

# THE INSTITUTIONALISATION OF MACRO-ECONOMIC MEASUREMENT IN INDONESIA BEFORE THE 1980s

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## ABSTRACT

Macro-economic measurement goes back to the seventeenth century and became common practice in Western countries since the late-nineteenth century. Since then, the composition of some of the largest economies in Asia, particularly India and Japan, was also probed. And since the 1940s government agencies in many Asian countries had responsibility for the development and implementation of consistent national accounting practices to assist the planning of economic development. While this was in principle also the case in Indonesia, it took into the 1970s before consistent processes of macro-economic measurement were put in place that facilitated the analysis of long-term economic growth. The paper asks why this was the case. It finds that institutional discontinuities and limited resources prevented the establishment of consistent and well-defined national accounting practices until well into the 1970s.

**Keywords:** National accounts, Economic growth, Macro-economic measurement

## INTRODUCTION

National accounts are now well-established as important tools to analyse the performance, changes and growth potentials of national economies, and to assist in the planning of policies for future economic development. They also have become part of the tool sets that economic historians use to enhance our understanding of past economic development.

The first initiatives for the measurement of national income date back to the mid-seventeenth century and were inspired by the urge to understand comparative economic development of leading nations in Europe better (Maddison 2007: 249-288). Building on this experience, economists in various countries in North America, Western Europe and Australasia made estimates of national income in a growing number of countries, particularly during the nineteenth and early twentieth centuries (Studenski 1958: 101-141). By the 1920s, this cumulative experience with national accounting techniques led official statistical agencies in many countries to assume responsibility for macro-economic measurement, sometimes working retrospectively to produce consistent estimates since the late-nineteenth century. Colin Clark (1940) was one of the first to analyse international comparisons of national income. Such work drew attention to the difficulties of comparing national accounts data across countries due to differences in methodologies. It led a 1945 subcommittee of statisticians of national income of the League of Nations to adopt guidelines for national accounting. These were published by the Statistical Office of the Economic and Social Council of the United Nations (UN) in 1947.

Until then, social scientists had systematically pioneered national accounting in the late-nineteenth century in just two countries in Asia: India since 1857 and Japan since 1900 (Tiwari 1994; Tsuru & Ohkawa 1953). Building on this experience, economists in both countries produced consistent time series of national income until the establishment of official national accounting practices in both countries. The 1947 UN guidelines coincided with a flurry of activity in relation to the estimation of national income in a growing range of Asian countries beyond India and Japan: Sri Lanka (1946), The Philippines (1949), Pakistan (1950), Thailand (1950), Burma (1951) and Malaya (1951) (Studenski 1958: 156-157). This work was supported by the UN and its regional organisation the Economic Commission for Asia and The Far East (ECAFE). Often these studies contained the first estimates that became the basis for further work by government agencies. The methodologies and approaches used in these studies were all different. They often made innovative use of the limited available statistical information, supplemented with informed, but still heroic assumptions. The UN Statistical Office issued the 1953 System of National Accounts (SNA), which formalised guidelines for the standardisation of accounting practices.<sup>1</sup>

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<sup>1</sup> SNA was later revised in 1968, 1993 and 2008.

And the UN Technical Assistance program supported the secondment of national accounts advisors to statistical agencies in less-developed countries.

Soon national statistical agencies in Asian countries took responsibility for the estimation of national accounts on an annual basis. The introduction of the 1953 SNA into the national accounting practices in a growing number of countries facilitated international comparisons of national accounts data. Nevertheless, data unavailability continued to require creative use of statistical information, and application of the 1953 SNA remained partial. National accounts data became increasingly used for public policy purposes, particularly in efforts to systematically plan economic development. Consequently, one after the other, these statistical agencies started to produce consistent national accounts data on an annual basis during the 1950s.

Indonesia's Central Bureau of Statistics (*Biro Pusat Statistik*, BPS) did not publish consistent national accounts data until the late 1960s. It did not generate national accounts data that came close to the 1953 SNA, and even the implementation of SNA 1968 since the late-1970s has only been partial. This paper addresses the reasons why it took Indonesia so much longer than other Asian countries to do so. For that purpose it discusses the development of national accounting initiatives in relation to Indonesia, as well as the relevant development of institutional responsibility for national accounting in the country, rather than the details of macro-economic measurement used in relation to Indonesia in the past.

## EARLY ESTIMATES OF NATIONAL INCOME

Interest in the principles of macro-economic measurement may have reached colonial Indonesia in 1803, when Willem Mattheus Keuchenius migrated to Batavia. He had just published his estimates of national income of The Netherlands, which made him one of the pioneers of national accounting in eighteenth century Europe (Keuchenius 1803: 6, 46-48 and 92).<sup>2</sup> Keuchenius researched and published on the deplorable state of the economy of the Dutch colony until his death in 1812 (Keuchenius 1875). Nevertheless, neither his earlier work, nor that of the other pioneers in Europe since the mid-seventeenth

<sup>2</sup> He estimated income from the assets of the former Dutch East Indonesia Company that went bankrupt in 1799 to be f 11 million, or 5% of the national income of the Netherlands.

century seems to have inspired early efforts to estimate national income in Indonesia.

The first approximation of total income in Java was made by Governor-General Pieter Merkus who put the value of total production in agriculture and ‘industries’ at f200 million in order to estimate the required circulation of currency in the colony (Steyn Parvé 1852: 199).<sup>3</sup> Progress in the gathering of administrative data in Java during the 19<sup>th</sup> century allowed hydraulic engineer Jan Homan van der Heide to make a more involved estimate of total income in Java in 1898 (Homan van der Heide 1901: 148-154).<sup>4</sup> He was concerned about population growth in Java and sought to substantiate his passionate plea for public investment in irrigation structures for the purpose of increasing agricultural production. Using a combination of incomplete income and production data, his estimate of total income allowed him to assess the burden of taxation on the total incomes of the Indonesian and European populations in Java.

Further improvements in the quality and reach of administrative data, as well as the establishment of a Statistical Office (*Statistisch Kantoor*) in 1920 to supervise the collection of these data (van der Eng 1996), allowed more sophisticated estimates, albeit for Java only. Based on the production and expenditure approaches and using more detailed information, colonial public servants Jan Willem Meijer Ranneft and Willem Huender created still incomplete estimates of the total income of the Indonesian population in Java for 1913, 1920, 1922 and 1924 (Meijer Ranneft & Huender 1926: 160-166).<sup>5</sup> Their purpose was also to assess the tax burden on the Indonesian population. Despite the fact that

<sup>3</sup> Further details of estimates during the colonial period can be found in CEI (1979: 16-18).

