

**The Medical Spur to
Postcolonial Science in
Southeast Asia: Indonesia and
the Philippines during the Early
Decades of the Cold War**

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For the first time in 1943—at the height of the Japanese occupation of the Indonesian archipelago—Soekarno expressed the relationship between medicine and nation-building.¹ He had foreseen, in the not-too-distant future when the country would proclaim its independence from colonial rule, that physicians would have a unique niche in Indonesian society—as advocates of the largely illiterate Indonesian masses. He envisioned that a physician would not only treat the sick, but also educate the public about preventative health measures such that Indonesia would become a strong and healthy nation.² Eleven years later, President Ramon Magsaysay of the Philippines asserted in his first State of the Nation Address that no nation could go ahead if crippled by disease. These two vignettes attest to the centrality of public health in nation-building in postcolonial Indonesia and the Philippines.

This paper investigates from a comparative historical perspective how and why public health became so central to postcolonial science. The early 1950s coincided with decolonisation in Southeast Asia. The US was apprehensive about the spread of communism and sought to purchase the loyalties of leaders of newly independent nations of Asia through technical assistance, channelized through UN agencies such as the World Health Organization (WHO). By portraying poverty and disease as the breeding grounds of communism, the US sought to assist disease eradication, especially anti-malaria campaigns in Indonesia and the Philippines. Indonesian and Filipino leaders were aware of the political ramifications of participating in disease eradication programs led by the US. Whereas the Filipino presidents perceived science and medicine as the means to usher development of remote islands, and were open to American developmental assistance, President Soekarno sought to achieve a delicate equilibrium between maintaining Indonesia's political sovereignty on one hand, with increased receptiveness to developmental assistance from the US and the Soviet Union, on the other. In other words: these two nations followed very different strategies to bring about the same end: modernisation.³

This paper critically assesses the centrality of medicine to the development of postcolonial science, links the history of medicine in Indonesia and the Philippines to the Cold War, and problematizes the notion of postcolonial science in Indonesia and the Philippines through a close reading of archival sources. At the Rockefeller Archive Center, I found extremely rich archival materials in the Rockefeller Foundation Records, especially the Project Files. The Project Files are critical for

understanding the transnational flow of technical expertise across the Southeast Asian region.

Historiography

Physicians dominated the first generation of nationalist leaders in the Dutch East Indies (erstwhile Indonesia) and the Philippines under American colonialism (1898-1946). For the nationalist physicians of both colonies, decolonisation was yoked to scientific progress. Physicians from the Dutch East Indies and the Philippines under American control, deployed organic metaphors derived from their medical training to diagnose ills of the proto-national body politic.⁴ This paper contends that subsequent to the transfer of political sovereignty to the Philippines (1946), and Indonesia (1949), the legacy of nationalist physicians in shaping the trajectory of scientific thinking in both countries continued in terms of symbolically aligning medical research with national exigencies, and partly in response to the Cold War.

Current literature on Indonesian Science and Technology Studies (STS) centres on the role of technology in the formation of national identity. But, the contribution of medicine to nation-building remains overshadowed in favour of institutionalisation of Indonesian science during the 1950s.⁵

Suzanne Moon's article, 'Justice, Geography, and Steel: Technology and National Identity in Indonesian Industrialization,' examines the interactions of technology and national identity through the lens of a steel plant in Cilegon, West Java.⁶ The issue of industrialisation in Indonesia was associated with the socialist ideal of achieving technological self-sufficiency. The location of the steel plant in the town of Cilegon was invested with symbolic significance. Ostensibly impoverished town, Cilegon was a lively part of the Majapahit Empire, a Java-based empire that established its influence over the Outer Islands, particularly Sumatra, Bali, Borneo and the eastern islands that constituted the Indonesian archipelago. For Soekarno, the site of the steel plant symbolised the aspirations of the postcolonial state in its march towards modernization. Moon's article, however, does not examine the contribution of how individual Indonesian scientists sought to align their research with nationalist ideology.⁷

In his monograph *The Floracrats: State Sponsored Science and the Failure of the Enlightenment in Indonesia*, Andrew Goss contends that Indonesian science has had broad middle-class support since independence. It was linked to the global culture of science and scientists. For many Indonesians, the appeal of science was its enlightenment ideal of revealing the workings of nature.⁸ Viewed internationally, Indonesian research has been less competitive as Indonesian scientists have sought to measure their success by their usefulness to the nation and the creation of a scientific community. The scope of Goss' monograph is restricted to biology, in particular to botany. Although nationalist physicians, particularly Sarwono Prawirohardjo, were influential in establishing a blueprint for Indonesian science during the early years of independence, the role of applied sciences (particularly medicine), while significant, remained marginal in Goss' narrative. A significant gap in the historiography of science and technology studies in Indonesia is the symbolic significance of the applied sciences such as agriculture and medicine in the furtherance of nationalist rhetoric of ensuring Indonesia's self-sufficiency in economic affairs (*berdiri di atas kaki sendiri*).

