

The medical spur to postcolonial Indonesian science: the Soekarno era



At the closing reception of the First Indonesian National Science Conference in 1958, President Soekarno connected the ideals of the Indonesian Revolution (1945) to science, for the very first time. Soekarno proffered that science has always been revolutionary in its outlook as it is based on a meticulous investigation of facts. He noted that thirteen years since the commencement of the

Indonesian Revolution, the country had not yet adequately applied science towards the realisation of the revolutionary ideals of a just and prosperous society (*masjarakat jang adil dan makmoer*), but that he had confidence in the contributions that science could make. However, in order for science to attain the revolutionary ideals, Soekarno urged that the Indonesians transform basic science into applied science. This study investigates the pivotal role of Indonesian medicine in furthering the idiomatic Bandung Spirit, which advocated liberation of the world from colonial domination and superpower hegemony, economic and technological self-sufficiency of newly-independent nations, and solidarity with newly-independent nations of Africa and Asia.

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DURING THE SOEKARNO ERA (1945-1967), medical sciences, particularly paediatrics and nutrition, which physicians related to the nationalist objective of achieving self-sufficiency in economic affairs, shaped the course of Indonesian scientific thinking. Soekarno maintained that the development of science would ameliorate the country's entrenched problems such as food scarcity. If scientific knowledge was to be mobilised to address the nation's pressing problems, Indonesia needed to invest in technical expertise and turn the minds of the people and scientists alike towards both existing and emergent problems.

Science in the Soekarno era

Science in Soekarno era Indonesia was, firstly, a comprehensive programme of socio-cultural change intended to transform the prevalent mindset of the Indonesians. Secondly, it was the instrument to achieve a just and equitable society. In Soekarno era Indonesia, science was mobilised, as in Nehruvian India, through centralised planning.¹ For Soekarno, science was an important component of nation-building, and was conceptualised as a programme of delivery committed to redressing Indonesia's basic social problems such as food, clothing, and employment. Soekarno era science was at once both national and universal, whereby scientific thinking was not to be restricted solely to Indonesia's national orbit, but to also embrace humankind. While intending to inspire national pride among Indonesians and to nurture the country's developmental regime, science was also a negotiation tool in Indonesia's international relations with both the US and the USSR. Soekarno understood science in relation to both Indonesia's national needs and Cold War ambitions.

Within the existing historiography of Science and Technology Studies (STS) in post-World War II Indonesia, much attention has been given to the role played by technology in the formation of national identity and the institutional growth of science.² The contribution of medicine to postcolonial Indonesian science, although significant, receives scant attention in comparison to the careers of, for example, biologists.³ The pivotal role played by medicine in furthering the Bandung Spirit in the Indonesian context – attaining technological and economic self-sufficiency by minimising dependency on either the USSR or the US, and strengthening the nation's solidarity with the newly-independent nations of Africa and Asia – remains overlooked in mainstream historiography. In actual fact, during the 1950s, nationalist physicians – especially M. Sardjito, Sarwono Prawirohardjo, and Soedjono Djoened Poesponegoro – emerged as influential thinkers in Indonesia's scientific establishment, due to their active involvement in the anti-colonial struggle since their training at the country's medical school at Batavia. Below I explore the specific ways in which Indonesian physicians presented medical problems as national problems and aligned their practice, teaching, and research with Soekarno's interpretation of science.

M. Sardjito's nationalist interpretation of science

The Batavia Medical School, also known as *Dokter Djawa*, began to train native medical assistants as smallpox vaccinators (*mantri tjatjar*) in 1851. The training lasted for two years. In 1903, the school was renamed STOVIA (*School tot Opleiding van Inlandsche Artsen*; School for the Education of Native Physicians), with training lasting six years. *Boedi Oetomo*, a student-led nationalist organisation founded at STOVIA in 1908 to further native education, is regarded as the genesis of the Indonesian nationalist movement. Physicians were able to use metaphors from their medical training to critique the shortcomings of the colonial and postcolonial state, and many came to dominate the nationalist movement in the Dutch East Indies.⁴ One specific physician, M. Sardjito, developed a nationalist interpretation of science as an outcome of his association with *Boedi Oetomo*. In 1950, he became the founding President of Universitas Gadjah Mada (UGM).