<sup>4</sup> Jan Homan van der Heide (1865-1945) studied engineering in Delft and worked at the Department of Public Works in colonial Indonesia during 1892-1902 and 1910-15, becoming Director during 1911-14. He was seconded to Thailand during 1902-09 to design irrigation structures in the central delta (Ten Brummelhuis 2005). He returned to The Netherlands to establish and engineering practice, but continued to contribute to public discussion about aspects of economic development in Indonesia.

<sup>5</sup> Jan Willem Meijer Ranneft (1878-1968) was born in Indonesia, where he established a career in the colonial public service. He was Adjunct Inspector for Agrarian Affairs in colonial Indonesia when he wrote this study into the tax burden, which contributed to some tax reforms in 1927. Dissatisfied with the lack of political autonomy for colonial Indonesia, he returned to The Netherlands in 1936, where he continued to express strong opposition to Dutch policies in Indonesia until independence in 1949 (Ottén 2012). Willem Huender (1900-1963) obtained his PhD in 1921 with a study analysing the 1905 ‘declining welfare’ survey in Java. He contributed to this study as a junior public servant. He remained in the public service and rose to become Governor General of Surinam 1948-49.

these estimates made the most of the available data, they remained incomplete and restricted to the incomes of Indonesians in Java only (Baga 1954: 31; CEI 1979: 16-17).

These three publications did not draw on the budding international literature on national income accounting in relation to countries like the UK, USA, France, Australia and also India, which could have offered several applied and theoretical insights as to how to advance national income estimation in Indonesia. Even the first systematic estimates of national income in The Netherlands for 1908-1920 by W.A. Bongers, published in 1923, were not consulted for that purpose (Den Bakker 1994: 67-68).

The first substantive effort to estimate total income of the whole population throughout Indonesia was undertaken for 1926-32 by Louis Götzen, then Head of the Government Tax Accounting Service of the Dutch East Indies (Götzen 1933).<sup>6</sup> He estimated total income of the Indonesian, European (including Japanese and Americans) and 'Foreign Oriental' (Chinese and Indian) population groups. To overcome the problem of limited data for the Outer Islands, he largely based his estimates on income tax data, augmented with information about possible incomes below the tax threshold. The purpose of his work was to establish that the tax burden on European and 'Foreign Oriental' incomes was higher than that on Indonesian incomes, and that this burden had increased since the crisis of 1929. The estimates sufficed for that purpose, even though estimated total Indonesian income was incomplete, as it was merely based on the gross value of registered farm production, the wage and land rent payments of foreign-owned and government enterprises, to which Götzen added an arbitrary estimate of profits and wages paid in indigenous trade and industry.<sup>7</sup> An update of Götzen's work for 1932-34 was made in 1935, but never published, while De Vries found that Götzen's estimates for the regions outside Java may have been too low.<sup>8</sup>

<sup>6</sup> Lubbertus (Louis) Götzen (1894-1979) joined the Taxation Office, first in The Netherlands 1919-21, later in the Dutch East Indies 1921-35. He was Treasurer at the Department of Finance 1935-38, and Director of the Department 1938-42 and 1945-46 in the Dutch East Indies. Politically active in the Indies, he was particularly concerned about the impact of the crisis after 1929 on public revenue in the early 1930s, which motivated his 1933 article. After returning to The Netherlands, he became Minister for Colonial Affairs 1947-52 and later President of the Dutch Audit Office 1956-65 (Stevens 1993).

<sup>7</sup> Members of parliament (*Volksraad*) of different persuasions used these data during discussions in 1934, as all could find something to suit their purposes (Drooglever 1980: 134). For a critique of Götzen's study, see Rotgans (1934).

<sup>8</sup> National Archief (The Hague), 2.21.121 Archive J.W. Meijer Ranneft, no.57, 'Beschouwing over het Volksinkomen en de Economie van Nederlandsch-Indië in de Jaren 1932-1934'

Götzen's work provided the basis for a more comprehensive national accounting exercise during 1942-43 by Jacques J. Polak, a young Dutch economist at Princeton University.<sup>9</sup> The Dutch East Indies government in exile (specifically, the Netherlands and Netherlands Indies Council of the Institute of Pacific Relations) commissioned him to estimate Indonesia's national income (Polak 1943). Polak completed this study in his spare time on the basis of sources available in Princeton University library. Although he had been asked to estimate national income for just 1939, it appeared that he had to make so many extrapolations from earlier years that it was easier for him to use the available data to estimate national income for 1921-39.<sup>10</sup> Facilitating that task was the fact that by then the Central Office of Statistics (*Centraal Kantoor voor de Statistiek*) in Batavia had considerably expanded its activities in collecting, processing and publishing economic data since 1924. In essence, Polak used income tax data to estimate total income for the European and 'Foreign Asiatic' groups, and output and wage data by industrial sector to approximate total income of indigenous Indonesians.

Polak completed his research in 1943, but the Netherlands and Netherlands Indies Council that had commissioned the work did not publish it. Polak later wrote that his work showed that average income in the group of Europeans was 50 times higher than average income among indigenous Indonesians, which 'did not satisfy the publicity aspirations of those who had commissioned [the report]'.<sup>11</sup>

The Council therefore limited the first edition of this work to just 20 mimeographed copies (Polak 1994: xv). Still, Polak's work was policy-relevant for the Dutch East Indies. For example, it became the basis in November 1943 for calculating country contributions to the United Nations Relief and Rehabilitation Agency, as well as quota calculations for the International

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(1935); De Vries (1936).

<sup>9</sup> Jacques Jacobus Polak (1914-2010) completed a PhD in economics at the University of Amsterdam 1932-37, before joining the League of Nations 1937-43, where he assisted Jan Tinbergen in a study of business cycles. The League's economists, including Polak, relocated to the Institute of Advanced Studies at Princeton University, where Polak stayed during 1940-43. His work on national income in Indonesia started in 1942. After completed it in 1943, Polak became an economist at the Netherlands embassy in Washington DC. He joined the International Monetary Fund in 1947, where he became Director of Research in 1958 until his retirement in 1979.

