

Current Trend in Agricultural Production in Brunei: Prospects, Challenges and Policy Prescriptions

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Introduction

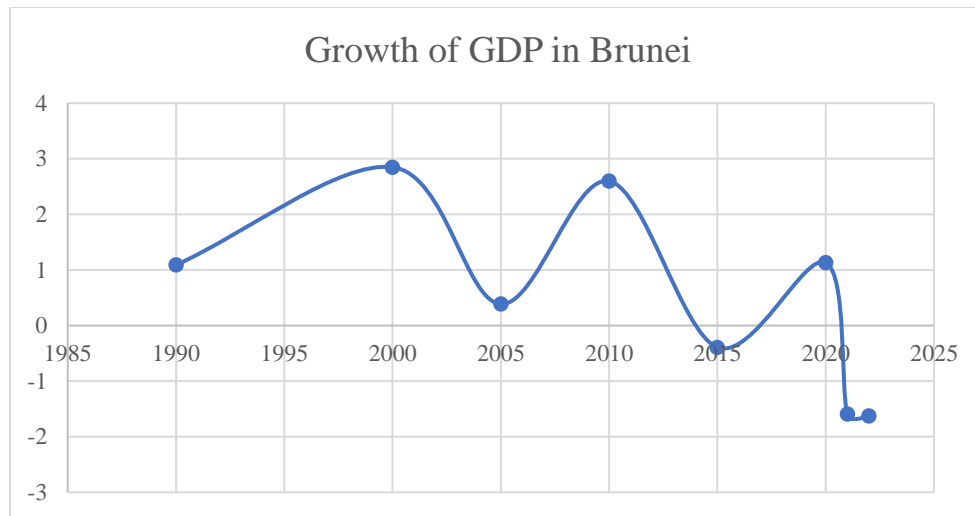
With the adoption of the United Nations' Sustainable Development Goals (SDGs), leaders in developed and developing countries are devoting enormous resources to eradicating poverty and hunger, promoting sustainable consumption and production, and mitigating climate change through agricultural transformation production and green business model innovation (Sher et al., 2019; Raimi et al., 2021). Unfortunately, the stride towards actualizing the SDGs has been hindered and slowed down by the COVID-19 pandemic ravages and the ongoing war between Ukraine and Russia. Both events have disrupted agricultural supply chains causing vulnerability and weakness in global agricultural markets (Allam, Bibri & Sharpe, 2022; Glaube et al., 2022; Dyson et al., 2023). The current front-burner theme before governments across the globe is the need to attain food sufficiency, food security, food sustainability, and food system governance for food resilience. To make a meaningful intellectual contribution to the above-mentioned pressing policy issues, this study critically examines current trends in agricultural production in Brunei, highlights the prospects and challenges, and prescribes policy measures for sustainable development in this sector. Looking back, Brunei was once a thriving country in agricultural production before becoming dependent on oil (Raimi et al., 2021). Going forward, this paper aims to provide policymakers with thoughtful insights needed to drive the transformation of agricultural production that is expected to drive agricultural entrepreneurship, agribusiness, economic diversification, and GDP growth, as well as the implementation of the SDGs in Brunei's oil-rich economy.

The need to transform agricultural production in Brunei is imperative to support the process of achieving Wawasan Brunei 2035, which aims to make the country one of the ten largest economies in the world (Slesman & Hoon, 2023). Beyond oil revenues, economic diversification efforts in industry, construction, agriculture, tourism, ICT, and services require massive investments. Sustainable financing is emerging as a strategic option for oil-dependent economies facing fiscal challenges. The study assumes that a revitalized agricultural sector can have positive impacts on SDGs 1, 2, 3, 8, 9, 10, 11, 12, 14, 15 and 17 (Raimi et al., 2021). Agriculture plays a crucial role in any economic diversification strategy, and Brunei acknowledges this fact in the Wawasan Brunei 2025 blueprint. Despite its small size and rich oil reserves, Brunei is increasingly recognizing the importance of diversifying its economy and is committed to transforming its agricultural production for sustainable growth in this sector.

