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YOUTH ENTREPRENEURSHIP & GREEN ECONOMIC RECOVERY

ABBREVIATION

ADWI	*Anugerah Desa Wisata Indonesia* (Indonesia Tourism Village Award)
ASEAN	Association of Southeast Asian Nations
Bappenas	*Badan Perencanaan Pembangunan Nasional* (Ministry of Planning)
BPJS	*Badan Penyelenggara Jaminan Sosial* (Healthcare and Social Security Agency)
BPS	*Badan Pusat Statistik* (Central Bureau Statistic)
BUMKam	*Badan Usaha Milik Kampung* (Village-Owned Enterprises)
BUMN	*Badan Usaha Milik Negara* (State-Owned Enterprises)
CEO	Chief Executive Officer
CMO	Chief Marketing Officer
COVID-19	CoronaVirus Disease
CSO	Civil Society Organisation
CSR	Corporate Social Responsibility
DEA	Digital Entrepreneurship Academy
DTS	Digital Talent Scholarship
EFT	Ecology-Based Financial Transfer
ESD	Education for Sustainable Development
FGD	Forum Group Discussion
GCI	Global Competitiveness Index
GDP	Gross Domestic Product
GEI	Global Entrepreneurship Index
GEM	Global Entrepreneurship Monitor
GHG	Greenhouse Gas
GoI	Government of Indonesia
GP	Gerai Prabumi
HR	Human Resources
ILO	International Labour Organisation
ITDP	Indonesia Tourism Development Program
KBLI	*Klasifikasi Baku Lapangan Usaha Indonesia* (Indonesia Standard Classification of Business Fields)
KII	Key Informant Interview

KUR	*Kredit Usaha Rakyat* (Business Credit Program)
LCDI	Low Carbon Development Indonesia
LFPR	Labour Force Participation Rate
MARA	Mani Ambiyan Raja Ampat Foundation
MATA	*Pemutakhiran Data* (Data Updating)
MSMEs	Micro, Small and Medium Enterprises
NGOs	Non-Governmental Organisation
NIB	*Nomor Induk Berusaha* (Business Identification Number)
NTB	*Nusa Tenggara Barat* (West Nusa Tenggara)
OAP	*Orang Asli Papua* (Indigenous Papuans)
PBI	Plastic Bank Indonesia
PKK	*Pemberdayaan Kesejahteraan Keluarga* (Family Welfare Movement)
PKW	*Pendidikan Kecakapan Wirausaha* (Entrepreneurship Skills Education)
PLUT	*Pusat Layanan Usaha Terpadu* (Integrated Business Service Centre)
PPSP	*Pusat Pengelolaan Sampah Plastic* (Plastic Waste Management Centre)
PROA	Professional Academy
PROSPEK	*Program Strategis dan Pembangunan Ekonomi Kampung* (Village Development Strategic Program)
R&D	Research and Development
RPJMD	*Rencana Pembangunan Jangka Menengah Daerah* (Regional Mid-Term Development Plan)
SDGs	Sustainable Development Goals
SIAPIK	*Sistem Aplikasi Pencatatan Informasi Keuangan* (Financial Information Recording Application Information System)
SMEs	Small and Medium Enterprises
SWOT	Strengths, Weakness, Opportunities, and Threats
TSA	Talent Scouting Academy
UGG	UNESCO Global Geopark
UNDP	United Nation Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNICEF	United Nations Children's Fund
YIDH	*Yayasan Inisiatif Dagang Hijau* (Green Trade Initiative Foundation)

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Acknowledgement

UNDP Indonesia jointly produced this report with UNICEF Indonesia. The research was conducted and consolidated by the Resilience Development Initiative (Dr. Elisabeth Rianawati, Dr. Ayu Krishna Yuliawati, Fahmi Rizki Fahroji, and Rickdy Vanduwin Sitanggang)

UNDP Indonesia, UNICEF Indonesia, and The Resilience Development Initiative would like to express our sincere appreciation and gratitude to all the informants of in-depth interviews and participants of focus group discussions from government agencies, non-governmental organizations, and youth entrepreneur's communities that have provided invaluable information and data to deepen the understanding of the youth-led entrepreneurship ecosystem in national level and the three regions, notably Riau for western Indonesia, West Nusa Tenggara for central Indonesia, and West Papua for eastern Indonesia.