<sup>10</sup> Hoover Institution Archives, Stanford (USA), Guy Pauker Collection no. 82096, Box 137, Folder 21: D.S. Paauw, 'Report on trip to Washington DC, January 13-14, 1953'.

<sup>11</sup> Letter from J.J. Polak to P. van der Eng (13 May 1996).

Monetary Fund at the Bretton Woods conference in July 1944, which Polak attended (Rowe 2008: 4-5).

Unbeknown to Polak and economists in Indonesia, Taizo Takahashi, an economist at the Tokyo College of Industry (now Hitotsubashi University), made estimates of national income in 1945. In a thin booklet he published estimates for both Java and Indonesia as a whole for 1930, using both the income and the monetary ( $Y= MV$ ) approaches. His estimates were based on very heroic assumptions about average daily wages in economic sectors, and the number of days worked, as well as the velocity of money in circulation (Yamamoto 2011: 250-251).

The existence of Polak's study was known in Indonesia in May 1946, but the details of the study were at that stage not yet available in Jakarta.<sup>12</sup> An abstract of this work was published by the Central Bureau of Statistics (CBS) in The Netherlands in 1947 (Polak 1947), while the Faculty of Economics of the University of Indonesia obtained a copy and published it in mimeographed form in the early 1950s. Even though it took until 1979 for Polak's study to be formally published, the results of Polak's innovative use of the available statistical data for the purpose of estimating national income became more widely known.

Since the 1930s, CBS had developed strong capabilities in national accounting in The Netherlands. Even though this was not part of its mandate, it took an interest in Indonesian economy in 1947 by expanding on Polak's work to create a rudimentary input-output table for 1938. This deepened understanding of the Indonesian economy with a detailed estimation of economic transactions between the main sectors of the economy (CBS 1948). CBS used an extensive flow chart to model the Indonesian economy for 1938 and confirmed Polak's estimate of national income for that year. The effort was possibly meant to be a tool for policy analysis and/or for the estimation of national income in Indonesia for later years.

This CBS publication inspired agricultural economist Douwe Groenveld, head of the section planning at the Department of Economic Affairs in Jakarta during 1948-51, to argue that national accounts for Indonesia would be an important 'compass' the gauge the impact of government policy, given that 'the government will for many years to come provide a certain degree of leadership to the economy' (Groenveld 1948a). He summarised the CBS study and was

<sup>12</sup> Bank Indonesia, archive De Javasche Bank, no.2993: 'Notulen informeele bespreking van de Commissie ter bepaling van de Oorlogsschade van Nederlandsch-Indië' (10 May 1946).

hopeful that this would soon be the basis for the construction of Indonesia's national accounts 'that can be used to construct the necessary development plans' (Groenveld 1948b). He later used quantity indices to extrapolate Polak's estimates from 1938, to find that national income in 1948 was still 16% below 1938 (*Keng Po* 2 January 1952), and also for 1948/49-1952/53 that remained unpublished (Baga 1954: 31).

Groenveld's papers reflected the interest in national accounting and the opportunities it offered for economic planning. Other estimates followed, such as a rough estimate of national income of f10.6 billion was made for 1948, but no details of the estimation or its source are available (Oudt 1952: 52). In October 1951, the Far East Program Division of the Economic Cooperation Agency, the US organisation in charge of the Marshall Plan, made a subsequent estimate of Indonesia GNP for 1950 (Oudt 1952: 52; Metcalf 1952: 7; *Berita Antara* 8 January 1952). Details of the estimation are not available, but comparison with estimates for later years suggest that the estimate of US\$3.11 billion (or Rp 35.5 billion at the official exchange rate) was low, possibly too low.<sup>13</sup> Also for 1950, the board of the Socialist Party of Indonesia (*Partai Sosialis Indonesia*) estimated GNP to be Rp 19.9 billion and national income Rp 18 billion (*Keng Po* 2 January 1952). The estimate was clearly too low, mainly because many services sectors were missing or underestimated.

In 1952, following instructions from its head Johannes B.D. Derksen, the Section for National Income Statistics and Research at the UN Statistical Office estimated Indonesia's national income for 1951. When Derksen was requested in 1953 to make the details of these estimates available, he mentioned that they could not be shared without permission of the government of Indonesia although he commented that the 'overall final figure, which, converted to dollars, was 5 billion dollars and was based on a very rigorous exclusion of the non-market parts of the economy.'<sup>14</sup> He mentioned that this UN estimate was comparable to the MSA estimate for 1950. That year, Sumitro published a rough estimate of GNP in 1952 of Rp 45 to 50 billion, which was based on several assumptions, for example

<sup>13</sup> Metcalf (1952: 7) noted that the study did not deduct depreciation and taxes, and that it estimated 75% of total income to be from agriculture, 6% from fisheries, 6% from mining, and in total 89.3% from primary production, leaving only 6.4% from manufacturing and just 4.3% for services. These shares confirm that the estimate of total income must have been too low.

<sup>14</sup> Hoover Institution Archives, Stanford (USA), Guy Pauker Collection no. 82096, Box 137, Folder 21: W.C. Hollinger, 'Report on trip to New York City, February 23 and 24, 1953'.

that 25% of GNP was produced in the non-marketed sector (Djojohadikusumo 1953: 15).

## NATIONAL ACCOUNTING FOR PLANNING PURPOSES

Clearly, the momentum for the creation of consistent national income estimates and a national accounting system for Indonesia accumulated in the late 1940s and early 1950s. Much of the credit for accelerating this momentum after 1949 towards a systematic approach to national accounting has to be given to Sumitro Djojohadikusumo, Indonesia's young and energetic Minister of Trade and Industry (September 1950–April 1951), Minister of Finance (April 1952–July 1953 and August 1955–March 1956) and Professor of Economics at the University of Indonesia (1952–1958).<sup>15</sup> Sumitro was of Keynesian persuasion keenly and interested in political economy and the budding field of development economics, and understood the relevance of macroeconomic measurement. During 1948–49 he had been a member of the representation of the Republic of Indonesia to the United Nations in New York, where he had established a network of contacts among economists in North America interested in development economics.

