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PERSPECTIVE

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Towards More Sustainable Agro-Food Systems in Indonesia

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A farmer working at a paddy field in Samahani in Indonesia's Aceh province on January 25, 2023. CHAIDEER MAHYUDDIN/AFP.

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EXECUTIVE SUMMARY

- Indonesia needs to focus on developing sustainable agro-food systems if it is to achieve its three major goals: eradicating extreme poverty, maintaining food and nutrition security and attaining net-zero carbon emissions.

- This paper lays out major hurdles Indonesia has to clear in order to achieve that ambition:

  - The agricultural sector's heavy reliance on (ineffective and large) state support.
  - The practice of extensive land expansion.
  - The high level of food waste and loss.
  - The lack of agricultural extension services, climate information and advisory services.
  - The competing goals of food security and energy security.

- We recommend the following to the government to overcome the above challenges:

  - Continue redirecting fertiliser price subsidies towards direct subsidies for farmers through the farmer card (Kartu Tani) system and better regulation of dangerous pesticides.
  - Allow the private sector to compete alongside state-owned enterprises in input markets; create an output market that enables farmers to obtain a higher price for their efforts in maintaining ecosystems, including sustainability certification and payments for environmental services; and support fee-based, private agricultural extension services.
  - Invest in post-harvest technologies, especially cold chain logistics, dryers and modern milling equipment.
  - Institutionalise Science Field Shops that promote farmers' agrometeorological knowledge, helping them to adapt to increasing climate variability.
  - Diversify biofuel sources to *non-food* commodities such as the seeds of the rubber tree and *Ricinus,* and increase palm oil productivity.

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INTRODUCTION

As in many other developing countries, agricultural growth has contributed significantly to poverty reduction and economic transformation in Indonesia. Although the sector's contribution to the country's gross domestic product has declined from 17% in 1995 to 13% in 2019, it still accounts for around one-third of Indonesian employment today, compared with around 44% in 1995.[1] Moreover, the agriculture sector is estimated to have been responsible for about *half* of the reduction in extreme poverty (USD1.9 per day) from 2000 to 2021. Indonesia's ambition to eradicate extreme poverty by the end of 2024 – it was 2.2% in 2021 – will be next to impossible without further improvement in agricultural productivity and in farmers' incomes.

Moving from production to consumption, Indonesia still faces huge nutritional issues. Today, 21.6% of Indonesian children under five suffer from chronic malnutrition (stunting), though this figure has been declining. Indonesia's ambitious target to bring its stunting rate down to 14% by the end of 2024 means nutritious food must become more accessible and affordable, and diets must become healthier.

However, the business-as-usual strategies to improve the agro-food systems in Indonesia are no longer sustainable nor effective. The agro-food systems have been both a contributor to and a victim of climate change. Indonesia's ambitious target of net-zero carbon emissions by 2060, which was recently brought forward by a decade, will be unachievable without more sustainable agricultural practices and efficiency along the food value chain. Agriculture, land-use change (mostly deforestation to create agricultural lands) and forestry are the largest contributors to greenhouse gas (GHG) emissions in Indonesia. At the same time, its farmers and fishers have been severely impacted by extreme and unpredictable weather.[2] This century, about 25–30% of global food production could be affected by extreme weather and other climate change shocks.[3]

Indonesia needs new strategies for more sustainable agro-food systems if it is to meet the three goals of: eradicating extreme poverty, maintaining food and nutrition security and attaining net-zero carbon emissions. Ideally, agro-food systems must produce agricultural products without deforestation and natural habitat conversion, and at the same time educate farmers and consumers to adapt to and mitigate the effects of climate change. Ignoring the emission of GHGs from our agro-food systems is not an option.[4] Indonesia is the world's fifth-largest GHG emitter, contributing about 4% of global GHG emissions in 2019; thus, making its agro-food systems more sustainable would significantly contribute to global climate change mitigation efforts. However, Indonesia is stuck in a production-centric mindset and faces big challenges in transforming its agro-food systems and embracing sustainability.

