objectives. First: conducting research on nutritional status, dietary patterns, and malnutrition. Second: performing medical and laboratory research. Third: providing training for nutrition experts. Fourth: offering specialized advisory services in the field of nutrition to government agencies, public institutions, and private organizations. Finally: coordinating with other departments to formulate policies for nutritional improvement, extension services, and propaganda. Through such collaborations, the *Instituut voor Volksvoeding* was tasked with developing tools to promote public nutrition through visual media, including posters, flyers, films, and popular writings designed for easy public comprehension. Furthermore, the institute proposed the creation of a mobile museum to expand its outreach to a broader segment of the population (De Haas et al., [1937](#), p. 45).

The establishment of the *Instituut voor Volksvoeding* was intended to facilitate cross-sectoral coordination by the government, involving several key departments. These included the Department of Internal Affairs (*Binnenlandsch Bestuur*), which held administrative authority; doctors and officers of the Civil Health Service, who served as the vanguard of public health; and the Department of Economic Affairs, which exercised power over trade regulation, particularly regarding rice policy, the import-export of food commodities in the Dutch East Indies, and the assessment of food crops. Furthermore, the Civil Veterinary Service contributed through extension services for poultry and small livestock cultivation. Finally, support was provided by the Department of Education and Religion for nutritional outreach and propaganda, to integrate nutritional knowledge into school curricula (De Haas et al., [1937](#), p. 35-39). This coordinated effort reinforced colonial control by enabling the systematic observation and assessment of the population.

Following these developments, research similar to that conducted in Kutowinangun and Gresik was expanded to several other regions with diverse geographical backgrounds and populations, while strictly maintaining the established methods and models used in those two initial studies. While the Kutowinangun and Gresik studies were executed under the Departement van Economische Zaken (Department of Economic Affairs), subsequent research fell entirely under the jurisdiction of the *Instituut voor Volksvoeding*, supported by a 25-million-guilder welfare grant (*Nederlandsche Welvaartsbijdrage*) from the Dutch Government (Bataviaasch Nieuwsblad “Instituut Voor Volksvoeding: Entameert Nieuwe Voedsel-Enquetes,” 1937). This research aimed to compile baseline data on the dietary patterns of the indigenous population over a three-year period, thereby facilitating nutritional assessments in other regions. To achieve this objective, five regions were selected for their distinct dietary profiles.

The first series of these studies was conducted in the Sagalaherang region within the Residency of Batavia. The area was categorized as prosperous; however, numerous cases of xerophthalmia were identified among young children, allegedly caused by a widespread vitamin A deficiency (Instituut voor Volksvoeding, 1940c). Subsequent research was carried out in Patjet (Instituut voor Volksvoeding, 1940a) and Rengasdengklok (Instituut voor Volksvoeding, 1940b), both located in the Karawang Regency. Similar to Sagalaherang, these regions also exhibited a high prevalence of xerophthalmia. Researchers concluded that despite the relative prosperity and food sufficiency of these areas, the dietary patterns remained sub-optimal in meeting nutritional requirements, leading to chronic vitamin A deficiency. They attributed this condition to the population's lack of knowledge regarding nutritionally beneficial foods.

The next region differed significantly from the previous ones, as it was a major producer and consumer of cassava: Gunung Kidul (Instituut voor Volksvoeding, 1941a). Researchers highlighted that cassava was deemed inadequate as a staple food due to its low protein content—the primary nutrient required by the human body. Consequently, Gunung Kidul became a focal point for researchers and relevant authorities. The final region studied was Poelosari in Southern Pemalang (Instituut voor Volksvoeding, 1941b), where research was prompted by an emergency situation. This was triggered by the sudden emergence of nutritional edema (*hunger edema*) cases. These cases arose from a severe food production deficit in the region, caused by a series of major, consecutive crop failures. These failures represented a breaking point, as even under normal conditions, local food production was insufficient to meet basic dietary needs, let alone fulfill nutritional requirements.

These observations served as a mechanism for the colonial state to map the vulnerabilities of the population across various regions. The bodies of the subjects were transformed into units of statistical data, measurable and classifiable according to standards predefined by colonial scientists. These standards were inherently biased, as they were rooted in experimental benchmarks derived from Western metrics and then applied to entirely different contexts. The accumulated data subsequently provided the foundation for state interventions aimed at reshaping the populace into a productive labor force capable of contributing to the colonial economy. These standards were fundamentally problematic as they were rooted in experimental benchmarks derived from Western countries and applied indiscriminately to an entirely different local context. This mismatch was acknowledged by A.G. van Veen himself, a key figure within the Instituut voor Volksvoeding. He recognized that modern nutritional science was a product of research conducted in Europe and North America, regions with significant disparities in economy, climate, geography, and race compared to the Indonesian Archipelago. Furthermore, Van Veen highlighted a psychological barrier, western researchers tended to perceive unfamiliar local diets as inferior or “strange”. This subjectivity fostered simplistic assessments that reduced complex socio-economic issues to mere nutritional deficiencies (van Veen, A. G. & Donath, 1939).