Current Trends in Agricultural Production Transformation

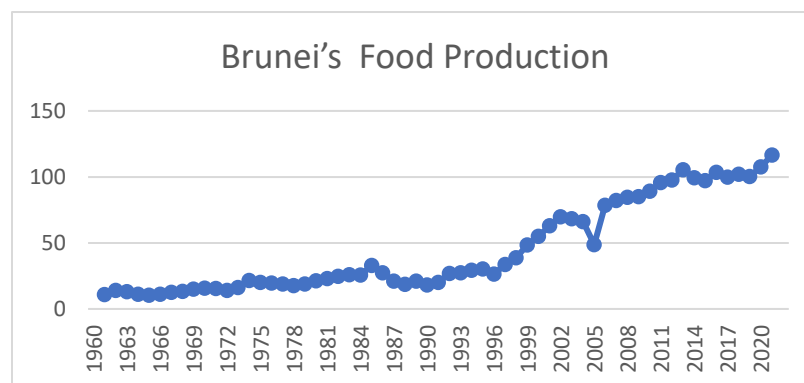
The current trend in Brunei to transform agricultural production is inspiring when supported by the necessary political will, agricultural technologies, and human resources. Brunei has traditionally relied on oil exports, which account for almost half of its GDP and 90% of export revenues (Department of Economic Planning and Statistics, 2020), however, policymakers are

focusing on diversifying the economy to include construction, tourism, ICT, agriculture, and related agro-based manufacturing sectors, among others. The market values of Brunei's GDP have increased over time, but the GDP growth rates from 1990 to 2022 are not impressive, as shown in Figure 1 below.



Author's analysis using the World Development Indicators (2021)

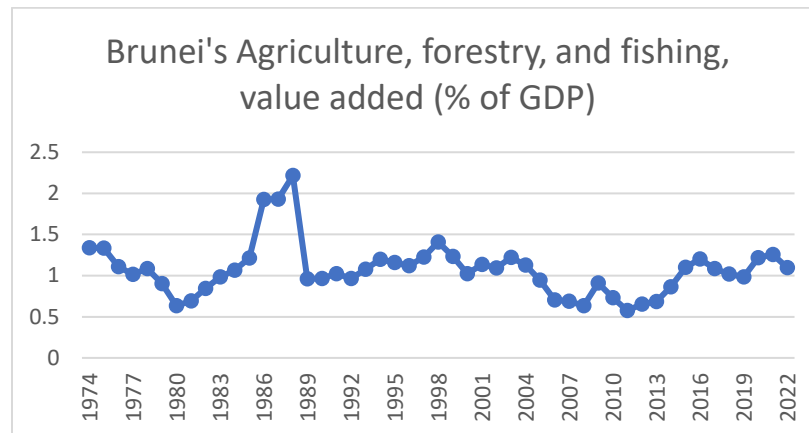
Currently, Brunei's food production index shows apparent increasing growth from 1960 to 2021, based on Figure 1. In 1961, the food production index was 10.98, which increased after 10 years to 15.51 in 1971. By 1981, food production indices rose to 22.99 but decreased to 20.14 in 1991. By 2011 and 2021, the indices had increased to 95.88 and 116.68, respectively.



Author's analysis using the World Development Indicators (2021)

The report of the agricultural development trend for 10 years shows the output value of the agriculture and agri-food sector growing at an average rate of 82.9% estimated at B\$ 314.82 million in 2013 to B\$575.71 million in 2022 (Ministry of Primary Resources and Tourism, 2022). However, viewed holistically, the value added of agriculture, forestry, and fishing (as a percentage of GDP) can be described as very low and almost stagnant, as shown in Figure 2. In 1974, the value added of agriculture, forestry, and fishing as a percentage of GDP was only 1.33781821%. Ten years later (1984) it was 1.065873459%. From 1994 to 2004, the value added of agriculture, forestry, and fishing as a percentage of GDP was 1.198708954% and 1.127453453, respectively.