This paper lays out key challenges to developing sustainable agro-food systems in Indonesia, namely: (A) heavy reliance on (ineffective and large) agricultural supports, (B) extensive land expansion for food, (C) high level of food waste and loss, (D) lack of agricultural extension services and climate information and advisory services, and (E) competing goals of food security and energy security. We also propose policy recommendations to address these challenges.

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CHALLENGES AND POLICY RECOMMENDATIONS

Globally, agro-food systems account for one-third of GHG emissions.[5] In Indonesia, GHG emissions from the agro-food system largely come from land-use change and forestry, contributing 48.7% in 2019, and agriculture, contributing 9% (Table 1). In comparison, globally 18.4% of GHG emissions come from agriculture, land-use change and forestry.[6] Indonesia's share of GHG emissions from land-use change and forestry is the highest among ASEAN nations, higher even than China's and India's (see Annex Figure 1). Around 73% of land-use change and forestry came from deforestation, largely driven by cultivation of palm oil from 2000 until 2016 when the government decided to impose a five-year moratorium on the issuance of new oil palm plantation permits.[7]

Table 1: Sectoral contributions to GHG emissions in Indonesia

	1990	2000	2010	2019
Land-use change and forestry	61%	44%	32%	49%
Agriculture	11%	12%	14%	9%
Waste	13%	16%	11%	7%
Industry	1%	2%	2%	2%
Manufacturing and construction	2%	5%	11%	8%
Transport	3%	5%	8%	8%
Electricity and heat	4%	8%	13%	13%
Buildings	3%	4%	3%	2%
Fugitive emissions	3%	3%	4%	3%
Other fuel combustion	0%	1%	1%	0%
Aviation and shipping	0%	0%	0%	0%

Source: Our World in Data

Rice cultivation is the largest source of GHG emissions in Indonesia's agriculture sector (39%).[8] In fact, Indonesia's agricultural emissions account for 38% of the ASEAN region's total, while the country is home to 41% of the region's population.[9] In many developing Southeast Asian countries, including Indonesia, rice significantly contributes to GHG emissions chiefly through paddy flooding which releases methane[10]. Globally, 10% of methane emissions comes from rice cultivation, but in Southeast Asia rice cultivation accounts for as much as 25–33% of methane emissions.[11]

In the 1960s, the green revolution introduced intensive agricultural practices, which then required industrial inputs – such as fertilisers, pesticides and high-yielding seeds – to increase yield. Although the green revolution technology saved Indonesia from rice shortages and famines during times of drought and political instability in the 1960s, the production-centric paradigm[12] of the green revolution has created a crisis for the ecosystem – for soil, groundwater, air and other natural resources – and human health. This paradigm is entrenched in farmers' practices and government policies and shifting it towards an ecosystem-centric

paradigm is not an easy task especially since the green revolution was a largely successful one.[13]

The challenges faced in creating sustainable agro-food systems in Indonesia are described in detail below. The measures are by no means exhaustive, and instead exemplify some of the most urgent issues to address. Some policy recommendations are provided thereafter.

Heavy reliance on agricultural supports

Among emerging and OECD economies, Indonesia provides the highest level of support to the agriculture sector measured in percentage of GDP.[14] However, agricultural support has been provided mainly in the form of market price support (e.g., fixed prices and trade barriers) and direct subsidies (e.g., fertilisers, seeds) towards rice production, instead of providing public goods such as rural and urban infrastructure and post-harvest technologies to reduce food losses. Such agricultural support not only disincentivises farmers from diversifying their production away from rice, but also carry large environmental costs in terms of GHG emissions, land degradation and environmental pollution, since rice is one of the most water-intensive and GHG-emitting crops.