In his exploratory article 'Science in the Philippines,' Warwick Anderson contends that the production of scientific knowledge was treated as an index of modernity and national development.⁹ Anderson's article hints at, but does not elaborate, the circumstances under which science became a tool of nation-building of the postcolonial state.¹⁰

A major shortcoming appertaining to the scholarly literature on postcolonial science in Indonesia and the Philippines is the lack of engagement between international forces such as the Cold War and Afro-Asian solidarity on one hand, and local transformation of scientific and medical knowledge to suit the exigencies of nation-building, on the other. Sunil Amrith's influential monograph *Decolonizing International Health: India and Southeast Asia*, argues that India played a greater role in shaping post-World War II health problems than did the Indonesians or the Burmese, who were preoccupied with the problem of establishing the legitimacy of the postcolonial state amidst much ethnic strife.¹¹ This line of argument does not do full justice to the Indonesian and Philippine initiatives in transnational science and medicine. But, Amrith's monograph has offered a new methodology of examining the circulation of health ideas across Asia. In his recent article entitled 'Asia as a Method in STS Studies,' Warwick Anderson observes that since the 1970s, active debate has taken place about the meaning of

science, technology, and medicine within an Indian context, much of it occurring within the Gandhian, Marxist, subaltern and postcolonial frameworks. But, the relationships between the Indian Science and Technology Studies (STS), Southeast Asian, and global STS scholarship remain fragmentary. The disconnect between Indian, Southeast Asian, and global STS scholarship deserves further investigation.¹² A major research question raised by this study is whether Indonesian and Filipino science and medicine were variants of postcolonial science more generally, or whether they embodied a distinctive national flavour?

Soekarno Era Science: Balancing International Aid with Self-Sufficiency

As a nationalist leader, orator and President of Indonesia (1945-1965), Soekarno gave his authorial voice to science in Indonesia. For Soekarno, science served as a tool to present his political convictions as grounded in rationality. Soekarno did not believe that scientists held an absolute monopoly over truth. Rather, science for Soekarno was conducted for the benefit of the people, but at the discretion of the state.¹³ Indonesian science was not only designed to inspire national pride and self-reliance. During the era of intense Cold War rivalry, it was also a way of reducing the country's scientific dependence on the Netherlands, the US, and the USSR and instead, develop cultural and scientific relations with India, and the newly-independent African states. Soekarno-era science was a vehicle for realising Indonesian aspirations for the leadership of the non-aligned movement in which Soekarno's role was so pivotal.

The Institutionalisation of Indonesian Science

After the transfer of political sovereignty to the Indonesian Republic in 1949, the nation faced three big problems: internal security, international security, and economic and social development. Indonesian scientists, especially Sarwono

Prawirohardjo and Soedjono Djoened Poesponegoro prioritised applied over basic research, especially with a view to harness the nation's natural and human resources and increase the supply of trained personnel.

Prawirohardjo, who was Professor of Obstetrics at Universitas Indonesia (UI) and founder of the Indonesian Council of Sciences or *Madjelis Ilmu Pengetahuan Indonesia* (MIPI), was undoubtedly one of the most influential Indonesian thinkers in science during the Soekarno era. Prawirohardjo graduated from the *Geneeskunde Hogeschool* (GH) in 1939 as Indonesia's first obstetrician and gynaecologist. He prioritised applied over basic science. Adopting a cautious approach to foreign aid's furthering the development of Indonesia's scientific capabilities, Prawirohardjo sought to establish Indonesian pre-eminence in scientific research, particularly in the fields of botany, zoology and geology. His focus was upon imbuing Indonesians with a scientific mindset.

Prawirohardjo maintained that the main obstacle inhibiting the growth of Indonesian research was the shortage of scientific manpower.¹⁴ Prawirohardjo argued that unlike Europe, the newly-decolonised nations of Asia, particularly Indonesia which had largely missed out on the scientific revolution, used technology developed in the industrialised West as a catalyst to achieve economic growth. This led to a state of 'scientific and technological neo-colonialism' in which Indonesia was reduced to a state of dependency on industrialised nations for the transfer of technological knowhow.¹⁵ Prawirohardjo exhorted Indonesians to realise their national potential in science and technology through innovation. During the 1950s, Prawirohardjo represented Indonesia on several international organisations. He was co-opted into the WHO Expert Advisory Panel on Maternal and Child Health.¹⁶

In 1951, Prawirohardjo was chosen as the head of a nine-member committee appointed by the Minister of Education to investigate the founding of the MIPI. In April 1956, MIPI was formally established in accordance with Presidential Decree No. 118. As a central body, (i) it would be dedicated to developing and coordinating all scientific endeavours undertaken within Indonesia; (ii) it would establish Indonesia's reputation in science internationally; and, (iii) MIPI would be an autonomous institution intended to promote research in Indonesia without undue interference from the government. Prawirohardjo envisioned that it would complement Indonesian universities by making scientific research relevant to

Indonesia's needs. Eminent Indonesian professors, particularly Prawirohardjo and Poesponegoro, helped to coordinate research undertaken in the universities in accordance with the objectives of the MIPI. Unfortunately, the initiative was yet another bureaucratic elephant; it failed to succeed fully, although its aims and ideals had been lofty.¹⁷

Poesponegoro's nationalist credentials were shaped by his experience at the medical school at the GH, Batavia, beginning 1927. After graduating from the GH in 1934, he undertook postgraduate training in paediatrics at Leiden University and established himself as a paediatrician in Semarang between 1938 and 1945. Soon after the transfer of sovereignty, Poesponegoro realised that with the deteriorating Dutch-Indonesian relations and the exodus of Dutch scientists and academics to the Netherlands, Indonesia would suffer from a leadership vacuum in the spheres of medicine and other scientific establishments that would inhibit the training of the next generation of professionals.¹⁸ As a part of his commitment to develop Indonesia's capabilities in medical research, Poesponegoro joined the newly-constituted Faculty of Medicine at UI as a lecturer of paediatric diseases in 1950. Due to his leadership capabilities, he was appointed as dean of the medical school at UI from 1952 to 1960.