As recently as 2014, 2021 and 2022, agriculture's contributions to GDP were 0.862737495%, 1.256289974% and 1.096160297% respectively. For more than 50 years, the contribution of agriculture, forestry and fishing to GDP was less than 2%: an indication of a transition from the agriculture sector to the rent-seeking oil sector like Nigeria (Osundina et al., 2019; Raimi et al., 2021).



Author's analysis using the World Development Indicators (2022)

In a bid to improve agricultural production in terms of quantity and quality, the Brunei government is encouraging small-sized and big commercial farmers to grow a variety of food and cash crops, including fruits, vegetables, and herbs, to reduce dependence on imported food and improve food sufficiency and food security. Moreover, the use of modern agricultural technologies to increase agricultural production is increasingly being promoted in Brunei. Specifically, precision farming, hydroponics and vertical farming are becoming increasingly popular and leveraged because of the prospect of contributing to greater efficiency, higher yields, and sustainable use of resources. As the global demand for organic products from health-conscious people increases, consumers are increasingly placing more value on locally produced, pesticide-free and environmentally friendly agricultural products. In addition to the above trends, Brunei is increasingly integrating smart farming technologies, including Internet of Things (IoT) devices, drones, and sensors. These technologies improve crop monitoring and management and enable real-time data analysis and decision-making in agricultural practices (Bramantoro, Suhaili & Siau, 2022; Radzuan, Chatwin & Hasan, 2022). As far as agricultural education and training are concerned, there is an increasing focus on promoting the functional skills of farmers to improve their skills and knowledge in modern agricultural practices through workshops, seminars, and partnerships with agricultural experts (Ministry of Primary Resources and Tourism, Brunei, 2022). In line with best practices in the UK and other developed countries, Brunei is exploring the introduction of certification programs for sustainable agricultural practices. This initiative aims to recognize and reward farmers who adhere to environmentally friendly and socially responsible farming practices, thereby further promoting sustainability in the industry (Ministry of Primary Resources and Tourism, 2022). Beyond domestic consumption, Brunei is exploring international markets for its agricultural products. Efforts are being made to establish trade agreements and partnerships to export locally produced goods, thereby contributing to the country's economic growth (Ministry of Primary Resources and Tourism, 2022). Together, these trends reflect a comprehensive shift towards a technologically advanced, environmentally sustainable, and globally competitive agricultural sector in Brunei.

Prospects of Agricultural Production Transformation

The prospects for Brunei's agricultural production transformation are significant. Brunei's focus on diversification is being pursued vigorously to create opportunities for agricultural exports. The official report of the agricultural development trend for 10 years shows the output value of the agriculture and agri-food sector growing at an average rate of 82.9% estimated at B\$ 314.82 million in 2013 to B\$575.71 million in 2022 (Ministry of Primary Resources and Tourism, 2022). Apart from oil and petrochemicals, Brunei has a conducive and pro-business environment for foreign investors considering investment destinations for commercial agriculture, agribusiness, food processing and packaging, health technologies, ICT, Islamic finance, and different segments of the Halal sector (Ministry of Finance and Economy, 2023). Regarding the prospect of increasing foreign exchange earnings, the literature has confirmed that Brunei's high-quality, locally-produced goods have the potential to open regional and international markets for agricultural products and provide a new source of income for the country (Slesman & Hoon, 2023). Another impact-driven prospect of agricultural production transformation is a high propensity to improve job creation thereby reducing unemployment. The expansion of the agricultural sector can lead to increased employment opportunities, particularly in rural areas (Raimi et al., 2021; Marsal et al., 2023). The current unemployment rate is alarming! A reliable source reported that Brunei's unemployment rates from 2021, 2022, and 2023 Brunei are 4.91, 5.20 and 4.90 respectively (Statista Market Insights, 2023). The cultivation of various crops and the integration of precision technologies into agricultural development and transformation require skilled labour. Brunei is blessed with a large reservoir of well-educated workforce due to its high Human Development Index (HDI), which was ranked 51st in 2021 (Slesman & Hoon, 2023).