In January 1950, Sumitro succeeded Groenveld as head of the section planning of the new Federal Department of Welfare under Minister Djuanda Kartawidjaja. But before assuming this position, Sumitro spent January–April 1950 in the United States to set up Indonesia's trade offices and its embassy, in which capacity he was able to develop ideas for an institutionalised approach to economic planning in Indonesia through his various contacts in economics in North America. Upon the abolition of the Department of Welfare and the dismantling of the Federal Republic of Indonesia, Sumitro became Minister of Trade and Industry in September 1950. In that position he took the initiative to

<sup>15</sup> Sumitro Djojohadikusumo (1917–2001) was a PhD graduate of the *Nederlandse Economische Hogeschool* (now Erasmus University) in Rotterdam, where Professor G.L. Gonggrijp was his supervisor. Although Sumitro's doctoral thesis was on the financial sector in Indonesia during the crisis of the 1930s, his stay in Rotterdam acquainted him with later Nobel Prize winner Jan Tinbergen who may have honed his interest in Keynesian macroeconomics. Soon after his appointment as Professor of Economics at the University of Indonesia in 1952, Sumitro developed a keen interest in the nascent discipline of development economics, compiling lecture notes and writing a textbook that made use of then available national accounts data (Djojohadikusumo 1955).

institutionalise economic planning in Indonesia, of which systematic national accounting was to be part and parcel.

It is very likely that Sumitro was introduced to the various economic planning initiatives developed by colonial officials in the early and late 1940s, particularly at the Department of Economic Affairs, during his brief periods as head of the planning section and then as Minister during 1950-51 (Groenveld 1950). Sumitro oversaw the amalgamation of these plans with planning initiatives that had been developed by the government of the Republic of Indonesia into the Economic Urgency Plan (*Rencana Urgensi Perekonomian*, 1951-55), in anticipation of the first integrated five-year development plan for 1956-1960.

Indonesia applied for financial support from the UN Technical Assistance Administration in March 1950, but it took more than a year for two concrete projects in Indonesia to be developed. One of these projects was Sumitro's initiative in 1951 to establish a planning board that would guide Indonesia's economic development with the support of a planning bureau. Against the background of increasing numbers of skilled Dutch nationals leaving the public service in Indonesia for The Netherlands, Sumitro convinced UNTAA to finance the recruitment of foreign experts who would support the establishment of the National Planning Bureau (*Biro Perancang Negara*, BPN) (Webster 2011: 260-270). BPN was to be the advisory body to the National Planning Board (*Dewan Perancang Negara*, DPN), a sub-committee of the Indonesian government, that was established in January 1952.<sup>16</sup>

Having resigned from the Ministry of Trade and Industry in August 1951, Sumitro was no longer directly involved in the establishment and growth of BPN and DPN. Nevertheless, BPN was established shortly after. It was temporarily headed by interim-Director Tan Tek Heng and initially located in the Ministry of Finance. In July 1952, UNTAA-sponsored Monetary and Fiscal Advisor Benjamin Howard Higgins arrived in Indonesia for a two-year stay to provide advice on fiscal policy to DPN and to start preparations for the establishment of BPN and the first Five-Year Development Plan (*Nieuwsblad voor Sumatra* 27 August 1952; 22 January 1953; Higgins 1992: 49-50). It took Tan and Higgins

<sup>16</sup> *Peraturan Pemerintah No. 2 Tahun 1952 tentang Dewan Perantjang Negara*; *De Nieuwsgier* (13 January 1951); *Nieuwsblad voor Sumatra* (13 November 1951); *Algemeen Indisch Dagblad* (18 January 1952); Hoover Institution Archives, Stanford (USA), Guy Pauker Collection no. 82096, Box 20, Folder 3: 'The Indonesian National Planning Bureau'.

almost a year to find suitable staff and a suitable location for BPN. Higgins' advisory work started immediately, but recruitment delays and clarification of responsibilities of foreign and local staff postponed the start of planning work at BPN (Higgins 1957: 40-43; Webster 2011: 264). In the absence of collaborators, Higgins worked closely with engineering firm J.G. White Engineering, which had been engaged in early 1951 by Sumitro on a two-year contract to take stock of opportunities and provide advice on economic development policy in Indonesia independent of Dutch specialist public servants.<sup>17</sup>

Gradually eight UNTAA-sponsored foreign advisors started to arrive and take up their positions at the Ministry of Finance, awaiting the establishment of BPN. The development national accounts and a national accounting methodology was part and parcel of the planning effort. Canadian demographer and statistician Nathan Keyfitz initially directed preparatory work on estimating national income, until the arrival of national accounting expert Daniel Neumark in May 1953.<sup>18</sup>

Neumark was not a specialist in national accounting, as he was not a statistician like most of the people involved in the UN initiative to standardise national accounting practices that led to SNA 1953. At the time of his recruitment by UNTAA, Neumark was an FAO-based agricultural economist and economic historian, who had made provisional estimates of prewar national income for South Africa (Frankel & Neumark 1940). Nevertheless he was specifically favoured by Sumitro (Djojohadikusumo 1986: 33). During his one-year stay in Jakarta, Neumark was expected to establish the foundations of modern national accounting in the country.

For the first few months of work as national income advisor at BPN, Neumark was only supported by students from the University of Indonesia. From November 1953 he received research assistance from W.T. Nefkens from the Central Statistical Office *Kantor Pusat Statistik*, KPS) in the Department of Welfare and its successors. Neumark collected data from a variety of sources on which he based his estimates of Net Domestic Product (NDP) for 1951-52, using the output (or value added) approach, augmented with some income estimates (Neumark 1954). He mainly used administrative data, and organised a few small

<sup>17</sup> The J.G. White Engineering Corporation of New York was contracted by the Ministry of Economic Affairs in 1951 to provide advice to the ministry on a range of economic issues during 1951 and 1952. The firm seems to have concluded its work early in 1953, when BPN assumed similar activities.

<sup>18</sup> Hoover Institution Archives, Stanford (USA), Guy Pauker Collection no. 82096, Box 20, Folder 3: B.H. Higgins to M.F. Millikan (16 April 1953).

surveys to obtain additional information, for example on use of inputs. Neumark was forced to make bold assumptions to overcome the shortcomings, gaps and inaccuracies in the available basic data. Not surprisingly, aspects of his estimates were commented on after they were published in June 1954 (Baga 1954: 33-35; Bakker 1954; Hollinger & Tan 1956, 1957) and Neumark's observation that per capita income had decreased by 15% relative to 1938 was widely reported in the Indonesian media (*E.g. Nieuwsblad voor Sumatra* 16 June 1954).