On the first anniversary commemorating the proclamation of Indonesian Independence (17 August 1946), Sardjito delivered a lecture highlighting the role of physicians in the reconstruction of the Indonesian nation.⁵ In his lecture, Sardjito argued that health was not only a state of physical, but also mental wellbeing. He noted that, during the colonial period, malnutrition had been widespread. As a result, Indonesians were not healthy enough to assume national responsibilities. He was the first Indonesian physician who had foreseen population health as a critical ingredient in national reconstruction after World War II.

Sardjito urged medical students to undertake socially relevant research and enhance Indonesia's respectability in the international research arena. He advocated for Indonesia's self-sufficiency in vaccine production, particularly against smallpox and cholera, to indicate to the world that the nascent nation was capable of standing on its own two feet (*berdiri di atas kaki sendiri*) where public health was concerned.

Sarwono Prawirohardjo: the institution builder

Sarwono Prawirohardjo was Indonesia's first obstetrician and gynaecologist. He was an alumnus of the *Geneeskundige Hogeschool* (GH) at Batavia (established in 1927 and the successor of STOVIA), which awarded medical degrees to Indies physicians along the same lines as the universities in the Netherlands. He inaugurated the *Balai Perguruan Tinggi*, or the Institute of Higher Education of the Indonesian Republic, in 1945; it was to be the precursor to UGM. In 1946, he became a member of the Central Indonesian National Committee, a purely advisory body that assisted President Soekarno in drafting the Indonesian Constitution. In 1950, he founded Indonesia's Department of Obstetrics and Gynaecology at Universitas Indonesia's (UI) newly instated medical faculty in Jakarta. As the founder of the Indonesian Council of Sciences (*Madjelis Ilmu Pengetahuan Indonesia*, or MIPI) in 1956, his focus turned towards imbuing Indonesians with a scientific mindset.

Prawirohardjo argued that, unlike European nations, Indonesia and other newly independent nations of Asia had missed out on the scientific and industrial revolutions, and thus they resorted to using technology developed in the West as a catalyst to achieve economic growth. This led to a state of scientific and technological neo-colonialism in which Indonesia and other Asian countries were reduced to dependency on the West for the transfer of scientific knowhow. He urged Indonesia to realise its potential in science and technology through innovation.

In 1951, Prawirohardjo was chosen as the head of a nine-member committee appointed by the Ministry of Education to prepare the initiation of MIPI, which was formally established in April 1956. As a central body, MIPI would be dedicated to developing and coordinating scientific endeavours undertaken within Indonesia; it would establish Indonesia's reputation in science internationally; and it would operate as an autonomous body without undue interference from the government. Prawirohardjo envisioned that MIPI would complement research undertaken at Indonesian universities by making scientific research relevant to Indonesia's needs. Sardjito, Prawirohardjo, and Poorwo Soedarmo (also referred to as *Bapak Gizi* or the Father of Indonesian Nutrition) helped coordinate research undertaken in Indonesian universities in accordance with the objectives of MIPI.

Unfortunately, MIPI was yet another bureaucratic institution that failed, despite its lofty aims. The chief obstacle was financial. Research in Indonesia was restrained during the Soekarno era due to low salaries for academics and stringent foreign exchange regulations that hampered the purchase of textbooks and laboratory equipment from overseas. Prawirohardjo declared that the main obstacle faced by Indonesian science during the 1950s was the lack of scientific manpower. Indonesia had only a limited number of senior scientists, who were on the verge of retirement, and the younger scientists just beginning their careers in science still lacked proper training. To bridge the gap between senior and junior scientists, Prawirohardjo recommended postgraduate mentoring for young Indonesian scientists abroad.