The Department of Paediatrics at the UI, under the leadership of Poesponegoro, initiated interdisciplinary research into nutrition in conjunction with the Nutrition Institute (*Lembaga Makanan Rakjat*, an autonomous research institute established in 1950) in Jakarta which was directed by Poorwo Soedarmo. The aim was to discover cost-effective substitutes for milk that would help to combat kwashiorkor (protein energy malnutrition) and xerophthalmia (vitamin A deficiency) in Indonesian infants. This collaboration, in effect, initiated and demonstrated a model of collaboration between Indonesian universities and research institutes. At the Nutrition Institute, Poorwo Soedarmo developed fish flour as a protein substitute for milk. Subsequently, the Department of Paediatrics at UI unsuccessfully conducted clinical trials using fish flour to treat kwashiorkor patients. Paediatricians at the UI, who attributed the prevalence of kwashiorkor and vitamin A deficiency to the colonial period, appealed to the medical profession saying that if Indonesians sought to create a strong and healthy citizenry free of nutritional deficiencies, they needed to intensify their efforts to increase the production of animal protein and foods rich in vitamin A.¹⁹

Poesponegoro's initiatives in paediatrics converged with Soekarno's understanding of the Indonesian Revolution after 1956, i.e., as a period of investment in the human skills of the population and a socio-economic revolution that intended to fulfil the basic needs of the Indonesian people. At the Second Afro-Asian Congress of Paediatrics held in Jakarta in 1964, he related paediatrics to Soekarno's notion of pembangunan and the Indonesian Revolution. For Soekarno, pembangunan reflected multiple possibilities such as the eradication of illiteracy, increasing the production of food, and forging solidarity with Afro-Asian nations that shared a common legacy of resistance to colonialism. The Afro-Asian or Bandung Conference of 1955 advocated that the destinies of the newly-independent African and Asian nations would not be dictated by either the US or the USSR but by the leaders of Egypt, India and Indonesia. The Second Afro-Asian Congress of Paediatrics, convened in Jakarta (1964), built upon the social solidarity forged between newly-decolonised nations of Africa and Asia at Bandung a decade earlier.

Delegates to the Second Afro-Asian Congress of Paediatrics unanimously resolved that determined effort towards eliminating the social and economic causes of ill health among children would achieve social welfare, raise the living standards of the people, and consolidate the gains of national independence.²⁰ The Congress claimed that malnutrition was not only a medical but also a social, agricultural and educational problem. It could be alleviated by the self-help initiatives of the people themselves without international assistance. Poesponegoro held that paediatrics provided a powerful force for emancipating the people of Africa and Asia from the scourge of poverty. In his address delivered at the opening ceremony, Poesponegoro commented:

In short, the reality of political independence and its consolidation with economic and social imperatives have unleashed in Indonesia, like in most countries of the African and Asian continents, the pent-up stream of scientific creativity for the benefit of all peoples. It is here that lies the significance of the Second Afro-Asian Pediatric Congress for which we are gathered here today. Although most of the Afro-Asian countries hold membership in the International Paediatric Association and do value the importance and the high quality of its three-yearly sessions, the idea of holding an Afro-Asian Paediatrics Congress originated from the fact that the International Pediatric Congress was not always concerned with child health related to Afro-Asian conditions.

Although Indonesia's leaders, particularly Soekarno and Poesponegoro, recognised the practical value of paediatrics for moulding future citizens free of disease and as an investment in human skills, by 1964 their ideas had become congruent with those of the leaders of Africa and Asia. Poesponegoro, demonstrating his capability as a statesman, consolidated the political gains of Soekarno at the Bandung Conference (1955) by relating paediatrics to Indonesia's commitment to furthering human happiness through investment in child health. Poesponegoro was appointed as Minister of Research in 1962, a position which he held until 1966. He sought to achieve greater coordination between research undertaken in Indonesian universities, on one hand, and activities of the research institutes, on the other, especially the Nutrition Institute which came under the jurisdiction of MIPI. In 1962, overshadowed by his country's confrontation with Malaysia and the mobilisation of the military on the West Irian question, Soekarno stressed that following the normalisation of the political situation the government would allocate a greater proportion of the budget to scientific research.²¹ Despite its promise, the Ministry of Research remained severely underfunded due to the seventeen-fold depreciation of the rupiah.²²

Ikatan Dokter Indonesia and the Indonesianization of Science

The *Ikatan Dokter Indonesia* (The Indonesian Medical Association, henceforth the IDI) was an independent medical society established by Indonesian physicians in September 1950. Its aims were: (a) to advocate better salaries for doctors employed in the public service; (b) to formulate recommendations on changes to the medical curriculum; (c) to recommend the enshrinement of the human right to health within the Indonesian constitution; (d) to improve the standard of public health; and, (e) to enrich the scientific vocabulary of Bahasa Indonesia by appropriating biomedical terms from European languages.