Challenges of Agricultural Production Transformation Agenda:

As ambitious as the agenda to transform agricultural production appears, the existing literature points to several challenges that could stifle this structural change. The first challenge is the limited arable land. Due to its small size, Brunei faces constraints that limit large-scale agricultural production and require innovative solutions such as vertical farming and land use optimization (Raimi et al., 2021). The second challenge is vulnerability to climate change (Manevska-Tasevska et al., 2023). Goh & Potter, 2022) report that Brunei has lost two-thirds of its land to deforestation. Another report said that in 2010, Brunei had 29.3 hectares of tree cover, accounting for more than 55% of its land area. However, by 2022, the country lost 151 hectares of tree cover, equivalent to 95.1 thousand tons of CO₂ emissions (Gibbs & Harris, 2023). In total, Brunei lost 1.46 hectares of wet primary forest from 2002 to 2022, accounting for 24% of the total tree cover loss over the same period. The total area of primary moist forest in Brunei and Muara decreased by 14% during this period (Gibbs & Harris, 2023). Brunei is vulnerable to the impacts of climate change, including unpredictable weather conditions, erratic rainfall, and extreme events. Therefore, to improve the prospects of transforming agricultural production in Brunei as described above, farmland resources and forests must be managed to mitigate the impacts of climate change through actions by various stakeholders in the country. If this critical issue is not resolved, commercial farmers and Agribusinesses doing so are therefore faced with the challenge of adapting their practices to ensure the resilience of crops and livestock (Shams, 2023).

Conclusion, Policy Prescriptions and Future Directions

This article concisely and critically examines current trends in agricultural production in Brunei, highlights the prospects and challenges, and proposes policy measures for sustainable growth in this sector. In the end, it was found that the country's desire to advance agricultural production transformation is a right step in the right direction, supported by the SDG goals and the Wawasan Agenda 2023. The prospects for transforming agricultural production are significant and diverse, and such a move would create opportunities for agricultural exports. High-quality, locally produced goods have the potential to open regional and international markets for agricultural products and provide the country with a new source of income. However, it presents some surmountable challenges. The conclusion highlights the urgency of strengthening agricultural production transformation, particularly considering economic uncertainties, diversification efforts and the impact of the COVID-19 pandemic on food security in Brunei. The Wawasan Development Plan 2030 and SDG 12 on sustainable consumption and production make Brunei's agricultural transformation agenda imperative to align the local agenda with the global sustainability goals. Once the research paper is fully completed, some policy guidance will emerge.

To promote sustainable agricultural growth in Brunei, the recommended policy measures include the implementation of comprehensive land use planning strategies with a focus on vertical farming and innovative solutions to optimize limited arable land. Additionally, there is a call to develop climate-resilient agricultural practices through research and development, to identify crops and techniques adapted to Brunei's changing climate. Financial incentives such as subsidies and tax breaks are proposed to promote the adoption of environmentally friendly and climate-smart farming practices, while collaboration between the government, farmers and the private sector is emphasized for effective policy impact. Promoting modern agricultural technologies, capacity-building programs, certification initiatives for sustainable practices and exploring international markets for Brunei's agricultural products are key components. Beyond media hype and blueprint documentation, the issues of sustainable financing and readiness to strengthen Brunei's agricultural industry for economic diversification and long-term prosperity need to be given serious attention. Finally, the successful implementation of the above policy imperatives requires a concerted effort from all stakeholders, emphasizing the urgency of strengthening Brunei's agribusiness industry to achieve economic diversification, sustainable development goals and long-term prosperity. Further research and continued monitoring are recommended to assess the effectiveness of these measures and make necessary adjustments as the agricultural sector in Brunei develops.

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