Research oversight and inputs were provided by UNDP Indonesia, including Muhammad Didi Hardiana, Sheila Carina, Randa Sandhita, Rifki Fajar Hadiawan, and Isyanti Eriyanto as well as by UNICEF Indonesia, Vania Santoso, and Aryanie Amelina. The design and layout were produced by Online UN Volunteer Deanita Moina.

YOUTH ENTREPRENEURSHIP & GREEN ECONOMIC RECOVERY

1. Executive Summary

Nowadays, the issue of worsening environmental conditions is gaining more attention. Many leaders, experts, and activists have brought this problem to international attention. One of the solutions is creating or developing more businesses that are proactively addressing environmental and sustainability issues. This group is commonly defined as "green businesses". This new business sector is commonly related to innovation that offers a sustainable product and service. It is no surprise that the green business founders come mainly from the younger generation since they can produce fresh ideas for establishing a business.

In 2020, the COVID-19 pandemic weakened the economy of the world. Many plans for strengthening the effort to alleviate environmental degradation have been abandoned or suspended. The pandemic has also contributed to pain points for many entrepreneurs, particularly in the green economy sector, as demand dropped. However, during this period, growth can still be achieved with less energy consumption and less environmental burden. This period is the best to promote green-oriented businesses as our main move toward economic recovery.

The ***Youth Entrepreneurship and Green Economic Recovery*** is a research project that aims to understand the Indonesian youth entrepreneur ecosystem, which focuses on the green economy/green business, the impact of the COVID-19 pandemic on them, and their contribution toward green economic recovery efforts. A combined qualitative and quantitative approach was applied to answer the research questions. The study collected data through literature and policy review, interviews with key stakeholders, focus group discussion, and an independent online survey spread in Indonesia.

The first part of this report will explain the background, objective, and scope of the research. The definition and methodology are also presented in this part. The next part shows the trend of youth in Indonesia, the profile of the respondents, and the extracted information with a green business context. The current relevant policies plus the impact of the pandemic are also presented. In Chapters 4 and 5, a deeper analysis at the national and sub-national levels is discussed. These parts cover current conditions for the green economy ecosystem, each region's strengths and challenges, and selected

youth-led enterprises. At the end of this research, a policy recommendation was formulated to help the government and other stakeholders improve the situation of youth entrepreneurship and green economic recovery.

The research found that there have been no specific policies or regulations regarding green business in Indonesia. The definition is still unclear, and the standardisation has not been formulated yet. This uncertainty could lower the interest of financial institutions in investing in green businesses and thus hinder entrepreneurs from starting, growing, or even surviving their green businesses. The research also reveals that youth-led green entrepreneurship was not getting enough attention from the government, such as infrastructure, training programs, and consultation, especially in rural areas. Furthermore, research and development collaboration for green products or services was still deficient.

The recommendations composed from this study are 1) standardisation or certification of green business, 2) developing special green funding and incentives through the cooperation of stakeholders, and 3) promoting the integration of green entrepreneurship knowledge in educational institutions. Moreover, green business needs substantial improvement in the cooperation between entrepreneurs and research institutions. Establishing a database for green businesses can be essential in implementing green economic growth.

2. ABOUT THE RESEARCH

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2. About The Research

2.1 Research Background

The role of youths in green economic recovery is subject matter as representatives of future generations that provide fresh ideas as the first building block in every innovation. According to BPS (2021), around 24% of Indonesia's population was categorised as young (18-30 years old). This number can be advantageous, indicating that Indonesia already has adequate potential innovation drivers.

This research was derived from the COVID-19 situation, which has brought some multifaceted challenges to business growth in Indonesia. Based on the study by UNDP, two-thirds of micro, small, and medium enterprises (MSMEs) took in less revenue during the pandemic, while more than 80% had lower profit margins during COVID-19[1]. Furthermore, more than 53% of MSMEs experienced a decrease in asset value. On another occasion, UNDP and UNICEF held a previous roundtable and discovered that the green economy sector is still underdeveloped and rarely touched by youth entrepreneurs.

