From Ambachtsschool to Technische Hogeschool: Training the Architect in the Dutch-East Indies, 1854-1920 in Indonesia

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Abstract

Practice of architecture hinges significantly on architectural education. A professional architect is required to undergo architecture training and attain a license based on their knowledge. In Indonesia, the primary forms of training in this field date back to the colonial period in the early 19th century Dutch East Indies, through institutions known as *ambachtsschools* or the technical schools.

In the early 20th century, the colonial government saw the need for highly skilled building engineers (*bouwkundigen*) to foster the development of the colony. Consequently, with the collaboration of private entrepreneurs, a technical college was established. The training program for aspiring *bouwkundigen* departed from the diverse curricula of *ambachtsschools* and instead embraced standardization following the model of Delft Polytechnic in the Netherlands. Architectural education was integrated into the *bouwkundigen* curriculum and gained autonomy as a separate department only in 1950, following Indonesia's independence.

This research examines the Dutch East Indies colony as a political outcome shaped by the socio-political and economic landscape, aligning with the modernization agenda of the colony. It delves into the cultural resistance to the amalgamation of Western technical education with *Priyayi* elite culture in Java. The reluctance of native elites to pursue professional engineering education may be rooted in cultural norms or political inclinations that emerged during the early 20th century when nationalist sentiments began to surface.

This study employs a historical analysis of documents, and publicly accessible materials to offer a nuanced exploration of the complex factors that shaped *bouwkundigen* education in the Dutch East Indies, where the education of architects is initially rooted.

Keywords: Ambachtsschool, Architect's training, Industrialization, Professionalization, Regeringsreglement 1854, Dutch-East Indies

Introduction

Before the arrival of foreign nations, local architectural traditions were already established in the Indonesian archipelago. The unique geographical conditions of this archipelago facilitated movement and interaction, leading to a process of mutual learning among various vernacular building traditions. This exchange also occurred when the building traditions and methods from China, India, and other European nations, such as the Portuguese, Spanish, English, and Dutch, came into the archipelago. This learning process intensified with political interventions in the mid to late 19th century and the consolidation of colonial governance in the early 20th century Dutch East Indies.

The education brought by the colonial government played a significant role in driving the traditional communities towards modernization. In the 19th-century Dutch East Indies, the emphasis in education was placed on teaching specific skills in vocational schools (*ambachtsschools)*. The types of these vocational schools were diverse, depending on the needs of their organizers, including those focusing on construction-related skills. The primary objective was to equip the students with specific skills that would enable them to earn a livelihood.

Up until the mid-19th century, local indigenous communities provided training in specific skills for their youth. Similarly, Islamic religious organizations like *pesantren,* Christian missionary organizations, and the military engineer corps also played a role in skill training programs. Indigenous communities provided skill training to preserve their traditions, while religious mission organizations aimed to impart skills to young individuals, ensuring they had the means to secure employment, avoid unemployment, or become societal disruptors. Within the military engineer corps, technicians were trained in construction techniques for supporting military operations.

The year 1854 marks a significant turning point as the colonial government began to intervene in the education system within their overseas colonies. In the Dutch East Indies, the implementation of the *Regeringsreglement* (Government Regulation) in 1854 and its enforcement in 1856 resulted in the establishment of primary and secondary education by the colonial government. These educational forms were, on the one hand, tailored to the needs of the traditional indigenous communities but, on the other hand, aimed to introduce Western educational principles believed to modernize society. Throughout the second part of the 19th century, policy experiments in education were developed to lay the foundation for the modern Dutch East Indies.

The Technical College (*Technische Hogeschool* or *THS*) was established in Bandung, designed to cater to Indo-European children, indigenous *priyayi*, and descendants of East Asian communities who had completed their Higher Public School (*Hogere Burgerschool* or HBS), which is fully delivered in Dutch. This technical high school was the first of its kind to be established in the colonial territories and was later followed by medical and law schools, among others. Thus, the period from 1854 to 1920 can be understood as a pivotal moment in the evolution of education in the Dutch East Indies.

The discussion regarding the differences and similarities in construction knowledge taught in *ambachtsschools* compared to the *Technische Hogeschool* becomes crucial, as it reflects the shift in objectives and competencies of the graduates. Both *ambachtsschools* and the *Technische Hogeschool* were vocational schools providing practical training. However, the *Technische Hogeschool* represented a higher level of education that was more specialized and exclusive, in particular, to support the emergence and development of the architectural profession in the Dutch East Indies in the early 20th century.