In 1953, the IDI liaised with the WHO to persuade the Indonesian Ministry of Health to allocate a greater proportion of the health budget to the issue of malnutrition. IDI appealed to the spirit of internationalism and social conscience of humankind as follows:

I understand that the UNO is based on the same principles as the League of Nations, namely on more or less equality of sovereign states. But the UNO has something more as it is not only founded on international law alone, but also on Social Conscience and on the acknowledgement of human rights.

The Social Conscience demands relief from extremities of luxury and want, and concerning health, it is the inalienable right of every human being to achieve a reasonable standard of health, without discrimination according to race, religion, political affiliation, etc.²³

The IDI identified malnutrition as Indonesia's most significant health problem of the 1950s, claiming that it de-energized the productive capacity of the Indonesian peoples. It urged the WHO to convince the Ministry of Health to act on the question of improving the nutritional standards of the people. The IDI had observed the correlation between good health and enhanced national productivity in nations such as Japan, the Soviet Union and China, all of which had made great strides in public health after the conclusion of World War II. In addition, it had drawn the attention of the Ministry of Health to the need to guarantee the 'right to health,' which the 1945 constitution did not explicitly mention. With input from the IDI, the Ministry of Health enacted the *Undang Undang Tentang Pokok Pokok Kesehatan* (Basic Law on Health, No. 9, 1960), which explicitly stated that the Indonesian government would guarantee the highest possible level of healthcare to the country's citizens. The law intended to mobilise private initiatives in preventive and curative public health based on the notion of *gotong royong*.²⁴

In 1951, the IDI launched the *Madjalah Kedokteran Indonesia*, an initiative aimed at promoting the use of Bahasa Indonesia in academic circles. As well, it coined scientific equivalents for biomedical terms where none had hitherto existed before. In 1954, Soetomo Tjokronegoro (Professor of Pathology at UI from 1951 to 1969), who was influential in transforming the medical education at UI and UNAIR (Airlangga University, Surabaya) promoted the use of Bahasa Indonesia in lectures. Tjokronegoro was also instrumental in revising the *Kamus Istilah Kedokteran* (Dictionary of Indonesian Medical Terms, published during the Japanese occupation of Indonesia in 1943) in an attempt to bring about greater conceptual clarity of biomedical vocabulary. In his *Tjukupkah Saudara Membina Bahasa Kesatuan Kita* (Fostering a Unified National Language), he standardized the lexical usage of Bahasa Indonesia.²⁵ Physicians employed by IDI, particularly

Tjokronegoro, were confronted with the challenge of critically adapting foreign biomedical vocabulary into Indonesian.

The IDI positioned itself between Soekarno's notions of problem-oriented science, social justice, and the international framework of human rights while liaising with the WHO to persuade the Ministry of Health to devote a greater proportion of the budget allocated to public health to preventing malnutrition. As an intermediary between the WHO and the Ministry of Health, the IDI was instrumental in enacting the Basic Law on Health that redefined the state's role in guaranteeing a minimum standard of health for its citizens.

‘Scientific Research, in the Long Run, Does Pay Off in Terms of Pesos and Centavos’

On 3 June 1946, a month before US colonialism finally ended in the Philippines, President Manuel Roxas in his first State of the Nation Address enumerated the challenges facing the nascent nation. The country was born amidst much political turmoil due to: (a) the Japanese occupation of the Philippine archipelago between 1942 and 1945; and, (b) the Huk Balahap rebellion, initially a peasant-based guerrilla insurrection supported by the communists to resist the Japanese and was later organised between 1949 and 1954.²⁶ But, this movement was crushed due to rural reconstruction and military victories. At the dawn of Philippine independence, Roxas positioned the Philippines as a strategic American ally in the fight against communism. He stated to the effect that although the Philippines were well-endowed with human and natural resources, especially minerals, the country was unable to harness them due to the shortage of technical skills. He encouraged Philippine scientists to undertake technical training abroad. Roxas' policy of closely aligning Philippine science with American aid was subsequently continued during the 1950s. During the presidencies of Roxas (1946-48), Elpidio Quirino (1948-53), Magsaysay (1953-57), Carlos Garcia (1957-61), and Diosdado Macapagal (1961-65), a mobilization mentality suffused the practice of science in the Philippines such that scientists were directed to solve concrete problems such

as maximising food productivity, or eradicating disease which affected the overall vitality of the population.²⁷

Research during the 1950s was inhibited by financial constraints such that investigations in pure sciences—incurring budgetary expenditures running into millions of pesos—had to be curtailed. Postcolonial Philippine science was quantified in purely economic terms. As Miguel Ma Varela noted in 1954, Philippines' strong ties with the US placed the country's scientific foundations on a strong footing, vis-à-vis other ex-colonial Southeast Asian nations in a similar economic position.²⁸ At the time, it was widely held within Philippine policy circles that pure research undertaken in US laboratories could serve as a stepping stone for applied research by Filipino scientists. Furthermore, Varela added that scientific research was the blessing of Filipino citizenship.