However, the COVID-19 pandemic has provided a unique opportunity to compromise Indonesia's economic transition to a low-carbon economy. Along with this, the government of Indonesia (GoI) has developed "National Economic Recovery", which focuses on comprehensive fiscal and monetary policies for economic recovery during COVID-19. Twenty-seven per cent of the budget was aimed at MSMEs and corporations, including young entrepreneurs in start-up/SMEs/social entrepreneurs' settings. Additionally, according to UNDP research in 2019, about 81% of Indonesian youth stated that they were interested in starting a business. Furthermore, based on a study by World Economic Forum (2020), one-third of the country's young people between the ages of 15 and 35 had a strong desire to become entrepreneurs. Therefore, more efforts are needed to push youths to initiate more ventures in green business.

[1] Press Release: Micro, Small and Medium Enterprises bear the brunt of the COVID-19 pandemic in Indonesia can be accessed on https://www.id.undp.org/content/indonesia/en/home/presscenter/pressreleases/2021/MSMEs-bear-the-brunt.html

2.2 Objectives and Scope of the Research

This research aimed to map and develop Indonesia's youth-led enterprises' ecosystem and its stakeholders toward green economic recovery. Aside from that, the study has a set of objectives to help achieve the main goals, which are:

1. To identify how significant the ecosystem of youth-led enterprises is impacted by the COVID-19 pandemic and climate change, especially in the green economy.
2. To identify and assess the existing strategic coordination across government institutions and stakeholders and its enabling environment to support youth-led enterprises on a green focus.
3. To provide recommendations for Indonesia's green economic policy and context regarding youth green business and sustainable sectors in supporting the youth enterprises that focus on green and sustainable sectors.

2.3 Definitions

Youth

This study adopted a 'youth' definition according to Law Number 40 of 2009[1] that categorised youth as citizens aged 16 to 30 who are entering a crucial period of growth and development. It means that the age range of youth includes their transition from the education phase to the work phase, as well as the transition to social and political independence

Green Economy

There is a critical need for economic stimulus initiatives in Indonesia to help the national economy recover from the impacts of the COVID-19 pandemic both in the short and longer-term (Bappenas, 2021). The notion of a green economy aims to enable strong economic growth and sustainability as well as to create jobs for middle-and-low-income earning families and are better for the environment, notably regarding critical environmental issues such as climate change, biodiversity conservation, and healthy cities (Barbier, 2010).

This study embraces a green economy definition offered by the Ministry of National Development Planning through a Green Recovery Roadmap Indonesia 2021-2024[1]. Green economy initiatives have five principles so that future green recovery planning in Indonesia can be conceptualised, developed, and assessed.

1. **The Wellbeing Principle:** Green economy initiatives include all people to create prosperity.
2. **The Justice Principle:** Green economy initiatives promote equity within and between generations.
3. **The Planetary Boundaries Principle:** Green economy initiatives safeguard, restore and invest in nature.
4. **The Efficiency and Sufficiency Principle:** Green economy initiatives are geared to support sustainable consumption and production.
5. **The Good Governance Principle**: Integrated, accountable, and resilient institutions guide green economy initiatives.

Green Business in the Circular Economy

In setting forth an economic model that innovates to reduce waste and ecological damage, the green economy also considers the environmental impact of industries before happening rather than waiting to address the consequences of these issues. To achieve that, incorporating green business concepts is needed. Based on the definition used in a circular economy context, the green business concept is a profit-oriented business which implements sustainability and environmental-friendly aspects in two dimensions: (1) in the output as the products or (2) in the process by using technology that reduces harm to the environment (ILO, 2017; 2021). Several dimensions in operating a green business are recycling and waste reduction, energy and water conservation, pollution prevention, green procurement, green distribution, and decent work.

In other words, a circular economy fundamentally changes the way people produce and consume, creating a healthier, thriving ecosystem that circulates value throughout the economy and society. It fundamentally decouples economic growth from resource usage and recouples economic growth with societal progress—presenting a much-needed solutions framework for tackling global challenges (Lacy et al., 2020).