In addition to his involvement with MIPI, Prawirohardjo was an active supporter of Indonesia's family planning programme. He established *Perhimpunan Keluarga Berentjana* Indonesia (Indonesian Planned Parenthood Association) aided by the US-based Brush Foundation that promoted birth control measures as a means to limit family size. He tried to persuade President Soekarno that birth control was a preventative measure that could save mothers' lives. But, Soekarno seemed dismissive of Prawirohardjo's ideas. He did not want to antagonise Indonesian religious groups and as President of Indonesia he had reservations about accepting advice from international aid agencies.⁶ Although Prawirohardjo's disagreements with Soekarno did not impede the functioning of MIPI, it did cost the former his political career. As a result, he was excluded from the newly created ministerial portfolio for research in 1962.

Soedjono Djoened Poesponegoro: the research statesman

Poesponegoro was undoubtedly the most influential Indonesian scientist during the Soekarno era as his notions regarding science converged nicely with those of the President. As Soekarno's family paediatrician, he was able to align paediatrics with President Soekarno's conceptualisation of the Indonesian Revolution: as a period of investment in the human skills of the population. In other words, paediatrics was a good illustration of medical science in relation to nation-building. Due to his influential role as Soekarno's family paediatrician, together with his leadership skills, Poesponegoro was appointed as Minister of Research in 1962.

Poesponegoro's nationalist credentials were shaped by his experience at the *Geneeskundige Hogeschool* (GH), Batavia. After graduating from the GH in 1934, he undertook postgraduate training in paediatrics at Leiden University (in the Netherlands) and established himself as a paediatrician in Semarang between 1938 and 1945. Soon after the transfer of political sovereignty to the Indonesian Republic in 1949, like his colleague Prawirohardjo, Poesponegoro realised that with the deteriorating relations between Indonesia and the Netherlands, and the exodus of Dutch scientists to the Netherlands, Indonesia would suffer from a leadership vacuum in scientific disciplines that would inhibit the training of the next generation of research professionals. As a part of his commitment to develop Indonesia's capacity in medical research, he joined the newly-constituted Faculty of Medicine at UI in 1950, as a lecturer of paediatric diseases.

Poesponegoro's notion of undergraduate training was in agreement with Soekarno's idea of *pembangoenan* [nation-building]. He saw *pembangoenan* as a dynamic process that involved socio-economic change that could have overall repercussions on the health and wellbeing of the community. He argued to the effect that if undergraduate students were to gain a nuanced understanding of the socio-economic determinants of disease in a community, and how to initiate preventive measures, it was imperative that they train in social and behavioural sciences, particularly sociology, psychology,

Above: Soekarno's address at the closing reception of the First Indonesian Science Congress at Malang, dated 8 August 1958. 'Pidato Pada Konggres Ilmu Pengetahuan Nasional Indonesia ke I di Malang, Tanggal 8/8/1958,' Image Record 4425 (East Java Dept of Library and Archives, East Java Provincial Archives). The image is in the public domain.

and anthropology. To this end, he encouraged the stimulation of scientific curiosity among students through the independent study and identification of dominant health issues affecting the community. Poesponegoro was influenced by Soekarno's proposition that every citizen of Indonesia had a stake in the latest developments in technology. He acknowledged the utility of the dictum 'science for society'.

In his inaugural lecture as Professor of Paediatrics at the UI on 7 February 1953, Poesponegoro presented paediatrics as a nation-building endeavour.⁷ He expressed hope that with the advancement of paediatrics as an academic discipline in Indonesia's medical schools, members of *Dewan Perwakilan Rakyat* (Indonesian House of Representatives) would become more thoughtful of children's health. And with women's organisations volunteering to address children's health issues, the Ministry of Health would hopefully come to approach malnutrition, infant, and neonatal mortality from a holistic perspective; i.e., coordinating paediatrics with nutrition. Indonesia would become a strong and healthy nation (*negara kuat dan sehat*) if it could reduce infant and neonatal mortality.