In the meantime, Djuanda had become BPN's first Director General in September 1953, with Ali Budiardjo as his Deputy and Secretary of BPN. BPN also had found office accommodation along Jalan Merdeka Selatan in Jakarta (*De Nieuwsgier* 23 September 1953). Work on economic planning was underway, and national accounts data were expected to be part of it. Following Neumark's departure in mid-1954, Sumitro, then Dean of the Faculty of Economics at the University of Indonesia, recommended Mulyatno Sindhudarmoko, a young economics graduate, for an appointment at BPN to continue Neumark's work.<sup>19</sup>

During his studies, Mulyatno had developed an interest and the use of national accounts data. Except for occasional assistance from Tjiong Joe Lian (who assisted the industrialisation experts at BPN) and Leon Baranski (who succeeded Higgins as UNTAA-sponsored adviser to BPN during 1954-57), Mulyatno worked largely single-handedly during the next few years on the revision and extrapolation of Neumark's estimates, using similar but improved methods (Muljatno 1957).

Interest in national accounting for Indonesia also evolved in the context of the interdisciplinary Indonesia Project at the Massachusetts Institute of Technology (MIT). This project was established and led in 1953 by economist Max F. Millikan, Director of MIT's Center for International Studies. It received financial support during 1953 and 1954 from the Ford Foundation. Millikan sought to study the issues Indonesia was facing in order to inform public discussion in the

<sup>19</sup> Mulyatno Sindhudarmoko (1928-2006) studied economics at the University of Indonesia before joining BPN in 1955. After BPN was abolished in 1959, Mulyatno became Head of the Bureau of Economy and Finance at the State Secretariat and personal assistant to First Minister Djuanda, before taking up a position at the Department of Finance. In 1966 he became Professor of Economics and Dean of the Faculty of Economics at Trisakti University in Jakarta (1966-78), as well as Secretary of the Financial Audit Board (*Badan Pemeriksa Keuangan*, 1966-70), and Head of the *Badan Pendidikan dan Latihan Keuangan* (now BPPK) in the Department of Finance. He subsequently was Director of the *Akademi Pariwisata Trisakti* (1979-89) and *Rektor* of Trisakti University (1990-94).

USA. For that purpose he contacted Higgins in Jakarta, took interest in the work of BPN, and visited Indonesia in December 1953 to develop ideas for the research work that the MIT Indonesia Project would undertake. Sketching the situation at BPN, he noted: ‘Discussion on planning primarily between foreigners in NP Bureau – Five Year Plan will be brainchild of foreigners’.<sup>20</sup>

Amongst others, Millikan recruited two young economists to the MIT Indonesia Project; Douglas S. Paauw and William C. Hollinger. Paauw was to focus his research on Indonesia’s public finance, Hollinger on the country’s foreign trade and balance of payments, while Higgins joined the MIT project as Director in mid-1954 after completing his UNTAA consultancy in Indonesia.<sup>21</sup> During 1953, Paauw and Hollinger conducted desk studies while waiting for their visas to study in Indonesia in 1954. Paauw collected references to economic literature and economic data in relation to Indonesia that were available in the USA. He also visited Egbert de Vries, a former high-ranking official at the Ministry of Economic Affairs in Batavia, at the International Bank for Reconstruction and Development (World Bank) and Jacques Polak at the IMF to discuss Indonesia’s national accounts data, and develop ideas for further studies.

Hollinger produced eight quantitative studies that were intended to be contributions towards estimating national income, including papers on data for export agriculture, food production, a discussion of Polak’s estimates, and animal husbandry (Hollinger 1953). Some of these papers were later published (Hollinger 1954-55 and 1956). Although Hollinger noted that he intended to estimate make estimates of Indonesia’s pre- and post-war national income, possibly by revising Polak’s estimates, and even though Hollinger was associated with the University of Indonesia in 1954 where he continued his work on Indonesia’s national accounts data for 1950-52, the details of these estimates have not been published, except for a rough estimate of total GNP for 1952 of Rp 60 billion.<sup>22</sup>

<sup>20</sup> Hoover Institution Archives, Stanford (USA), Guy Pauker Collection no. 82096, Box 3, Folder 5: ‘Notes from Max F. Milligan’s trip to Indonesia’ (31 December 1953).

<sup>21</sup> Hoover Institution Archives, Stanford (USA), Guy Pauker Collection no. 82096, Box 20, Folder 4: ‘Centre for International Studies Annual Report 1953-1954’ p.5.

<sup>22</sup> Hoover Institution Archives, Stanford (USA), Guy Pauker Collection no. 82096, Box 138, Folder 24: D.S. Paauw, ‘Tax structure, the tax burden and economic development’ (17 November 1953). Baga (1954: 32) notes that Hollinger made national income estimates for 1950-52.

Despite their shortcomings, the national accounts data produced by Neumark and Muljatno were one of the sources that BPN used to prepare and advise the Indonesian government on economic policy. BPN also used it in the compilation of the first five-year development plan (1956-60). This plan was in part based on the notion that Indonesia needed to mobilise more savings for investment in order to achieve a critical level of incremental capital-output ratios (e.g. BPN 1957: 496-506). The plan was ready in September 1955 (*Nieuwsblad voor Sumatra* 9 September 1955), but it was not presented to parliament until May 1956.

Djuanda became the new Minister for National Planning in March 1956. Hitherto, BPN had reported to DPN, which first comprised only Ministers, but later just senior public servants from key ministries with responsibilities associated with economic development. Following the ministerial restructuring in 1956, BPN reported only to Djuanda. This may appear to have been an elevation of economic planning, but it was in fact a marginalisation of the effort, as other ministries no longer had a stake in how economic planning took shape and how it was to be implemented. Moreover, parliament's approval of the five-year plan was delayed until November 1958, by which time it had become largely obsolete.

Djuanda became Prime Minister in April 1957, as part of Indonesia's embrace of 'guided democracy' under which President Sukarno declared martial law and put executive power in the hands of a National Advisory Council (*Dewan Pertimbangan Agung*) of ministers, which he headed. The Council called for a National Development Conference (*Musyawarah Pembangunan Nasional*) with representatives of major political, military and civil groups. It met in November 1957 and articulated that Indonesia required a more integrated process of development planning. At the conference, Neumark's estimates were presented and discussed in detail during one of the sessions to offer participants a quantified impression of low level of economic development of Indonesia (*Nieuwsblad voor Sumatra* 29 November 1957).