In this context, this research examines the how architectural education and profession have evolved in the Dutch East Indies, in conjunction with socio-political changes and educational transformations over the centuries. Its aim is to offer profound insights into the cultural resistance to the amalgamation of Western technical education with Priyayi elite culture in Java and the reluctance of native elites to pursue professional engineering education. Its objectives are as follows.

1. To identify the conflcits and confrontations between the native culture and theimpostion of architectural education in Indonesia through the Dutch East India Company.
2. To identify the forces and processes that enabled the transfromation of architectural education in Indonesia.

Research Methods

This study employs a historical analysis of documents, and publicly accessible materials to offer a nuanced exploration of the complex factors that shaped *bouwkundigen* education in the Dutch East Indies References from authors such as van der Wal (1963) have been traced to understand the educational reforms initiated with the issuance of the *Regeringsreglement* (Government Regulation) in 1854. Sources like Brugmans (1938) have been examined in order to comprehend various educational programs organized by non-governmental entities, including education provided by local traditions (*pesantren*), religious organizations (missionaries), and military corps.

Fig.1: Covers from the contemporary publications: *Indisch Bouwkundig Tijdschrift, De Ingenieur in Nederlandsch Indie, Locale Techniek*.
Source: www.colonialarchitecture.nl

In addition to these primary sources, contemporary professional periodicals such as IBT, de Ingenieur in Nederlandsch-Indie, and Locale Techniek are also examined. By tracking the evolution of building engineering education from the era of ambachtsschools to the establishment of Technische Hogeschool, within the encompassing socio-political contexts, this research offers an understanding of the emergence and development of architectural education and profession in the Dutch East Indies, the forerunner of the Republic of Indonesia which proclaimed its Independence on August 17, 1945.

Findings

Learning Together in the Archipelago

Owing to its geographical location, the Indonesian archipelago has been easily accessible from various regions. Its islands have been at the crossroads of major civilizations, primarily from China and India, spanning from 290 BC to the 15th century AD. These connections have been facilitated through the monsoon winds in the waters surrounding the archipelago. Given these geographical conditions, a wealth of knowledge, including architectural knowledge, has been effortlessly exchanged.

Traces of East Asian culture can be found in the Nusa Tenggara islands. Techniques such as ceramic firing, brick making, and tile production originating from China have been

widely recognized in Java. Hindu and Buddhist architectural principles have been known in Java, and stilt houses, common in Southeast Asia, have been prevalent on the shores of the archipelago.

Western-style defensive structures are known through the Portuguese forts built as trading posts for valuable spice trade. The Portuguese have sought and found sea routes to the archipelago via the Cape of Good Hope (Tanjung Harapan). The forts constructed by the Portuguese traders still exist today, as are the inter-port connecting roads in Java established by English and Dutch traders.

Military engineer corps, known as *Genie*, and architects have historically been closely linked. Many engineers in the *Genie* Corps were also architects or at least had architectural roles. Javanese artisans also learned Western building technology, though their involvement was somewhat limited. Odegard (2020) and Bonke (2017) provide insights into the involvement of local artisans in the construction of the Dutch East India Company's (VOC) defensive structures in the archipelago.

Learning from the Legacy of the VOC: Forts and Roads.

The introduction of Western building techniques and specialized professional work in the construction field has significantly contributed to the development of architectural knowledge and skills in The Dutch East Indies. It has been in line with significant transformations in Europe and the Indian archipelago during the 19th century. The involvement of local communities in constructing Western-style buildings in the archipelago have varied depending on the region and the period.

According to Boxer (1983), the Dutch East Indies Company (*Vereenigde Oost-Indische Compagnie, or VOC*) has been a prosperous and long-lasting Dutch trading company that had generated substantial profits. Due to its logistics, information networks, and command structure, it has had a competitive edge over its counterparts in Europe and Asia. The VOC has also possessed advanced weaponry and military strength. Skilled employees, including artisans, carpenters, and technicians, have been part of the company's workforce. In fact, this trading company has initiated the construction of forts that have evolved into towns, with their headquarters established in Batavia and West Java. The success of their colonial expansion has also attributed to their ability to build forts, respond to natural disasters, win battles, and advancements in transportation technology. By the end of the 19th century, the Dutch East Indies government had been stabilized and modernized through the development of modern infrastructure (Odegard, 2020).

This historical context highlights how the presence of VOC and their construction activities have played a crucial role in shaping architectural knowledge and practices in the archipelago, serving as a foundation for the subsequent developments in the field.

The VOC Company owed its success in part to the remnants of trade networks connecting Asia and Europe, from which they have inherited defensive forts and warehouses. Javanese artisans have learned construction techniques from China and India, as well as through their interactions with European technologies. Javanese artisans have adopted the design of fortifications from the Portuguese military engineers. The Javanese people have incorporated these new defensive structures, known as *baluwerti*, a term derived from the Portuguese *baluarte* for fortification. As an example, the wooden fence of the Yogyakarta palace has been replaced with a brick structure in 1810, using Western techniques.