One example of such agricultural support is fertiliser subsidies, 60% of which are targeted for smallholder rice farmers, but with a significant amount leaking out to large palm oil plantations.[15] Fertiliser subsidies have risen from Rp 2.5 trillion in 2005 to Rp 25.3 trillion in 2021. They account for 25–30% of the annual agricultural budget – or 1% of the total state budget – and are expensive but poorly targeted, regressive, subject to leakage, and cost-ineffective at increasing production.[16] Evidence also suggests that subsidies may have caused unbalanced use of fertilisers,[17] with farmers overapplying and causing water pollution, soil degradation and excess nitrous oxide emissions.[18] Indonesia has higher levels of nitrous oxide emissions – a product of nitrogen fertiliser use – from agriculture than all other ASEAN nations, plus China and India.[19]

Farmers have also had increasing access to pesticides over the past two decades due to looser regulations since decentralisation in 1999.[20] This has led to overuse and a resurgence of pests that had previously been successfully managed, such as the brown planthopper.[21] Additionally, pesticides are highly toxic and have had an adverse effect on the physical health of farmers using them and consumers eating the crops, as well as the ecosystems to which they are applied.[22]

Policy recommendations: The government could continue redirecting fertiliser price subsidies (subsidising goods) towards direct subsidies for farmers (subsidising people) through the farmer card (Kartu Tani) system.[23] Targeted social protection such as direct subsidies for farmers requires better social registry data from Indonesia's unified database or Data Terpadu Kesejahteraan Sosial, which still has many weaknesses.[24] The government could also better monitor and regulate dangerous pesticides, fill a regulatory gap in the national integrated pest management system, which refers to a pest management system that applies sustainability principles including using more pest-resistant seed varieties, provision of habitat for natural enemies of pests (predators, parasites and pathogens), crop rotation, and restricting application of chemical pesticides unless deemed necessary. This must be accompanied by better

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enforcement and awareness among all stakeholders, including extension services workers, about the dangers of overusing and misusing pesticides.

High rate of land expansion for food

One-third of Indonesia's 192 million hectares (ha) is taken up by agriculture. Between 2014 and 2018, the rate of agricultural land expansion was 1.7%, higher than the regional average of 1.2% and the second highest in Southeast Asia after Vietnam.[25] The largest contributor to land-use conversion are oil palm plantations.[26] In 2018, rice and palm oil dominated 80% of Indonesia's planted area. This is very rice and palm oil-centric if compared to, for example, China which has much more diversified food crops in its planted area.[27]

Since 2020, the Government of Indonesia has been developing "food estates" in the provinces of Central Kalimantan, East Nusa Tenggara, South Sumatra, Central Sulawesi and Papua. Some estates (in Central Kalimantan and Papua), however, are derived from cleared forests and peatlands. This is permitted by the regulation on Food Estate Programmes,[28] conflicting with the government's climate commitments, such as its Enhanced Nationally Determined Contribution target and Indonesia's Forestry and Other Land-Use Net Sink 2030.[29, 30, 31]

Policy recommendations: Indonesia could focus on intensification instead of extensification. Increasing yields rather than expanding agricultural land will increase the income of farmers and help retain and attract new farmers into the industry. Intensification requires more investment in human capital and technology, as well as policy reforms to facilitate this investment. Policy reforms could include:

a. Allowing the private sector to compete alongside state-owned enterprises in inputs such as seeds and fertilisers as well as machines and other equipment. Indonesia's current policy in agri-inputs (such as seeds and fertiliser), for example, limits the use of more sustainable inputs, such as hybrid seeds to increase yields and plant resiliency, by creating barriers to market entry.[32]
b. Creating an output market that enables farmers to obtain a higher price for their efforts in maintaining ecosystems. This would incentivise them to adopt more sustainable agricultural practices, including through sustainability certification and payments for environmental services (PES), a form of climate financing for smallholder farmers and jurisdictions, such as the PES Rejoso watershed project in Pasuruan District, East Java.[33] Sustainability certification is developing in Indonesia and is one way to boost competitiveness. It is already occurring in Indonesia's coffee and palm oil sectors, for example (see Annex 2 for case studies), but could be developed in other export commodities as well, such as tea and cocoa.
c. Supporting fee-based, private agricultural extension services through partnerships with NGOs, development agencies, farmer associations and the private sector. Such initiatives are already underway, such as that supported by confectionery company Mars and NGO Rikolto for cocoa farmers in Sulawesi.[34]

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Food wastage and low efficiency along the supply chain