As Minister for Research between 1962 and 1966, Poesponegoro was in charge of the Department of National Research (DURENAS), which sought to coordinate research undertaken in Indonesian universities with the activities of the research institutes (particularly the Nutrition Institute, the Department of Agriculture, and the National Institute of Biology) that were under the jurisdiction of MIPI. For example, the Department of Paediatrics at UI, under the leadership of Poesponegoro, initiated interdisciplinary research into nutrition in conjunction with the Nutrition Institute (*Lembaga Makanan Rakyat*), an autonomous research institute directed by Poorwo Soedarmo. The aim was to discover cost-effective substitutes for milk that would combat *kwashiorkor* (protein energy malnutrition) and *xerophthalmia* (vitamin A deficiency).

Poesponegoro astutely aligned the concerns of Indonesian paediatrics with the socio-economic questions raised by the national communique of the Asian-African Conference of Bandung convened in 1955. The Conference considered problems of common interest for countries of Asia and Africa and discussed the ways in which the people of those countries could achieve fuller political, economic, and cultural cooperation. The Conference gave birth to the Bandung Spirit, which advocated peaceful coexistence between nations, liberation of the world from colonial and superpower hegemony, and solidarity with those who were weak and exploited. In 1964, under Poesponegoro's initiative, Indonesia hosted the Second Afro-Asian Congress of Paediatrics (Jakarta). At the opening

Above: Arnoud H. Klokke, whose 1956 PhD thesis was entitled 'Yaws in the Household of the Tjawas (Central Java): An Epidemiologic Study from the Treponematoses Control Program in Indonesia,' receiving his PhD degree from M. Sardjito (left), President of the UGM. Source: With permission from Arnoud H. Klokke's Private Collection.

Inset: Sarwono Prawirohardjo: The Institutional Foundations of Indonesian Science. Source: LIPI Press. The image is in the public domain.

ceremony, Soekarno asserted that the Indonesian Revolution had a vision to establish a new world order of free independent nations, a new brotherhood of humanity, and the cessation of all forms of exploitation. The cooperation between Asian and African nations was not only political, but extended to other fields, particularly health. Soekarno maintained the proposition, 'health not only for adults, but also health for the children.'⁸ Delegates to the Second Afro-Asian Congress of Paediatrics unanimously resolved that a concerted effort towards eliminating the socio-economic causes of ill health among children would achieve greater social welfare and consolidate the gains of national independence. They maintained that childhood malnutrition was a medical, social, agricultural, and educational problem that could only be alleviated with self-help initiatives of African and Asian nations, without international assistance.

Poesponegoro demonstrated his statesmanship by successfully relating paediatrics to the socio-economic questions raised by the Asian-African Conference at Bandung. Because of Poesponegoro's excellent interpersonal skills, DURENAS was able to liaise between Indonesian universities on one hand, and research institutes under the jurisdiction of MIPI on the other. Unfortunately, DURENAS remained underfunded throughout the early 1960s, due to the diversion of financial resources to the warfront resulting from Indonesia's political confrontation with Malaysia, and because of the seventeen-fold depreciation of the Indonesian rupiah.

Conclusion

The salient features of Soekarno era science can be summed up in three points. First, Indonesian physicians used science to critique colonialism, enhance Indonesia's respectability among the international scientific community, and marry intellectual endeavour with practical concerns of post-war national reconstruction. Second, Soekarno sought to contest the Western monopoly on scientific knowledge and he envisioned the development of Indonesia's local scientific capabilities. While extolling the transnational nature of modern science, the President also understood science in relation to furthering Indonesia's national interests during the Cold War. Third, given President Soekarno's syncretism in assimilating the ideas of others, one of the difficulties when conceptualising a notion

of Soekarno era science is to establish what the President's own contribution to scientific thinking actually was.

In the previous paragraphs, I have highlighted how the demands of national reconstruction resulted in a bias towards applied sciences, particularly medicine as opposed to pure sciences such as mathematics or physics, during the Soekarno era. The practice of Indonesian science was infused with a mentality of mobilisation during the 1950s and the 1960s, in such a way that the pursuit of knowledge would not only address national concerns, but also broader socio-economic questions such as those raised by the Asian African Conference at Bandung, and nurture the country's developmental regime.

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