This historical narrative illustrates the fusion of architectural knowledge and practices from various sources, including China, India, and Europe, and the legacy of the VOC, which has had a lasting impact on the architectural heritage of Java and the Indonesian archipelago.

In Java, Maluku, and the coast of Timor, numerous Western-style forts can be found. These fortifications have been constructed using indigenous wood, coral, stone, and later Dutch bricks (Lape, 2006; Lape & Chin-Yung, 2008; O'Connor et al., 2020). Through observing and participating in the construction of these defensive structures, the local inhabitants have acquired knowledge of Western techniques for building forts with bricks and stone.

Apart from forts, the construction of overland roads that connected cities along the northern coast of Java was also crucial for facilitating the transportation of agricultural produce from the hinterlands and the mobilization of forces to counter the attempts of the British troops to occupy Java.

Meanwhile, Daendels, the Governor-General of Java (1808–1811) and the representative of the French government in the Dutch East Indies, have taken into consideration both economic and defense interests. Consequently, a highway has been built, traversing the agricultural and economic heartland of Java (Lombard, 2016), connecting the existing road from Anyer in the western tip of Java to Panarukan in the eastern tip. It had become the *Groote Postweg* highway, constructed in a short period (1811–1812), employing native laborers known as *koeli* (Bonke, 2017).

However, there has been no technical interventions to improve the quality of the roads. Still, their work had adopted the concept of a 1.5 km distance between the towns (or *paal*), which indicate the common distance between the posts necessary for the travelers to change horses during their transit. As a result, shifts and changes have occurred in the locations and morphologies of town centers in several cities (Gill, 1996; Hartatik, 2018; Nas & Pratiwo, 2002).

The construction of the *Groote Postweg* has marked a significant contribution by the *Genie* engineers in the political effort to open up the space of Java and unite it into a cohesive whole. The mountain city of Bandung thus have become accessible from the capital, Batavia. The efforts to connect the cities in Java have inspired the consolidation and centralization of colonial power.

Learning from Practice: The Rise of *Ambachtsschools* in the Dutch East Indies

The vocational schools (*ambachtschools*) were established in the Dutch East Indies in the early 19th century by various religious and military organizations to equip students with specific skills that would enable them to earn a livelihood through manual labor. Ironically, the colonial government shows no interest in being involved in this educational program, as it is considered outside of its responsibility. At the same time, there were also complaints from many Europeans and Indo (mixed-race) individuals who preferred to have training for office jobs instead of manual labor.

The liberal figure Baron Van Hoëvell in 1849 noted that in the preceding ten to fifteen years, in the Dutch East Indies, particularly in Batavia, many artisans had turned to trades such as clockmaking, saddle making, tailoring, lamp and shoe making, copperwork, and confectionery. However, these individuals were French, not Indo or Dutch (Brugmans, 1938, pp. 187–190). Therefore, when the government regulations of 1854 on educational reforms were discussed in the second chamber, there was a push for the establishment of ambachtsschools for both girls and boys.

The development of *ambachtsschools* marked a response to the changing economic landscape and the need to cultivate skills and expertise in manual trades within the Dutch East Indies, addressing the perception that manual labor was less esteemed in the colonial society, which was primarily focused on office-based jobs.

The government-initiated *Ambachtsschool* was first established in 1860 in Surabaya. In 1881, a Christian mission from Graafland also founded the first indigenous craft school at Tanawangko in Minahasa (Brugmans, 1938, p. 383). Vocational schools were subsequently established in Semarang in 1892 with government subsidies. In 1893, another *ambachtsschool was* provided to offer training in blacksmithing, woodworking, tile and brick making, and handicrafts.

With the issuance of the Middle Education Act in 1863, the colonial government subsequently concentrated on the establishment of the Higher Civic School (*Hogere Burgerschool* or HBS). HBS was a type of classical gymnasium but did not offer lessons in Latin and Greek. Instead, it taught general subjects such as modern languages, commercial knowledge, physics, and chemistry. The Technical College (*Technische Hogeschool*) in Bandung admitted graduates of HBS as part of this educational reform. This shift in educational

policy aimed to meet the growing demand for skills and knowledge in response to changing economic and industrial conditions in the Dutch East Indies.