Instead of clearing forest and opening peatland to create new agricultural land, the government could focus on improving efficiency along the food value chain, for example, by reducing food loss and food waste (FLW).[35] In per capita terms, Indonesia is estimated to be the second-largest FLW-producing country in the world, at 300 kg per capita per year.[36] Globally, FLW is linked to approximately 6% of GHG emissions,[37] three times the emissions of the aviation sector.[38]

Indonesia's food supply chain is inefficient, starting from the production of food crops in the field to the chain of post-harvest supply through to consumption. Around one-third of all food produced in Indonesia is either lost or wasted.[39] Investment in post-harvest logistics and storage, as well as technologies, is urgently needed to reduce food loss along the supply chain, especially for horticulture and animal-based products, which are perishable. Over the next five years, the demand for cold storage is projected to increase by 10% and 20% annually.[40]

Policy Recommendations: Indonesia could prioritise investment in post-harvest logistics, storage and technologies – and especially cold chain logistics. Existing cold chain logistics in Indonesia are not standardised, for example, in terms of storage temperature, security and operating procedures.[41] The market for cold chain logistics is forecast to increase to USD12.6 billion in 2031 from USD4.97 billion in 2021[42], and it is therefore a promising industry for both the private sector and the government. Furthermore, a detailed public spending review could be carried out to evaluate the appropriateness and efficiency of spending on agricultural equipment. For example, more spending could be directed to support farmers to buy dryers and to support millers to purchase more modern milling machines in order to reduce post-harvest food losses, rather than providing farmers with four-wheel combine harvesters.

Lack of agricultural extension services and climate information and advisory services

Crop production is being affected by climate change, but Indonesia is investing little in educating farmers on mitigating it or adapting to it. Since decentralisation in 1999, Indonesia's agricultural extension services – government services providing agricultural advice – have been greatly weakened. In 2018, only 18 out of 34 Indonesian provinces had agencies to manage and provide extension services.[43] The national government set a target of at least one agricultural extension worker per village since decentralisation, but it was recently estimated that only half of Indonesian villages have a dedicated worker.[44]

The central government has been attempting to digitalize some extension services to make up for insufficient human resources.[45, 46] It uses phone calls and video conferences with farmers and CCTV for crop monitoring, has increased the use of mobile phones and personal computers, and developed mobile applications for extension services. However, not all regions have sufficient digital infrastructure to allow them to use such services. And without a dedicated extension service worker on the ground, making use of digital services is an uphill battle, as many farmers have limited knowledge of digital technologies and only use them for communication and accessing social media.

Government efforts to support farmers in adapting to climate change are complicated by a lack of accessible and reliable climate information and advisory services to help farmers understand

and manage the risks posed by climate change.[47, 48] As a result, most farmers still rely on inherited knowledge to make decisions.

Policy recommendations: The government could institutionalise Science Field Shops that help farmers gain agrometeorological knowledge and adapt their practices to increasing climate variability. The government could commit to long-lasting education and training and technology transfers, instead of relying on short-life programmes.[49] Moreover, the government could support its digital extension service efforts by improving digital connectivity in remote regions and cyber agricultural extension systems, and by engaging more younger farmers who may be more adept at using digital technology. Programmes to increase technological adoption, such as those currently developed and implemented by the Research Institute for Agricultural Technology (Balai Pengkajian Teknologi Pertanian), accessible in all provinces across Indonesia, could be integrated with farmers' empowerment programmes under the Centre for Agricultural Extension in the Ministry of Agriculture.

Pressure on palm oil and food-energy competition

Since 2006, Indonesia has been developing biofuels sourced from crude palm oil (CPO), which has resulted in competition between food security and energy security.[50, 51] The country's biodiesel policy stipulates that fossil fuels must be blended with palm oil, with the aim of securing energy, reducing carbon emissions and reducing the trade deficit. The regulation contains steady increases in mandatory levels of CPO-sourced biofuel, beginning with 5% in 2006 to reach 30% by 2021. This was achieved on time.