The Philippine Bureau of Science, established in 1905, undertook research in tropical medicine, botany, zoology, entomology, and geology. The research activities of the Bureau were disrupted due to War in the Pacific (1942-45). In 1947, subsequent to Philippine independence, the Bureau of Science was renamed the Institute of Science. The Institute carried out research in various branches of science and drew personnel from state universities.²⁹ The Institute of Science conducted research in basic science of relevance to industry, verified results of experiments carried out overseas that could be possibly replicated in Philippine industrial settings, undertook quality control of vaccines manufactured locally at Alabang, and established minimum standards for agricultural products. But, research coordination was carried out by the National Research Council of the Philippines. It assisted the government in formulating a blueprint for Philippine science. The combined efforts of the Institute of Science and Technology, the National Research Council of the Philippines, the University of the Philippines, and Science Foundation of the Philippines resulted in the Republic Act 1606, 'An Act to Promote Scientific, Engineering, Technological Research, Invention and Development.'³⁰ The Act created a National Science Board, which provided grants-in-aid to research projects. In 1958, with a view to intensify research, the Philippine Congress passed the Science Act that would replace the National Science Board with the National Science Development Board, although the changes were cosmetic.

During the 1950s, scientists at the University of the Philippines College of Agriculture investigated scientific methods to augment crop yields, particularly rice and corn. They undertook research on soil fertility, and control of crop pests, especially the *kadang kadang* pest in coconut which had affected 5.5 million of the 16 million trees in the Bicol region, in addition to diseases affecting cash crops, particularly tobacco and abaca.³¹ The Philippine Atomic Energy Commission completed a study assessing the effects of radioactive iodine in treating thyroid disorders.³²

Postcolonial science in the Philippines during the 1950s was at the behest of the state and private industry at the time had not yet conceptualised a long-term plan for supporting research. Scientists were discontented due to red tape. Even when funds were available for research, delays were encountered in procurement of equipment. Low salaries and lack of prestige accorded to scientists dissuaded Filipino students from pursuing a research career.

Clientelism was a major factor impeding the growth of science in the Philippines. An interesting episode illustrating clientelism hampering the work of Philippine research institutions was the then President Carlos Garcia's selection of Paulino Garcia (who served as the Secretary of Health between 1954 and 1958) as Chairperson of the newly-constituted National Science Development Board. In 1962, when Macapagal became President, he accused Paulino Garcia of entertaining the opposition party and insisted that he resign.³³ The latter refused to resign and when the President summarily dismissed him, the matter was taken up by the Supreme Court. The verdict of the Supreme Court upheld Paulino Garcia as Chairperson of the National Science Development Board. Even though Paulino Garcia had legal backing to function as the Chairperson, Macapagal made it difficult for the National Science Development Board to function by depriving it of funds.

Nutrition and Vitality of the Philippine Nation

By 1946, beriberi and nutritional diseases were the second most important cause of death in the Philippines, after tuberculosis. Between 1947 and 1950, extensive

nutritional surveys were undertaken in the Bataan islands, as a collaborative venture between American Chemist Robert R. Williams, who had synthesised thiamine in 1935, and Juan Salcedo, the Philippine Secretary of Health between 1950 and 1953. The surveys had revealed that polished white rice, artificially enriched with thiamine reduced the incidence of beriberi in vulnerable populations. In order to extend the benefits of rice enrichment to the entire nation, the Philippines promulgated a law in 1952 which made rice enrichment mandatory. Yet, despite the promulgation of a rice enrichment law, mortality from beriberi had not been eliminated. This section investigates the inherent tensions in Philippine health policy—between conceptualising beriberi and nutritional deficiencies as a structural problem associated with national enfeeblement, and conceptualisation of beriberi as a technical problem, associated with deficiency of thiamine.

Williams, the discoverer of vitamin B1, was a chemist in the Philippine Bureau of Science, during the colonial period (around 1909). He was called a wonder doctor because he could cure beriberi patients in a matter of hours.³⁴ He collaborated with Salcedo in carrying out the Bataan Islands Experiment on Enriched Rice, between October 1947 and September 1950. The isolated Bataan peninsula was divided into experimental and control areas. The rice enrichment process consisted of enriching the rice grain with thiamine, niacin, and iron pyrophosphate. Enriched rice was distributed to 63,500 people from seven municipalities on the islands, constituting the experimental areas. In 1946, a year before the Bataan study, the planned experimental areas had a beriberi death rate of 263 per 100,000, whereas the control areas had a death rate of 149 per 100,000. In 1947, with the supply of enriched rice to the experimental areas, the death rate drastically declined to 117 per 100,000, whereas in the control area, the death rates remained unchanged.³⁵

In order to extend the benefits of the rice enrichment to the Philippine archipelago, the government passed the Republic Act 832 (1952) which made it mandatory for millers to enrich the rice that they sold. But, enrichment was a controversial issue in the Filipino Congress. Whereas the Consumers' Group insisted that enrichment of rice made the grain more affordable for the poor, and was a preventive public health measure, the Rice and Corn Millers Association contended that consumers did not like the taste of enriched rice.³⁶

As a result, the implementation of nutrition programmes throughout the Philippines suffered from organisational setbacks.

The International Rice Research Institute (IRRI) and Philippine Transnationalism

Established in 1960 with joint support of the Rockefeller Foundation, the Ford Foundation, and the Philippine government, IRRI conducted basic and applied research in rice, Asia's staple food crop. Robert Chandler, Head of IRRI, contended that the basic problems pertaining to rice were universal. Many of the physiological, biochemical, and genetic problems associated with rice were independent of political boundaries, so these problems could be solved through an interdisciplinary approach in a centralised laboratory. During the 1950s, with Southeast Asia's food supplies unable to meet the needs of the ever-growing population, the US was afraid that the region would provide fertile grounds for the spread of communist ideology.