Education for the New Society

The envisioned new society was a modern one, comprising individuals of various racial backgrounds united in one community. In the colonial society of the 19th century, in addition to the native population, there were also children born from marriages between European fathers and native mothers. The improved relations between the Dutch government and the indigenous rulers in the Dutch East Indies led to an increase in the population of children who could "speak Dutch specifically." They were referred to as "indisch" or "indo," "mestizo," "liplaps," and "kleurlingen," meaning children born to native mothers and European fathers, a common phenomenon in colonial nations. Most of them encountered difficulties in communicating in the Dutch language.

Initially, they were looked down upon by the Europeans themselves. Economically, they were also among the poorer strata of the society, often roaming and causing disturbances among the population. The delinquent behavior of Indo children has been recorded in Kalisosok, Surabaya. In 1856, many Indo children have been truant from school, leading the school authorities to distribute pamphlets among their parents, urging them to work together in supervising the daily activities of their children (Faber, 1931). This issue has gained prominence and has drawn the attention of the Minister of Education and Religion in the Netherlands. Following question has arisen: what actions should be taken to ensure that Indo children could become self-reliant, find employment, and earn a livelihood? Who should initiate and maintain their education?

In the government's view, skill-based education has been considered the most suitable for the Indo community in the Dutch East Indies. This form of education has aimed to prepare the Indo children for employment. The responsibility for this task has been delegated to missionary institutions, particularly the Protestant ones. In their perspective, teaching and evangelism has stemmed from the same roots (Brugmans, 1938).

According to van der Wal (1963), the first *ambachtsschool has* gained attention when a Protestant mission institution was established in Kalisosok, Surabaya, on May 2, 1853. They have specifically founded this vocational school with the aim of producing *werkbaas* or supervisors. Although it only lasted for three years, the Christian *ambachtsschool* in Kalisosok has inspired other Christian *ambachtsschools* in Batutulis, Batavia, which has received government subsidies and has operated for 17 years (1856–1873). According to van der Wal (1963), this school has primarily served as a basic vocational institution.

These initiatives in skill-based education has demonstrated an approach to provide the Indo population with practical training and opportunities for employment, addressing both their educational needs and the economic challenges they faced.

Technical Training in the *Corps du Genie*

One of the institutions providing technical training has been the *Genie Corps* within the military. Initially, defense structures and architecture has been handled by the same engineers.

In the 19th century, military engineers have been sometimes selected or appointed to govern colonial territories as the turn of the century approached due to their technical expertise, administrative abilities, security concerns, and colonial ideologies. Technical education has been closely linked to military education due to the need for skilled engineers in the military. The military has been one of the few institutions capable of providing the resources required for scientific research and technological development. Military engineers have been responsible for designing and constructing fortifications, bridges, and other structures vital for military operations. The term *genie* (or *Zeni* in Indonesian, military engineer in English) is commonly used in French to refer to engineers or military technicians with expertise in constructing and maintaining military infrastructure such as fortifications, roads, and other military installations.

Fig.2: Indos Military cadets in Kedungkebo, 1887.
Source: KITLV503755

In 1848, a military cadet school (*Puppilenschool*, sometimes referred to as *Pupillenkorps*) has been established in Kedungkebo (Gombong, Central Java) for Indo children to learn practical military technical skills and prepare firearms and weapons in workshops (Figure 2). They also have had the opportunity to study military buildings and infrastructure, sewing, shoemaking for the military corps, and carpentry). According to Nieuwenhuys (1981), generally, the students have been impoverished and neglected Indo children, prevented from becoming outcasts in society and engaging in criminal behavior.

In 1856, the students of the Gombong School have relocated to the Van der Wijk Fort, one of several construction projects undertaken by the Dutch Genie. Criticisms have arisen, highlighting the poor and unsanitary conditions of the school and the quality of the graduates falling short of expectations. By 1885, only 14 students had managed to have successful military careers, rising to the rank of officer.

After the educational reforms of 1893, these *genie* students have been also taught geography, history, arithmetic, reading, writing, dancing, and gymnastics. Students between the ages of 16 and 18 have also been also trained in target shooting, field surveying, and mapping, which requires mathematical and technical knowledge.

On July 1, 1912, the Gombong School has been closed due to budget constraints. It coincides with a decreasing role of the Genie in the colonial government as civilian professionals' capabilities continued to rise. The Dutch colonial government has gradually employed the Genie in civilian positions, including as a professor at the Technical College Bandung, until the mid-20th century.

From Aristocracy to Meritocracy: The Formation of a New Priyayi

In the traditional society of Java, the aristocracy as a social group was expected to bring about societal change. This elite class is known as *priyayi*. According to Kuntowijoyo (2016), there have been several categories of *priyayi* known by 1900: those who had served the king, those who had worked for the kingdom, and those referred to as the educated *priyayi*. In regions outside the control of the nobility, local rulers (the regent or *bupati*) have also been referred to as *priyayi* (Scherer, 1985).