In Indonesia, CPO-sourced biodiesel accounts for close to 40% of total CPO use, while food accounts for close to 50%; this creates competition between food security and energy security.[52] For example, in early to mid-2022, the CPO-sourced biofuel policy may have exacerbated the sharp increases in the prices of domestic CPO and cooking oil. The policy may have placed additional pressure on domestic demand at a time when global energy and food prices were high due to the war in Ukraine, and CPO producers rushed to export.[53,54]

The CPO-sourced biofuel programme has the potential to threaten food security and also to drive up land conversion for oil palm plantation use. A 2021 study found that cuts in export revenues from the CPO-sourced biofuel programme, if the programme is carried through to 2030, could outweigh the savings on imports of fossil fuels. It also found that the oil palm planted area would need to expand by 48% to 76% to meet demand.[55]

Policy recommendations: The government could consider diversifying biofuel sources to *non-food* commodities such as the seeds of the rubber tree and *Ricinus*.[56] The government could focus on increasing productivity in palm oil, which is currently still very low compared to other palm oil producers, to avoid opening new land. For example, Malaysia produces 3.96 tonnes of palm oil per hectare annually, compared to 2.70 tonne per hectare in Indonesia.[57]

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CONCLUSION

Indonesia could build more sustainable agro-food systems by focusing on intensification instead of extensification, improving efficiencies in supply chains, building climate change adaptation and mitigation capacity through improved agricultural extension services and technologies, and removing incentives and policies that support unsustainable practices. These changes call for new knowledge, tools, policies and wisdom, and will require an interdisciplinary approach, as ecological risks and food security raise biophysical, socioeconomic and health issues. The changes needed for agro-food systems to become sustainable must rely on science to create evidence-based policy and implementation at the national, provincial and local levels. A shift away from production-centric towards ecosystem-centric agricultural practices, however, needs to be well calibrated, coordinated and staggered, as the real world experience from Sri Lanka has demonstrated.[58] Sweden is a model for sustainable agro-food systems and the country ranks first, alongside Japan, for sustainability in agro-food systems.[59] As this year's ASEAN Chair, Indonesia's plan to develop a Roadmap for the ASEAN Guideline on Sustainable Agriculture is highly commendable.[60]

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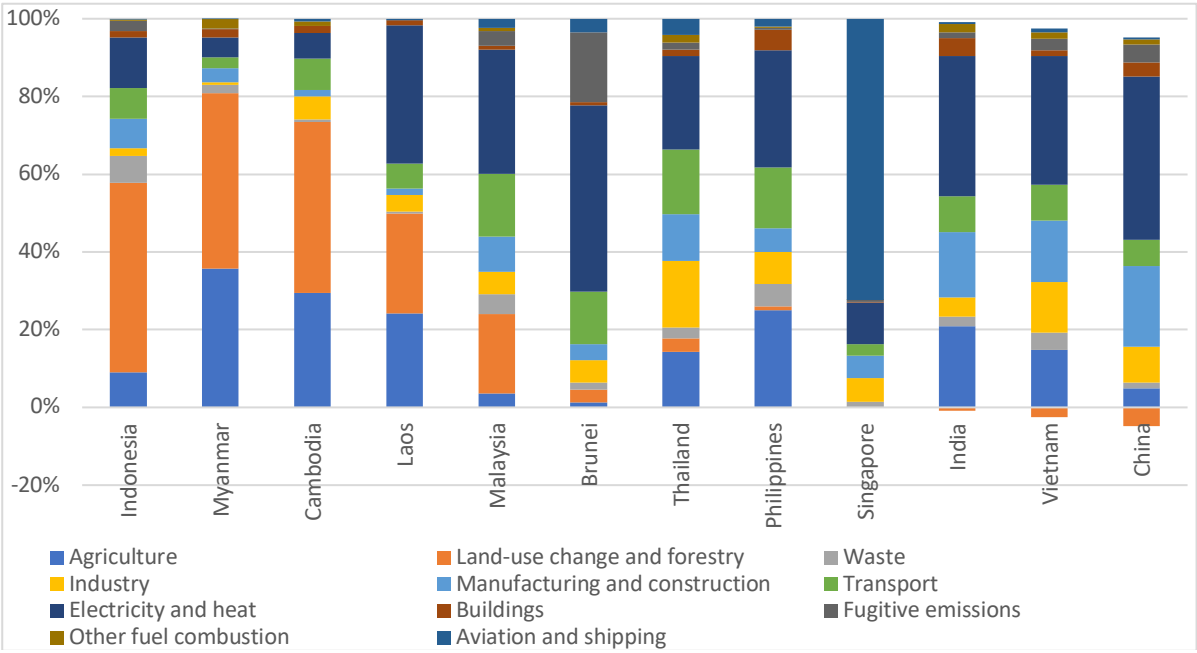
Annex 1