The expansion of public nutritional observations subsequently extended beyond Java. In 1938, the head of the medical and chemical department of the Instituut voor Volksvoeding was reported to have departed for the *Grote Oost* (Great East) region. The designated locations for observation and research were Ambon and Sulawesi (De Telegraaf “Volksvoeding Op Ambon En Celebes,” 1938). However, no formal reports were ever produced from these regional studies. By 1941, the outbreak of

the Pacific War led to the mobilization of colonial agents into military service. The tenure of the Instituut voor Volksvoeding under the Dutch Colonial Government reached its conclusion when the Indonesian archipelago fell to Japanese forces. Consequently, the delegation and continuity of the knowledge constructed by the Instituut Voor Volksvoeding were severed.

The results of the analyses conducted across various regions increasingly demonstrated that economic factors, accessibility, geographical conditions, and agricultural practices were the primary determinants of the population's nutritional status. Even regions deemed fertile exhibited nutritional deficiencies, which were attributed to a lack of knowledge regarding what colonial experts and scientists defined as "proper nutrition." Consequently, the emergence of the Instituut voor Volksvoeding in the Dutch East Indies cannot be separated from the colonial state's necessity to construct a more systematic body of knowledge concerning the indigenous population. Within this framework, public nutrition did not merely reflect a concern for communal health; it also functioned as a core component of modern colonial governance, which sought to manage and regulate society through the application of scientific knowledge. The trajectory starting from the response to food crises and the conduct of detailed field surveys to the systematic categorization of nutrition culminated in the institutionalization of public nutrition as an instrument of power, enabling the colonial state to map, assess, and intervene in the domestic lives of the native's population.

CONCLUSION

The construction of the concept of public nutrition in Indonesia cannot be detached from its interconnected various aspects and historical contexts; nor was it a linear scientific process. Rather, it emerged as a response to prevailing global crises, where conventional medico-scientific approaches proved limited in comprehending societal conditions. Consequently, a new framework became essential for understanding nutritional issues within the community. This led to the emergence of the concept of "public nutrition," even if the term functioned primarily as a tool for the colonial government to map indigenous consumption within the framework of *volksvoeding*. This approach materialized as researchers transitioned from the laboratory into the domestic sphere, recognizing that nutrition was not merely a matter of intake, but the result of complex interactions between household economic structures, land access, and market dynamics.

The research in Kutowinangun and Gresik served as a crucial turning point, demonstrating that the nutritional resilience of the population frequently relied on communal knowledge in managing home gardens (*pekarangan*). This capacity for self-sufficiency acted as a safety net that shielded the community from global crises. However, the process of constructing public nutrition also carried distinct colonial technocratic traits, wherein the state utilized statistics to establish food standardizations deemed "proper." The establishment of the Instituut voor Volksvoeding serves as evidence of this conceptual transformation shifting nutrition from a strictly medical issue into a public concern and a socio-economic instrument of the state.

As an institution, the Instituut voor Volksvoeding was forced to cease its operations following the collapse of the Dutch Colonial Government under Japanese occupation. Consequently, the efforts to delegate and construct public nutritional knowledge were abruptly halted. Nevertheless, the work carried out by the IVV established a significant precedent: that nutritional issues cannot be viewed through a universal lens, as each region possesses distinct challenges and unique geographical conditions. Thus, nutritional interventions must be meticulously tailored to the specific problems of the respective areas. Furthermore, it became evident that science, as the foundation of rationality, encountered significant challenges when confronted with societal realities. At this juncture, the delegation of knowledge was severed.

This study contributes to the historiography of the history of knowledge in Indonesia by dissecting colonial power through the systematic recording of the nutritional status of the native population. This documentation gave rise to administrative categories employed to standardize the populace. The primary limitation of this study lies in its heavy reliance on colonial archival sources,

which results in a lack of agency and “voice” from the native population. The colonial government subjects remain objects of statistical recording rather than active participants in the nutritional discourse. Furthermore, as the majority of colonial nutritional research focused on Java, caution must be exercised in generalizing these findings to the Outer Islands, which possess distinct ecological characteristics and dietary patterns.

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