Education for the nobility serving the king has focused more on personal maturity and leadership than on Western-style intellectual pursuits. Their education has encompassed literature, religion, arts, traditional weapons, and sports, with the aim of maturing them into responsible nobles.

A letter from the Government Secretary to the Director of Education, Religion, and Crafts (J.H. Abendanon) dated June 4, 1903, number 166, highlights the sad state of the noble children. At a young age, they have already been exposed to activities like cockfighting, opium use, idleness, and exploiting the common people. The government has had the right to pressure the local rulers to educate their children, especially the royal heirs. If the rulers were incapable

of doing so, the colonial government needed to assist to ensure that they received a European-style education.

For the nobility outside the central kingdom, Western education represented a new attribute to enhance their declining prestige in the modern era, especially for the regents' families in areas outside the central kingdom, this was an opportunity to maintain their elitism and compete with the priyayi working for the king. Hence, this group has been the most receptive to Western education (Moon, 2007).

Although racial discrimination has not openly acknowledged, colonial government bureaucrats have been predominantly Dutch or Indo. There has been a tendency for the Indo people to be part of the religious scholars (ulama). At the same time, native Indonesians have been more inclined to be in technical positions and did not necessarily need to master the Dutch language. Concerning Dutch language proficiency, in 1864, a kind of test was conducted for lower-level civil servants (*kleinambtenaars*) to assess whether candidates could pass tests in arithmetic and literacy, which were important in Dutch. Hence, there Has been a tendency for the native children to learn Dutch, either in Dutch schools or through self-study, to maintain their social status in society.

Western education has played a significant role in raising national consciousness, particularly among the *priyayi* elite outside the central kingdom. As the selected social strata had changed, the *priyayi* had welcomed these changes. In general, the *priyayi* preferred Western education over indigenous education. A new indigenous bureaucratic elite gradually emerged as more native students entered Western education, and these elites demanded their place in the official bureaucracy.

The new priyayi differs from the old aristocratic elite, not in terms of their social origins (as most come from families that were at least moderately wealthy) but in terms of their status. The new priyayi have achieved their positions through individual talent, while the old elite are seen as deriving their status from their birth (Ricklefs, 2008).

Regeringsreglement 1854 and the Institutionalization of Technical Education

The Government Regulation (*Regeringsreglement*) of 1854 has had a significant impact on the institutionalization of technical education in the Dutch East Indies. In fact, this regulation has marked a reform in the primary and secondary education system, leading to increased opportunities for various groups, including Indo children, the native elite, and Chinese children, to access Western-style education.

One of the notable provisions of the regulation has been its directive to the Governor-General to establish schools in each region for the education of native children. Subsequently, the *Ordonansi* of 1863 has further emphasized the government's commitment to providing Western education for the native population. Indeed it is seen as vital for preparing a cadre of officials and professionals for the colonial administration.

One crucial aspect of the Government Regulation of 1854 has been the introduction of the concept of *erkenning*, which allowed Indo-children to be included in the European category. This legal provision has granted Indo children the same rights as the European children and the native Christian residents, enabling them to access Western education.

In this context, the government's support and legal framework has provided the foundation for the institutionalization of technical education in the Dutch East Indies, which had become an important element in preparing the younger generation for various roles, including the civil service.

The Institutionalization of Architect's Profession

The next crucial step in the development of the architectural profession has been the establishment of a professional organization to regulate the work of these practitioners. However, this decision has emerged unexpectedly as a response to the transition towards industrialization in the Dutch East Indies. The policy of industrialization itself has been an attempt by the colonial government to address the economic instability they faced, largely due to their dependence on the global industrial market (Siahaan, 1996).

The decision to move towards industrialization has been a significant step in the efforts to reduce unemployment, improve living standards, and reduce the region's reliance on external markets. Indeed, it has had a major impact, given the precarious position of the Dutch East Indies following the German invasion of the Netherlands and the departure of the government of Queen Wilhelmina. This situation has necessitated that the Dutch East Indies fend for itself in facing economic and social challenges.

As part of these efforts, the formation of an architectural professional organization had become imperative. It has been thought that such an organization would play a pivotal role in regulating the work of architects, ensuring high professional standards, and supporting the development of the profession within the context of ongoing industrialization and modernization.

It is important to note that these measures reflect the colonial government's serious endeavors to address the changing times and economic challenges, as well as to develop a skilled workforce prepared to meet the demands of industrialization. These decisions would significantly influence the development and institutionalization of the architectural profession in the region.