Annex Figure 1: Contributors to GHG Emissions by Country



Source: Our World in Data

Annex 2: Case Studies on Sustainability Certification

Case studies on sustainability certification for coffee and palm oil in Indonesia provide examples of ways to move towards inclusive and sustainable agriculture:

- Coffee: Sustainability certification in coffee has grown rapidly in the last decades. Sustainability certification started in Indonesia in 1992 with Gayo Mountain Organic Coffee from the Takengon region of Central Aceh, followed by organic coffee cooperatives in East Timor, Utz Certified coffee (part of the Rainforest Alliance since 2018) in Aceh, Lampung, East Java and in Sulawesi, and the Starbucks CAFÉ Practices scheme in North Sumatra, Aceh and Toraja South Sulawesi (as one of best practices at the company level).

  Certification standards have encouraged more sustainable land management practices in Aceh, Toraja and Bali, where organic, low-input and shade-grown farming has been adopted by coffee farmers. After some years, the coffee eco-certification had affected the price structure of coffee: traders selling organic-certified coffee to exporters were receiving higher prices than were received for non-certified coffee (Arifin, 2021).

- Palm oil: The Roundtable on Sustainable Palm Oil (RSPO) was formed in 2004 by CPO buyers, NGOs and environmental organisations. The RSPO initially targeted

large companies to produce palm oil sustainably – refraining from clearing forests, protecting orangutan habitat, conserving wildlife and not converting peatland, among others. Several Indonesian palm oil companies have joined the RSPO and achieved certification.

The management of sustainable certification involving smallholder farmers is a complex and large task, given that 41% of Indonesia's producers of fresh fruit bunches (FFB; the fruit from which palm oil is made) are smallholders, with most owning no more than 2 ha of land. Farmers need to form groups and partner with big companies. From a number of empirical studies, it is revealed that sustainable certification does not directly provide higher premium price for selling certified FFB for small-scale oil palm farmers yet[61] (Hidayat et al., 2016). Notwithstanding the weaknesses, sustainable palm oil is believed to be more inclusive and may become new strategies for competitiveness. Indonesia is serious about implementing sustainable certification at the global level (RSPO and International Sustainability and Carbon Certification), which is voluntary, and at the national level (Indonesia Sustainable Palm Oil), which is mandatory. The development of sustainable palm oil has improved the standards of Indonesia's palm oil industry, especially RSPO certification, and hence access of the palm oil industry, especially to countries that have imposed high sustainability standards, including those of the European Union.

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ENDNOTES

[1] Gil Sander and Yoong, 2021; Savelli et al., 2021
[2] Savelli et al., 2021
[3] World Bank. (Accessed 27 January 2023). Making Climate Finance Work in Agriculture. https://www.worldbank.org/en/topic/agriculture/publication/making-climate-finance-work-in-agriculture#:~:text=A%20new%20World%20Bank%20discussion,namely%20increased%20resilience%20and%20reduced
[4] https://ourworldindata.org/food-emissions-carbon-budget
[5] Crippa et al., 2021
[6] https://ourworldindata.org/emissions-by-sector
[7] Savelli et al., 2021
[8] Savelli et al., 2021