Djuanda continued to occupy prominent government positions until his death in 1963, but other issues than economic planning called for his attention. Following the November 1957 conference, parliament approved a plan to transfer responsibility for development planning to the new National Planning Board (*Dewan Perancang Nasional*, Depernas) in October 1958.<sup>23</sup> President Sukarno

<sup>23</sup> *Undang-Undang No.80 Tahun 1958 tentang Dewan Perantjang Nasional; Keputusan Presiden Republik Indonesia No. 147 Tahun 1958 tentang Pembentukan Panitia Persiapan Dewan Perantjang Pembangunan Nasional.*

disbanded parliament and assumed executive responsibilities in July 1959. A month later BPN was discontinued.<sup>24</sup> Remaining BPN staff was absorbed into the Bureau of Economy and Finance (*Biro Ekonomi dan Keuangan*, BEK), an advisory body to then First Minister Djuanda, and was later located in the State Secretariat (*Sekretariat Negara*).<sup>25</sup> BPN finalised its planning work in 1959 with a sobering report on the lack of progress during the first three years of the execution of the five-year plan (BPN 1959).

That year, President Sukarno assigned responsibility for economic planning to the new 80-member Depernas. Chaired by historian Muhammad Yamin, it set out to prepare the Eight-Year Development Plan (1961-68). The planning process was highly politicised and in effect resulted in a long wish-list of projects, rather than the intended effort at integrated development planning based on clear strategies and realistic goals. Depernas developed its own organisation for administrative support, which in 1963 became Bappenas (*Badan Perencanaan dan Pembangunan Nasional*). The work of this agency had no direct relationship to that of the former BPN. Consequently, national accounts data had no role in the planning activities that occupied Bappenas and Depernas.

In the meantime, Mulyatno continued his work on Indonesia's national accounts at both BPN and later BEK. He made upward revisions of Neumark's estimates of national income for 1951-52, amongst others to take account of non-market transactions that Neumark had underestimated. He also had made new estimates for 1953-55, and he extrapolated these estimates for 1956-59. Mulyanto benefited from advice offered by consultants at BPN with national accounting experience. For instance, Joseph S. Gould succeeded Baranski as key UNTAA-sponsored economic advisor at BPN during 1957-59 (Webster 2011: 268). During 1950-51 Gould had established the foundations of national accounting in Thailand and was able to advise Mulyatno on that basis (Nugroho 1965: 366; Wirosardjono 1989: 496; Pillai 1965: 10).

Mulyatno (1960) summarised some of this work and offered a detailed explanation of the procedures he had used to estimate NDP for 1951-55. The national accounts data Mulyatno generated for 1951-59 during his appointments

<sup>24</sup> This coincided with the end of the 4-year agreement with UNTAA of 1952, which had been renewed for 3 years in April 1956. UNTAA itself was wound up that year as well (Webster 2011).

<sup>25</sup> BEK became part of the Prime Minister's department, which became the *Bagian Administrasi Pemerintah dan Hukum* (1961-62) and was then absorbed in the *Sekretariat Negara* (1962-66).

at BPN and BEK were published in aggregated form in several places. Data for 1953-58 were used in BPN's final report (BPN 1959: 112). The data were also submitted to the World Bank, ECAFE and the UN Statistical Office, which published them in respectively *Economic Survey for Asia and the Far East* and the *Yearbook of National Accounts Statistics*. BEK also supplied the national accounts data on request to individual researchers, such as PhD students Ali Wardhana and Daoed Joesoef, who analysed the 1951-59 data in their theses (Wardhana 1962: 126; Joesoef 1973: 32). An estimate for 1960 was later added by Depernas, most likely for reporting purposes to UN and ECAFE, which suggests that Depernas had access to Mulyatno's work in the early 1960s. Detailed analysis at ECAFE of the available aggregated data for 1951-60, showed that they contained inconsistencies (see e.g. ECAFE 1964 and Fukuchi 1968).

#### RE-START OF NATIONAL ACCOUNTING AT THE CENTRAL BUREAU OF STATISTICS

The demise of BPN after November 1957 also spelled the end of the direct involvement of Indonesia's planning agencies in the compilation and further development of the country's national accounts. Gradually responsibility shifted to the Central Bureau of Statistics (*Biro Pusat Statistik*, BPS), the agency that had succeeded KPS in June 1957 and that was directly responsible to the Prime Minister. Plans were set in train for BPS to assume responsibility for national accounting when an interdepartmental Working Group of the National Income Committee in October 1958 met to start groundwork to prepare the compilation of a new set of national accounts for the years 1957 and 1958.

The committee's most senior member was Abdul Madjid, then Deputy Director of BPS. The group prepared a preliminary estimate of income in the agricultural sector only, which was released in 1960 (Working Group 1960). Much of the work for this report seems to have been done at BPS. Responsibility for the compilation of national accounts was formally transferred to BPS in 1960, when the duties and responsibilities of BPS became regulated by law and BPS became an agency directly responsible to the President. However, except for Mulyatno at BEK, experience in Indonesia with national accounting was very limited. Like Neumark and Mulyatno, it is very likely that the Working Group soon realised that many more data were required for national accounting purposes than were readily available from government departments. Both factors may have been a reason why the Working Group seems to have produced only one report.

In 1962, BPS established the Statistical Research and Development Centre (*Pusat Penelitian serta Perkembangan Statistik*, PPPS) (Van der Eng 1996). The United Nations Special Fund (UNSF) supported PPPS for the purpose of encouraging the development of Indonesia's statistical system. Among the centre's tasks was the improvement of Indonesia's national accounting system, which involved the establishment of a National Income Division at PPPS. Improvements were expected from special surveys aimed at exploring output in the sections of the economy which were poorly covered by official statistics, such as small-scale industry and services. Further surveys were scheduled to monitor input use and pricing more accurately. Indian statistician K.N.C. Pillai was the UNSF-sponsored national income adviser at the National Income Division.<sup>26</sup> His task was to make some 'rough and quick estimates' of national income and the attempt progressive improvement and extension of these estimates, while training counterpart staff able to continue the work at a later stage (Pillai 1965: 1).