In 1854, a department has been officially established within the colonial government to oversee the infrastructure development in the colony. Governor General JJ Rochussen (1845–1851) had established an institution known as *Burgerlijke Openbare Werken* (BOW). He has emphasized the need for centralized management of professional infrastructure. The BOW department has functioned as a "department of expertise" with limited government authority. Engineers have been responsible for the management and maintenance of public works, while the administration of these works has been under the jurisdiction of the local government authorities. Although his initial task has been irrigation in Java, the BOW has considered how the civil buildings were prepared (Lukito, 2017).

The engineers have perceived their role as articulating the discourse of state planning, which has viewed the region as a historical and cultural entity. They have regarded their profession as a neutral and implicit factor in constructing the architecture of the national-regional space. In fact, this approach has involved a scholarly understanding of the political connection between architecture and state planning.

The engineers from the BOW have thus been involved in building design establishing a professional association called the *Vereeniging van Bouwkundigen di Nederlandsch-Indie* (VvB NI). This professional organization has also organized courses for the engineers requiring certification.

Industrialization of the Colony, the lost opportunity

The Netherlands has viewed its colonial territories solely as abundant and inexpensive sources of raw materials, with industry centered in the Netherlands. The significant surplus in the trade balance of the Dutch East Indies has led to minimal domestic demand in Indonesia, with the smallest proportion of gross domestic product coming from the small European community. This surplus, which has averaged about 75 percent compared to imports or approximately 12.4 percent of GDP, has been repatriated to the Netherlands.

The implementation of the Ethical Policy or Ethische Koers marks a critical moment in the history of colonial education. When the colonial regime in the Dutch East Indies has presented the humanitarian side of its commercial exploitation, they have initiated an ethical policy, stating that the Netherlands has had an obligation to consider the well-being of the Indonesian people. As part of this new direction, Dutch-language educational institutions have undergone renovations to produce managerial and administrative elites.

According to Groeneboer (1993), the difficulty in implementing Western education systems among the native population in Indonesia primarily stems from language barriers. Why didn't the Dutch implement Dutch-language education for the native population, as the British did in India? It was perhaps because the British had introduced educational policies for the native population using English as the medium of instruction.

While all supporters of the Ethical Policy have endorsed the idea of improving education for the Indonesian people, two different schools of thought have emerged regarding the type of education and its target audience. Christiaan Snouck Hurgronje and the first "ethical" education minister (1900–5), JH Abendanon, have favored an elitist approach. Both of them have desired more European-style education in the Dutch language for the Western-oriented Indonesian elite, who could then take over many Dutch civil service roles. It would lead to a grateful and cooperative elite, reduce administrative costs, and ultimately set an inspirational example for the lower strata of the Indonesian society.

In the Throne Speech of 1901, the Dutch central government has indicated that the Ethical Policy was the guiding principle of its administration in the Dutch East Indies. In that year, the cabinet led by Abraham Kuyper, the leader of the Anti-Revolutionary Party, has served as the prime minister. It was during this time that the previously proposed ideas and views have been officially endorsed. The ethical policy has not had a specific "Christian" origin but has had a rather liberal perspective.

Here, the term 'education' is once again used, emphasizing that training must be a determining factor in ensuring that education follows the Western model and is under the control of the colonizers. The "more autonomous position" in the Throne Speech is not equivalent to the autonomy and complete independence seen in India.

What exactly is meant by the ethical policy when what was previously suitable for indigenous communities must change? For many, "moral education" represented a significant cultural shock. Some openly rejected it, while others did so indirectly.

Who, then, was so committed to ethical policy, particularly in the field of education? Who inspired many school principals, missionaries, and unnamed officials? First, the renowned Islamic scholar Christiaan Snouck Hurgronje, an advisor to the government for indigenous affairs, and Van Deventer, who was involved in colonial education as a Member of Parliament in the Netherlands. Additionally, J. Abendanon was the director of the education department in the early days of the Ethical Policy, as were his successors Snouck Hurgronje, GA Hazel, and KF Creutzberg, who, in the role of director of education, 'led' from 1916 to 1922.

Snouck Hurgronje has initially supported the admission of exceptional native students to Western secondary education because they have formed the vanguard of a new elite. Placement in European families would also promote the education of Western values. Snouck Hurgronje's plan has proved unworkable and has encountered much resistance, so he has committed education to be more oriented towards the indigenous population.

Vocational education has not been highly valued and not very popular among the native population. Efforts to establish technical schools have been unsuccessful; children from the Indo-European group, in particular, have attended this education. Initiatives in handicraft education that addressed the urgent needs of the indigenous community, such as agricultural education, has appeared to meet a similar fate as the village schools. In the 1920s, there has been a small investment in vocational education compared to general education. The only exception has been kindergarten.