[9] ibid
[10] Searchinger and Waite, 2014
[11] Umali-Deininger, 2022
[12] A production-centric paradigm focuses on production increases without necessarily considering environmental impacts.
[13] Paliath, 2022
[14] World Bank, 2020a
[15] Fabi and Munthe, 2016
[16] World Bank, 2020a. Also see World Bank, 2020b; and World Bank, 2010
[17] Alta et al., 2021
[18] Garthwaite, 2020
[19] https://ourworldindata.org/emissions-by-sector
[20] Indonesia's political reforms and decentralisation of the 2000s ushered in a more market-driven approach. The gap left by the National Integrated Pest Management Program was filled by an ever-growing number of pesticide brands, which have been marketed aggressively to farmers.
[21] Savelli et al., 2021
[22] Damalas and Koutroubas, 2016
[23] Alta et al, 2021
[24] World Bank and the Australian Government, 2022
[25] Savelli et al., 2021
[26] Peatland oxidation caused by Indonesian oil palm cultivation accounted for 0.74% of global GHG emissions in 2017 (Savelli et al., 2021).
[27] World Bank, 2020, p. 32, Figure B.17
[28] In official documents, this programme is referred to as 'Penyediaan Kawasan Hutan untuk Pembangunan Food Estate' (Provision of Forest Areas for Food Estate Development).
[29] Ministry of Environment and Forestry, 2022
[30] Regulation of the Minister of Environment and Forestry No. 24 of 2020 on the Provision on Forest Areas for Food Estate Development
[31] By 2060, Indonesia aims to reach net zero emissions. With the FOLU Net Sink 2030, Indonesia aims to reach net zero deforestation by 2030.
[32] Alta et al., 2021.
[33] See https://indonesia.rikolto.org/en/project/cocoa-sulawesi-indonesia
[34] See https://www.worldagroforestry.org/project/rejosokita
[35] Around one-third of food produced globally is either lost or wasted every year. Source: Ishangulyyev et al., 2019.
[36] BAPPENAS, 2021
[37] This number is likely to be underestimated because it does not include food lost on farms during production and harvesting.
[38] https://ourworldindata.org/emissions-by-sector#note-17
[39] Indonesia's National Food Agency in Indonesia Policy Dialogue on 8 February 2023. https://www.youtube.com/live/OLIZpdyfz1I?feature=share
[40] PT Capricorn Indonesia Consult, 2019
[41] Allied Market Research, 2022
[42] ibid
[43] Savelli et al., 2021
[44] ibid
[45] Through the Ministry of Agriculture's Agricultural Extension and Human Resource Development
[46] Savelli et al., 2021
[47] For example, although the 1997 El Niño was predicted in advance, no information was communicated to farmers. Source: World Bank, 2008.
[48] Savelli et al., 2021.

[49] Winarto et al., 2018
[50] Indonesia began its biofuel policy in 2006 with Presidential Instruction No. 1 of 2006.
[51] Also see Amir et al., 2022
[52] Amir et al., 2022
[53] When CPO prices fall, the government tends to impose a higher mandatory CPO mix in biofuel to boost CPO demand. See Tenggara Strategics, 2022.
[54] See Wihardja and Patunru, 2022.
[55] Halimatussadiah, A. and A. A. Siregar, 2021
[56] EBTKE, 2021
[57] Triatmojo, 2019
[58] Torrella, 2022.
[59] See https://impact.economist.com/projects/foodsustainability/interactive-world-map/ and Government Offices of Sweden, Ministry of Enterprise and Innovation, 2016/17.
[60] This plan on developing a roadmap for the implementation of the ASEAN Guidelines on Sustainable Agriculture was reiterated by Indonesia's Deputy Minister for Coordination of International Economic Cooperation at the Coordinating Ministry for Economic Affairs of Indonesia, during a seminar entitled, 'What Can Indonesia's G20 and ASEAN Chairmanship Deliver on Global Food Security': https://www.iseas.edu.sg/media/event-highlights/seminar-on-what-can-indonesias-g20-presidency-and-asean-chairmanship-deliver-on-global-food-security/
[61] Smallholder farmers sell oil palm FFB or *tandan buah segar* to mills, while the price of FFB is defined at the provincial plantation level. At this point, there is no difference between certified and non-certified FFB prices and smallholder farmers hardly have any bargaining power. However, there is an RSPO scheme to support smallholder financing, namely the RSPO Smallholder Support Fund.

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