Pillai arrived in August 1963. As Neumark and Mulyatno had done at BPN and BEK for the 1950s, he used the output approach, administrative data, as well as some fresh data from a few small surveys into production costs to establish a new accounting system for Indonesia at BPS. Partly for national accounting purposes, Pillai also contributed to the design of the first National Sample Survey (later better known as Susenas) that was intended to be conducted annually. The first survey was conducted in November-December 1963 in Java and was expected to also yield data on private consumption, expenditure, capital formation, savings etc. that could be used for national accounting purposes. For the same purpose, Pillai also contributed to preparations of the 1963 agricultural census and the 1964 industrial census.

Pillai reported to the Director of PPPS, Nugroho, and his work was scrutinised by an *ad-hoc* committee consisting of representatives from BPS, Depernas, Bank Indonesia, and various ministries. Pillai also taught national accounting principles at the Academy of Statistics (*Akademi Ilmu Statistik*). Several graduates of the Academy were later absorbed in the National Income Division of PPPS. Some of Pillai's Indonesian counterparts, particularly Tjahjani Sudirman, Hartini and Suwondo, later studied national accounting in the United States and in Australia for a year. A few national income consultants passed through and offered short courses and advice. For example, William Abraham, previously UN national

<sup>26</sup> K.N.C. Pillai was ECAFE/ESCAP Regional Advisor on National Accounts until the mid-1980s.

income advisor in The Philippines in 1952, provided relevant consultancy services to BPS and Bappenas in 1962 (Nugroho 1965: 366).

After Indonesia withdrew from the UN in January 1965, UNSF support for PPPS stopped and Pillai and other UNSF-sponsored staff had to leave Indonesia a month later. Until then, the National Income Division at PPPS produced 12 reports that estimated value added during 1958-63 in several sectors of the economy (Hicks and McNicholl 1967: 69-70). It also produced a report containing summary GDP data for 1958-62. The estimates for trade, transport (other than rail and air) and dwellings were still very preliminary, while other estimates were still incomplete (particularly fruits and vegetables, manufacturing industry, finance and public sector).

Pillai left instructions for his Indonesian counterparts at PPPS, who developed new estimates of NDP on the basis of fresh data as well as new calculations for 1958-62 to the best of their abilities. They finalised this work in late-1965, although it was not published until November 1966 (BPS 1966).<sup>27</sup> Bappenas used these estimates to make rough extrapolations of NNP for 1963-65 (Anonymous 1966: 13; BI 1968: 2). New data became available during 1965 and 1966 in the form of 1 per cent samples of the 1963 Agricultural Census and the 1964 Industrial Census, as well as other sources. PPPS used these to develop new NNP estimates for 1963-64, which were published in May 1967 (BPS 1967). For reasons of financial difficulties and possibly the absence of expert advice, only rough extrapolations of the main series were made subsequently to eventually yield constant price series for 1958-67 (Nugroho 1967: 538-539).

## TOWARDS CONSISTENT NATIONAL ACCOUNTING

Following political turmoil during 1965-67, the new Government of Indonesia invited a mission of the World Bank to Indonesia in 1967 to assess the country's economic situation. A year later, the mission's final report included an evaluation (100-145) tried to reconcile these inconsistencies in a crude way to compile his own estimates of NDP for 11 sectors in an effort to model the Indonesian economy for 1951-62. of Indonesia's statistical system and the national accounts estimates. It bluntly stated: '... the basic statistical series relating to the various sectors of the economy are seriously deficient and little if any information is

<sup>27</sup> Where the data published by Muljatno, BPN, UN and BPS overlap in 1951-62, they reveal very significant discrepancies caused by differences in the estimation procedures. Suhartono (1967:

available for recent years. The office national income accounts likewise cannot be regarded, in their present state, as a serious tool for analysis or planning. Indeed, no integrated system of national accounts can now be said to exist. Estimates are compiled and published for net domestic product at factor cost only; and these themselves are of limited reliability ...' (World Bank 1968, Vol.VI: 2). The report also noted that there was no close cooperation between BPS and other government departments and agencies, which were generally the prime source of administrative data and information.

UN technical assistance to Indonesia resumed at the end of 1967. The United Nations Development Programme (UNDP) sponsored a national accounts adviser to the National Income Division at PPPS. Swedish economist Constantin Ross assumed this position in May 1968 for two years. Until then, national accounting in Indonesia had not been based on the UN's 1953 SNA. The limitations in the available statistical data simply made it impossible to follow these guidelines to the letter. With Ross' arrival, a new effort was made to follow the concepts, definitions and methods recommended in the new 1968 SNA as closely as possible. Rather than aim to estimate national income (or Net National Product), work was focused on the estimation of GDP at market prices, using the output approach. New data were accumulated for the industrial sectors whose coverage had hitherto been incomplete.

Supervised by its Director Azwar Rasjid, the National Income Division at PPPS applied new methods of estimation and revised the Indonesian national accounts data for 1960-68, which were circulated in January 1970 and published in November 1970 (BPS 1970). For the first time, both GDP by industrial origin and expenditure were estimated, albeit that private consumption was simply taken to be the residual after all other expenditure items had been accounted for. These estimates were later extended to 1973.

Despite the fact that new data had become available that conformed to the 1968 SNA, their reliability still left much to be desired (Arndt & Ross 1970: 48-54). Arbitrary decisions, such as mark-ups for uncovered sections and trade margins, called for revisions and further improvements. A 1970 World Bank report on Indonesia's statistical system did not mince words when it concluded: 'The national accounts estimates of Indonesia at both current and constant prices are extremely deficient and unreliable, whether in terms of level or trend through time.' (World Bank 1971: 2).

The 1961-68 Eight-Year Development Plan had made no reference to national accounts data. In contrast, the new Five-Year Development Plans (*Rencana Pembangunan Lima Tahun*) prepared at Bappenas and starting in 1969, did make reference to such data. While national accounts data may have informed the contours economic planning at Bappenas, they were still too rudimentary to inform economic planning in any analytical detail beyond description of trends.

In 1970, the National Income Division at PPPS became the new National Income Section (*Bagian Pendapatan Nasional*) at BPS, headed by Mrs Tjahjani Sudirman.<sup>28</sup> It assumed responsibility for the compilation of Indonesia's national accounts. On the basis of the methodology established at PPPS, the division created new estimates for 1968-73. L.N. Pereira succeeded Ross in May 1970 for two years as national accounts advisor to BPS. Since 1972, the national accounts section as BPS had a series of short-term foreign advisors, who advised on particular aspects of the development of Indonesia's national accounts system.