In 1913, the Department of Education has decided to start a three-year independent secondary school from the academic year 1914-1915. The government has seen this school primarily as the final education for the native students. The Dutch-oriented high school, HBS, has been too difficult for most of the people. Of course, if the native students had successfully passed the entrance exam, then for years, HBS in the Dutch East Indies would have remained an elite school for (temporary) the Dutch immigrants.

World War I has one of the reasons the government has taken more independent actions. Other causes heve been the emancipation of the Dutch East Indies population, the rise of the nationalist movements, and the awareness of the colonial population. The Dutch East Indies has needed greater control over the matters directly related to it. In factm in 1917, the colonial government has granted permission to establish political parties through direct elections and appointments by the governor-general.

The People's Council (*Volksraad*) followed in 1918.

Nationalism of the Priyayis and the Indos

Whereas the native doctors quickly absorbed nationalist ideas and actively participated in the nationalist organizations (Neelakantan, 2020; Pols, 2018), the native engineers have been never ready to work in the newly independent state. From the beginning, they have realized that they were learning to work in the colonial bureaucracy. Sukarno has been an exception, and his mentor, Prof. Schoemaker has complained that Sukarno was more interested in the nationalist movement than in pursuing his profession as a building engineer.

International issues have thus forced Indonesia's intellectual elite to shift away from their professionalism and turn to the more attractive nationalist movement. The spirit of Indonesian nationalism has been relatively similar to the spirit of nationalism in Burma (now Myanmar) and Indochina (Vietnam, Cambodia), which have had anti-colonial nationalism (Kahin, 2003).

In the 1920s and 1930s, the Comintern has provided guidance and much rhetoric on the anti-imperialist movement and efforts to win the colonies in Asia. Some leaders from India and Indonesia, especially Nehru and Sukarno, have learned a lot from the communist anti-imperialist experts during their visits to Europe (Seton-Watson, 2019).

The implementation of the ethical policy in the early 20th century has allowed the indigenous people to fill strategic positions. The Indo community has initially welcomed the implementation of the Ethical Policy, but it has waned somewhat as the spirit of Indonesian native nationalism has begun to emerge. Furthermore, the Ethical Policy has aimed to expand education for the indigenous people. As a result, after the ethical approach has been applied, jobs that have been previously handled by the Indo community have been taken over by the native population.

As it has developed at the time, the ethical policy has also aspired to equalize salaries for the civil servants and the type of education for the indigenous people. Understandably, the leaders of the Indo community have been concerned that with the relatively limited resources available to the colonial government, "everyone would be equal," which, in practice, had meant that Indo people had to descend to the "native level."

Therefore, the *Indo-Europeansch Verbond*, or the Indo-European Society, has been established in 1919, which has opposed this policy and has enthusiastically promoted the emancipation of Indo people through scholarships and the establishment of schools.

THS Bandung: TU Delft at the Tropics

In response to the proposal from the Association of Universities of the Dutch East Indies to establish a technical college, J. Homan van der Heide, the Director of BOW, has expressed his opinion in a letter to GG Idenburg dated January 27, 1913. He has stated that it was indeed time for higher education to be introduced in the Dutch East Indies in the form of a Technical College, Medical, and Administrative Juridical School. Suppose a technical college were to be established in the Dutch colonial territories. In that case, its quality should be on par with those in the Netherlands, Germany, England, and Japan so that their graduates could hold full engineering degrees in the Continental European sense rather than being considered as 'engineers' in the English-American sense (Heide, 1963). The initial curriculum presented in the early syllabus has emphasized fundamental knowledge of architectural engineering (refer to the early THS syllabus, 1920).

Education for the indigenous population has officially received attention under the Ethical Policy, particularly in the areas of irrigation and migration. In a memorandum from March 17, 1913, Hazeu has discussed the *Hollands-Inlandse School* (HIS or Dutch school for natives) and the *Meer Uitgebreid Lager Onderwijs* (MULO or More Advanced Primary Education) course, which he believed should be transformed into complete MULO schools.

HBS (*Hoogere Burgerschool* or the Higher Civil School) is a type of secondary school initiated by the Liberal politician Johan Rudolph Thorbecke. Established in the Netherlands in 1863 and subsequently in Batavia, Semarang, and Surabaya in 1864, it was quite popular due to the opportunity it provided for students to continue to the AMS (*Algemene Middelbare School* or General Secondary School) level.

Following the issuance of Government Regulation 1854, reforms have been introduced in the field of education. The idea of establishing a technical college had gained momentum with the founding of the Indische Universiteitsvereniging (IUV) on March 8, 1910. The colonial government has approved the establishment of this Association of Universities of the Dutch East Indies, which, in its statutes, aimed to promote, establish, and manage higher schools.