The Rockefeller Foundation's work in agricultural sciences began in 1943, with the Mexican corn development programme. The Mexican programme under the leadership of George Harrar had demonstrated that intensive, problem-oriented research and training activity could transform a food-deficit country into a food-surplus one in less than ten years.³⁷ During the 1950s, rice had not yet formed the backbone of country-specific agricultural assistance supported by the Foundation. But, Rockefeller Foundation officers were aware that rice was the major food crop of Asia and merited specific attention. By 1953, John Kerry King's influential article in *Foreign Affairs* observed that in Asia, caught between the two opposing ideological and political forces (US and the USSR), the supply of rice had far-reaching political consequences. South and Southeast Asian nations had to be convinced that increased production and higher standard of living were possible in their own countries, without resort to totalitarian methods. King's article asserted to the effect that 'the struggle of the East versus the West in Asia is, in part, a race for production and rice is the symbol and substance of it.'³⁸ King's statement is significant as it placed rice in the context of regional security and US relations with Asia.³⁹

Warren Weaver, Director of the Foundation's Division of Natural Sciences and Agriculture, travelled to Asia in 1952 and were convinced of the need of funding rice research. It was initially hoped that the Rockefeller Foundation would provide funding for building the institute for which Asian countries would jointly meet the operating expenses.⁴⁰ By 1955, the Rockefeller Foundation was faced with two alternatives: (a) support existing Asian agricultural institutes that had rice research programmes; or, (b) establish an international centre dedicated to research on rice. The latter idea had to be abandoned due to the enormity of funding involved. At the time, the Ford Foundation became interested in community development projects in Asia. By 1958, Forrest Hill, Vice President of Overseas Development of the Ford Foundation had written to Harrar, expressing the interest of the Ford Foundation in funding an agricultural programme in applied sciences.⁴¹ The meeting between Hill and Harrar was instrumental in laying the foundation of IRRI.

Between 1955 and 1960, the UP College of Agriculture at Los Baños had already established a niche for itself in training undergraduate students from Southeast Asia, particularly Indonesia, Vietnam, and Thailand. At the time, Faculty of Agriculture (affiliated with the UI) was in dire need of research staff.⁴² As a way out of the situation, Kusnoto, then Director of the Agricultural Experiment Station at Bogor, approached the Rockefeller Foundation with a proposal to train Indonesian undergraduate students overseas. Rockefeller officials, particularly Richard Bradfield, who was Regional Director for Agriculture in the Far East, had brokered agreement with the Indonesian and Filipino officials for training Indonesian undergraduates from the College of Agriculture at Bogor at Los Baños, and had pledged US\$ 120,000.⁴³ By 1957, the first cohort of twelve Indonesian students from the College of Agriculture at Bogor arrived in Los Baños for training, some of whom were funded by the International Cooperation Administration (ICA) of the US government.⁴⁴ The Rockefeller-ICA joint initiative of training Indonesian agricultural science undergraduates in the Philippines was intended to deepen friendship among Asian nations.⁴⁵ But, by 1957, the ICA had facilitated an affiliation between the University of Kentucky and the College of Agriculture at Bogor with a view to restructure the undergraduate agricultural science curriculum, on the lines extant at the UP College of Agriculture. The US Operations Mission in Jakarta expressed concern that that there was a likelihood of duplication of efforts: the training of Indonesian agricultural science students at

Los Baños on one hand, versus the affiliation of the University of Kentucky affiliation with the College of Agriculture at Bogor, on the other. The ICA and the Rockefeller Foundation did not fund the study of new students at Los Baños. Between 1958 and 1960, the Rockefeller Foundation continued the training of existing Indonesian undergraduate students of agricultural science at Los Baños until the grant-in-aid was fully used. Prior to 1960, the UP College of Agriculture cemented international friendships based on scientific research.

In 1960, the island of Luzon was held as the most logical choice for the establishment of IRRI.⁴⁶ The Philippines was a rice producing country, where demand for the crop far outstripped supply. Average production figures were low and there was a dearth of indigenous agricultural research.⁴⁷ At the time, the Philippine government was relatively open to international assistance.

Given the historical context that led to the establishment of IRRI, what was the focus of the Institute? Under the vision of Harrar, IRRI devoted its attention to developing high yielding varieties of rice suitable for tropical climates. Southeast Asia in general suffered a serious deficit in rice production. The Asian farmer had a 'rice complex' that was comparable to the 'cotton complex' of the American South.⁴⁸ Rural population of Asia depended excessively on rice not only as a source of income but also as their main source of food. IRRI sought to discourage the excessive dependence on rice in Asia by undertaking research in leguminous crops such as mung, cowpeas and soybean that could correct dietary deficiencies of the population.⁴⁹

Since the founding of IRRI, the Rockefeller Foundation officials sought to achieve a delicate equilibrium between promoting universal science independent of political borders, while fostering agricultural technologies suitable to particular conditions. The establishment and functioning of IRRI is emblematic of the functioning of postcolonial science. First, it placed increased emphasis on laboratory results and international scientific exchanges, particularly cooperative research programmes with Southeast Asian nations on breeding high-yielding varieties of rice. Second, postcolonial science, as it was reflected in the research undertaken at IRRI, tended to iron over geographical differences across Southeast Asia associated with rice production and attributed low yields to low level of agricultural education. Third, during the 1950s, IRRI used Southeast Asia's commonality to prescribe high-yielding varieties of crops on the grounds that

nations of the region shared common features associated with population growth and lower per-capita availability of food.⁵⁰