In the meantime, an important basis for incremental improvements in national accounting had been established in Indonesia. In effect, this took the form of Indonesia's Input-Output (I-O) Tables, which later became the 'anchors' for revisions and improvements of Indonesia's national accounts system. The first I-O Table for 1969 was compiled as part of a 1972-73 project that involved different institutions, in particular, the National Institute of Economic and Social Research (*Lembaga Ekonomi dan Kemasyarakatan Nasional*, LEKNAS) of the Indonesian Institute of Sciences (LIPI). The team was led and coordinated by Yukio Kaneko (Center for Southeast Asian Studies, CSEAS, Kyoto University) and Julian Luthan (LEKNAS). This project expanded an earlier regional economic study of South Sumatra by both organisations in 1970-71, which involved (for the first time) the estimation of regional national accounts. The 1969 I-O Table was published in preliminary reports in 1972 and final reports in 1973 (LEKNAS 1973ab). They suggested that the national accounts data were underestimated.<sup>29</sup>

Based on this experience, CSEAS, LEKNAS, BPS, Bank Indonesia, and the Institute of Developing Economies (IDE) in Tokyo cooperated to produce a much

<sup>28</sup> Tjahjani Sudirman started work at BPS in 1958 and studied at the *Akademi Ilmu Statistik*. She worked at the National Income Division at PPPS during 1962-70 and headed the National Income Section at BPS during 1972-80. She remained at the Section until her retirement in 1989 and continued to teach at the Academy.

<sup>29</sup> Something that Arndt and Ross (1970: 49-52) already suspected.

more elaborate I-O Table as the result of the much bigger 'Input-Output Joint Research Project, Indonesia 1971' during 1973-77 (IDE 1977). This project was based on much more detailed surveys into input use, pricing of inputs and output in particular sectors and covered 175 output sectors. The work on the 1971 I-O Table became the model for later I-O Tables, compiled by five-yearly by BPS since 1975.

Each of the I-O Tables was based on increasingly more intricate I-O accounting procedures, which informed the four rounds of revisions of Indonesia's national accounting system. Each of the revisions coincided with changes in the base year: 1971 (first published in 1978), 1983 (first published in September 1985), 1993 (first published in February 1996) and 2000 (first published in April 2004). Each round yielded significantly higher estimates of GDP in the overlapping years. The differences were not just caused by changes in the base year, as BPS suggested in its publications, but more by a range of changes in the accounting procedures, which affected levels of output, input use and pricing, as well as the extension of national accounting to sectors that had hitherto not or only partially been covered (Van der Eng 1999, 2005).

While most of the national accounts data for the 1950s and 1960s had been published with detailed supporting tables and explanations of the underlying accounting procedures and assumptions, such information became noticeably sparse in later publications of Indonesia's national accounts. Consequently, it is difficult to specify in brief what may have caused the different results in overlapping years. What is clear, however, is that the results of the several rounds of various national economic surveys (agriculture, industry, mining and household expenditure) were incorporated in the estimation procedures.

In all, the work at BPS on Indonesia's national accounts expanded quickly, despite continued limitations to the available resources. During 1970-80, Tjahjani Sudirman supervised a growing team. Her successor was the indefatigable Kusmadi Saleh, under whose supervision the team expanded further with new members and new initiatives, such as the regional accounts by province and regency, quarterly accounts that were estimated retrospectively to 1968, social accounting matrices based on I-O the Tables and work to integrate environmental accounting into the national accounts.<sup>30</sup> Nevertheless, limitations

<sup>30</sup> Kusmadi Saleh joined BPS in 1960 and studied at the *Akademi Ilmu Statistik* during 1960-64, specialising in national accounting. He worked at the National Income Division at PPPS and the National Income Section at BPS. After completing a Master's degree in Economic

in the availability of data and resources long required BPS to compile its national accounts with an adapted version of the 1968 SNA. The same issue has so far prevented a full introduction of the 1993 SNA.

In 1984 the national accounts section changed its name to Bureau of National Accounts (*Biro Neraca Nasional*) to reflect the fact that it was also responsible for other work related to the national income estimates, such as the I-O Tables and the concomitant Social Accounting Matrices. In 1993 the Bureau was split into the Bureau of Production Accounts (*Biro Neraca Produksi*) and the Bureau of Consumption and Accumulation Accounts (*Biro Neraca Konsumsi dan Akumulasi*) (BPS 1995). This reflects the fact that from 1993 estimated national income on the basis of both the production and the expenditure approaches, where it previously estimated consumer expenditure merely as a residual. When BPS became an autonomous government agency in 2007, the two Bureaus became Directorates (*Direktorat Neraca Produksi* and the *Direktorat Neraca Konsumsi dan Akumulasi*), each with their own Sub-Directorates.

## CONCLUSION

This article has explained why it took until the late 1970s before Indonesia produced consistent national accounts data that broadly met the 1968 SNA guidelines. While initiatives for macro-economic measurement had been taken in relation to Indonesia since the 1930s, and a significant momentum for the introduction of systematic national accounting practices had existed in the early 1950s, the limited availability of basic data as well as institutional discontinuity prevented this. Particularly the marginalisation of BPN and the politicising of the development planning process from 1957, as well as the disruptions in UN assistance for the development of national accounting practices in the 1960s prevented progress in macro-economic measurement in Indonesia until the establishment of the National Income Section at BPS in 1970.

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Development at Vanderbilt University in 1978, he headed the Section during 1980-92. He was Deputy Director of BPS from 1992 until his retirement in 2004.

While other Asian countries such as India had advanced their capabilities in macroeconomic measurement already during the 1950s and 1960s, further limitations in terms of available resources and data availability meant that it took this section several years to improve data collection and accounting practices. The experiences with the 1971 and 1975 I-O Tables assisted BPS in establishing the foundations for the delivery and further improvement of its national accounts by 1978. These discontinuities in Indonesia's available national income time series since the 1920s underline that considerable caution has to be exercised in using these data for the analysis of long-term economic growth.<sup>31</sup>

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<sup>31</sup> Van der Eng 2010.

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