However, by 1912, the Minister of Colonial Affairs had not yet considered plans for establishing a university in the Dutch East Indies. If there were individuals in the Dutch East Indies interested in pursuing higher education, it has been suggested that they be sent to universities in the Netherlands with financial assistance from the colonial government. Finally, in 1912, the IUV has approached the colonial government, explaining its plan to establish a technical college. The association has promised to cover the entire construction and furnishing costs from private contributions, while the Dutch East Indies government would bear the annual recurring costs for the personnel and materials.

Of particular significance is the letter from Governor General Idenburg to Minister of Colonies De Waal Malefijt, dated July 17, 1913, regarding the establishment of a Technical College in the Dutch East Indies. Nine years after the World War I, Bandoeng has received approval from the minister, leading to the founding of the HBS (Hogere Burgerschool, a general secondary school in 1915.

Homan van der Heide has explained on January 27, 1913, the requirements that needed to be fulfilled for a technical college to be considered complete. However, the memorandum resulting from the discussions has concluded that the plan needed to be revised. First, there needed to be an assurance of admitting fifty students per year, closely related to the number of graduates from the five-year diploma program.

On May 28, 1915, Pleyte has also felt that the timing was not right. In 1917, "Indie Weerbaar" (Dutch East Indie's Defense Committee) has begun to be involved in the Netherlands, so two years later, the amount has increased to 3 1/2 million guilders. The Royal Institute for Higher Technical Education in the Dutch East Indies has been established, and the Governor-General has formed a construction committee on June 3, 1918.

The Technical College (Technische Hogeschool, THS) in Bandung, originally conceived as a polytechnic, has been considered a continuation of the *ambachtsschool* but has later evolved into an institution equivalent to a university. Initially, it has not been intended to create a "second Delft" in the Dutch East Indies. However, with the outbreak of the World War I, the strained relations between the Netherlands and the Dutch East Indies has been used to expedite the establishment of the Technical College, not just the Technical College in the Dutch East Indies (Klopper, 1955).

Fig.3: Indigenous students of THS Bandung, 1923
Source: https://id.wikipedia.org/wiki/Berkas:1923_Mahasiswa_pribumi_THS.jpg

In the early 20th century, as part of the implementation program of the Ethical Policy, Dutch-language educational institutions have undergone renovations to produce managerial and administrative elites. During the first two decades of this century, racial segregation has ended in high schools and professional high schools. Education for the Indonesian population has been deemed necessary, as the small number of colonizers did not have the resources to control all the aspects of trade in their colony (Pyenson, 1989).

Conclusions

Certainly, these are the key conclusions from the historical context investigated in this research

1. The transition from technical education in *Ambachtsschool* to the *Technische Hogeschool* (THS) highlights the close relationship between the type of education and economic and educational policies. The shift towards an industrial economy has required highly educated professionals, leading to colonial government intervention in education reforms from primary to higher education.
2. Architecture and its education in the Dutch East Indies has not been originated from fine arts, as advocated by Beaux Arts schools, but rather from building construction (*bouwkunde*). After independence, this technical nature placed architecture departments within engineering faculties.
3. Higher technical education, like other higher education during the colonial period, has been conducted with a Dutch-language curriculum. This Eurocentric character has reinforced the social stratification, existing at that time, where indigenous elites had maintained their positions as *new priyayi*.
4. For the indigenous elites, education has not been seen solely as a means to acquire knowledge but also as a way to maintain their social status. The aristocratic nature of this elite group, their reluctance to engage in technical work, growing anti-colonial sentiments, and the dualism in economic, social, and educational policies has contributed to the limited interest of indigenous elites in the field of *bouwkunde* (building construction, including architecture).
5. Despite the presence of four indigenous engineers listed as members of the Association of Building Engineers (*Vereeniging van Bouwkundigen*) in 1898, Technical College has only produced a small number of professional engineers at the beginning of the 20th century. It suggests that the indigenous elite did not widely pursue careers in engineering, potentially due to their preference for non-technical roles, political careers, or other occupations related to the colonial context.

These findings underscore the intricate relationship between architectural education and profession, colonial policies, and the socio-economic context of the time.

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Conflict of Interest: The authors declare that the implementation of this study does not involve any conflict of interest.

Ethical Practice: The authors declare that this research has been conducted employing accepted ethical research practices and does not violate the rights of any social group, a person or animals. The data was generated with a full understanding and agreement of the respondents, and owners of the case studies.

Availability of Data: The authors declare that the data used in this study are available for verification upon request.

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