The Philippine Medical Association: Empowering Filipino Physicians for Nation-Building

The Philippine Islands Medical Association was founded in 1903, as an affiliate of the American Medical Association, as the Philippines was then under American domination. But, by 1921, Filipino physicians became more involved in activities of the Association. During the 1920s and the 1930s, there were inner tensions within the Philippine Medical Association about the role of the state regarding the provision of health services. Many private practitioners of the Association questioned the state-centric approach of the Medical Association. By 1932, these practitioners constituted a rival association, the Philippine Federation of Private Medical Practitioners, which continued to affiliate itself with the parent body until 1960. In 1939, the name of the Philippine Islands Medical Association was renamed the Philippine Medical Association, reflecting the desire of Filipino physicians to establish a new identity. The Philippine Medical Association was an elite interest group, whose members were primarily drawn from Manila. The Association served as a forum to articulate competing visions of health policy for the newly-independent nation during the 1940s and the 1950s. It failed to unite government physicians, private practitioners, and *albularyos* (practitioners of Philippine traditional medicine) in meeting public health challenges.

At the dawn of Philippine independence in 1946, the Association began a campaign against quacks, to defend the interests of private physicians. To this effect, it launched a mass-educational campaign.⁵¹ The Association also constituted a panel to defend private practitioners against accusations of medical malpractice. As an interest group, the Association sought to influence public policy by electing a physician to the Philippine Congress.

During the first decade of Philippine independence (1946-55), concomitant with the rise of Cold War in Southeast Asia, tensions began to emerge within the Philippine Medical Association. Some physicians envisioned a greater niche for the state in the provision of health services to rural areas, while others perceived negatively competition from government physicians. At the inaugural address of the First Southeast Asian Medical Conference in Manila on 8 May 1951, Eugenio Alonso, then President Elect of the Philippine Medical Association, pointed out that no variety of want was more individualised than illness. The illness of a wage-earner from tuberculosis or the failing health of children due to malnutrition was a problem that needed treatment of individual patients.⁵² Alonso shed light on the contradiction that although 700 million pesos were spent by the government on public health until 1951, 90% of patients did not see a doctor.⁵³ He contended that medical inadequacies could be remedied through amelioration of peoples' living conditions. He questioned the feasibility of undertaking nutrition research in the Philippines, or educating people about the nutritive value of food, at a time when people did not have enough to eat. The inaugural address of Alonso highlighted the shortcomings of the postcolonial state in public health.

In 1954, a year after assuming presidency, Magsaysay stated to the effect that as a component of nation-building, the government had directed its attention to ameliorating rural health.⁵⁴ The Magsaysay administration deputised physicians to work in under-staffed rural health centres. A chief bone of contention in Philippine public health during the Magsaysay administration was socialised medicine (universal healthcare for all Filipino citizens). A 1954 editorial in the *Philippine Medical World* stated that socialised medicine robbed individuals of liberty and resulted in excessive state surveillance. The proposition of socialised medicine, contended the editorial, was to tax people such that all incidental medical expenses would be covered. One of the pitfalls of socialised medicine was the inadequacy of taxation to administer the health programme. The editorial concluded that the test of Philippine political leadership was to preserve the autonomy of the medical profession from state intervention.⁵⁵ In an effort to minimise the conflict of interests between public and private health practitioners, the government passed the Indigent Act of 1957 which restricted the practice of government physicians to rural areas of the Philippines.

Conclusion: Isolating a Needle from a Haystack

One of the problems of writing the history of postcolonial science in Southeast Asia is the scarcity of historical biographies. Biographies—even when they are accessible in the local language— are hagiographic. They rarely shed light on wider historical events and the way in which medical metaphors—derived from decolonisation and the Cold War—shaped the direction of postcolonial science. In this context, the eclectic archival sources appertaining to the establishment of IRRI at the Rockefeller Archive Center were central to my study.

This paper does not chronicle the successes or failures of individual disease control programmes as they were implemented in Indonesia and the Philippines. Nor is it a study of the prosopographies of individual physicians who were central to postcolonial Indonesian or Filipino science. Rather, it seeks to understand the circumstances which led to the emergence of physicians as important players in postcolonial science. As pointed out in the paper—the Second Afro-Asian Congress of Paediatrics (1964) in the case of Indonesia, and inner tensions within the Philippine Medical Association with respect to socialised medicine— were two examples to show how paediatrics and socialised medicine shaped political perceptions in the postcolonial state and suggested strategies for mass organisation.

This paper problematizes the notion of postcolonial Indonesian (Soekarno era) science and Philippine science. As pointed out in the introduction, Indonesian President Soekarno and Philippine Presidents Roxas, Quirino, Magsaysay, Garcia, and Macapagal understood science functionally— in relation to their country's socio-economic needs during the post-World War II era— and in regard to Cold War ambitions. A mobilization mentality suffused the practice of postcolonial science in both Indonesia and the Philippines such that the pursuit of knowledge would not only address national concerns such as self-sufficiency in food, but broach broader political questions associated with the Cold War such as Afro-Asian solidarity, and socialised medicine.

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² Ibid.

³ Vivek Neelakantan, 'The Campaign against the Big Four Endemic Diseases and Indonesia's Relations with the WHO during the Cold War, 1950s,' in *Public Health and National Reconstruction in Postwar Asia: International Influences, Local Transformations*, eds. Liping Bu and Ka-che Yip (Abingdon: Routledge, 2014), 154-74.

⁴ Warwick Anderson and Hans Pols, 'Scientific Patriotism: Medical Science and National Self-Fashioning in Southeast Asia,' *Comparative Studies in Society and History* 54, no. 1 (2012): 93-113.

⁵ Suzanne Moon, 'Justice, Geography and Steel: Technology and National Identity in Indonesian Industrialization,' *OSIRIS* 24 (2009): 253-77.

⁶ Moon, 'Justice, Geography, and Steel,' 257.

⁷ Moon, 'Justice, Geography, and Steel,' 275.

⁸ Andrew Goss, *The Floracrats: State Sponsored Science and the Failure of the Enlightenment in Indonesia* (Madison: University of Wisconsin Press, 2011), 143.

⁹ Warwick Anderson, 'Science in the Philippines,' *Philippine Studies* 55, no. 3 (2007): 287-318.

¹⁰ Anderson, 'Science,' 311.

¹¹ Sunil Amrith, *Decolonizing International Health: India and Southeast Asia, 1930-1965* (Basingstoke: Palgrave, 2006), 100-101.

¹² Warwick Anderson, 'Asia as a Method in STS,' *EASTS* 6, no. 4 (2012): 445-51.

¹³ For a comparison with India, see David Arnold, 'Nehruvian Science and Postcolonial India,' *ISIS* 104, no. 2 (2013): 360-70.

¹⁴ Sarwono Prawirohardjo, 'Beberapa Pikiran Tentang Perkembangan Ilmu Pengetahuan dan Penyelidikan di Indonesia,' in *Laporan Kongres Ilmu Pengetahuan Nasional Pertama 1958: Djilid Pertama*, ed. MIPI (Jakarta: Ilmu Pengetahuan Indonesia and Kementerian Penerangan, 1958), 106.

¹⁵ 'Beberapa Catatan Mengenai Ilmu Pengetahuan, Teknologi dan Penelitian: Kutipan dan Sebagian Pidato Prof. Dr Sarwono Prawirohardjo, Ketua Lembaga Ilmu Pengetahuan Indonesia' (Jakarta: LIPI, 1972).

¹⁶ 'Indonesian Council of Science: Dr Sarwono Prawirohardjo,' LAG (Lucien Gregg) Diary Dated 4 September 1963, series 652A Indonesia - Medical, Rockefeller Archive Center (hereafter RAC).

¹⁷ By the mid-1950s Indonesia witnessed an extraordinary growth in higher education with the establishment of 55 new universities. In the late 1950s, due to the devaluation of the rupiah, the salaries of scientists were no longer competitive. By the early 1960s, as most of the senior scientists of Indonesia were approaching retirement, research institutions recruited inexperienced graduates who were unable to train their younger colleagues in research.

¹⁸ Dhurorudin Mashad, *Tahun Penuh Tantangan: Soedjono Djoened Poesponegoro Menteri Riset Pertama di Indonesia* (Jakarta: LIPI Press, 2008).

¹⁹ Poey Seng Hin, 'Defisiensi Protein Kalori (Kwashiorkor) dan Penyakit Defisiensi Vitamin A,' in *Research di Indonesia*, eds., M. Makagiansar and Poorwo Soedarmo (Jakarta: Departemen Urusan Research Nasional Republik Indonesia, 1965), 276.

²⁰ 'Resolutions Adopted at the General Session of the Second Afro-Asian Congress of Paediatrics, Jakarta, August 26, 1964: Proceedings of the Second Afro-Asian Congress of Paediatrics,' *Paediatrica Indonesiana* 4, no. 4 (1964), I-XLII, XXXVI.

²¹ Soekarno, 'Amanat Presiden Soekarno Pada Kongres Ilmu Pengetahuan Nasional 22 Oktober di Jogjakarta,' *Abdikan Ilmu Pengetahuan dan Persembahkan Hidupmu Kepada Tanahair dan Bangsa* (Jakarta: Departemen Penerangan, 1962), 11.

²² Mashad, *Tahun Penuh Tantangan*, 185.

²³ IDI, 'Adres Ketua P.B. IDI Kepada WHO Visiting Team of Medical Scientists, 17 April 1953,' *Berita Ikatan Dokter Indonesia* (1953), n.p.

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- ²⁶ See also Vivek Neelakantan, 'Disease Eradication and National Reconstruction in Indonesia and the Philippines during the Early Decades of the Cold War,' *IIAS Newsletter* 71 (2015):4-5.
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- ³¹ Varela, 'Scientific Research,' 364.
- ³² Valenzuela, 'The Natural Sciences,' 518.
- ³³ Ibid.
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- ⁴⁶ Chandler, *An Adventure in Applied Sciences*, 188.
- ⁴⁷ 'NSDB Role in Science Progress in the Philippines,' The University of the Philippines R.G.1.2, Series 242, Box 1, Folder 1, RAC.
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- ⁵¹ Robert M. Stauffer, *The Development of an Interest Group: The Philippine Medical Association* (Quezon City: University of the Philippines Press, 1966).
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- ⁵⁴ Stauffer, *The Development of an Interest Group*, 123.
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