Entrepreneurship and Youth-Led Green Entrepreneurship

According to the draft bill released on 17 December 2020, **entrepreneurship** is defined as the spirit, attitude, behaviour, and ability to manage a business that leads to seeking opportunities and creating productive business activities by utilising economic and social resources effectively to produce value-added, competitive, and sustainable goods and services. An **entrepreneur** is defined as everyone who demonstrates entrepreneurship and carries out business or activities in specific fields. In this report, **youth-led green entrepreneurship/business** refers to an enterprise focusing on the green and sustainability sector owned or led by a person(s) aged between 16 and 30 years

Sector of Green Business

In Indonesia, the categorisation of the green business is still focusing on the impact of products and services as part of the value chain. In light of this, a business can be considered 'green' by producing eco-friendly [1] products or providing [2] eco-friendly services or by greening its processes or parts of its value chain (Wibowo, 2022). Thus, a more detailed categorisation of the green business is needed to identify various kinds of business models offered in the green sector. This study adopts the categorisation provided by Eco-Innovation Network based on the defined green entrepreneurship concept[1]. Detailed sectors of the green business are listed in Table 1 below.

Table 1. Sector of Green Business

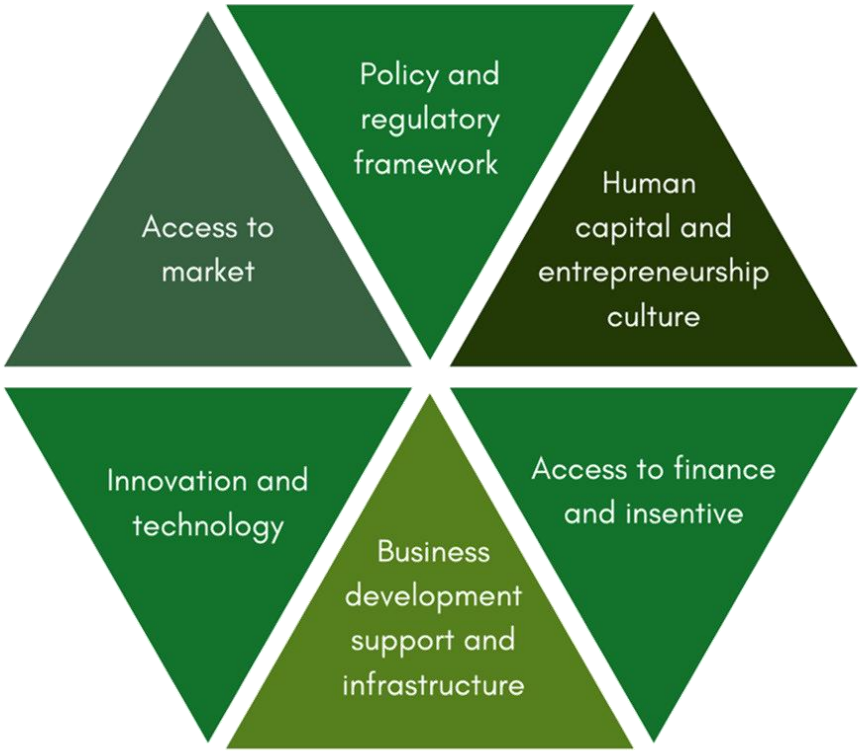
Category	Sector Scope
New Tools, Software, Systems & Technologies	• Energy technologies; • Water treatment technologies; • Remediation technologies; • Predictive AI tools.
New or Improved Product Developments	• Recycled & low footprint products; • Waste reduction systems; • Green fashion; • Organic and zero waste food products.

Category	Sector Scope
Trade & Commerce Platform & Networks	• Online marketplaces; • Green distribution systems; • Consumer-focused apps; • Circular economy networks; • Screen reader support enabled.
Consultancy and Business Advisory Services, Education	• Training & education; • Technical advisory services; • Sustainability measurement & planning; • Consulting services.

Ecosystem Diagnostic Framework

There are a variety of external and internal factors at each stage of enterprise development that affects the ecosystem of a business. It can include the culture and attitudes to entrepreneurship that one is exposed to and the policies that can help, hinder or even halt activity. These factors influence everything from the concept to the start-up stage, and from there to growth, optimisation, and eventually innovation (World Bank 2017). Various factors supporting the youth entrepreneurship ecosystem, such as government institutions, financing, business incubation and other relevant stakeholders, can influence and contribute to the operating environment of youth-led enterprises. In depicting which factors correlate to the youth entrepreneurship ecosystem, this research uses **Youth Co-Lab's ecosystem diagnostic framework**, consisting of six domains[1] (Figure 1). This model consists of six domains, each with several sub-components. It captures the most important dimensions of an (initially) interdependent ecosystem. These six domains are meant to determine the overall entrepreneurial strengths, weaknesses, and opportunities that ultimately drive entrepreneurship.

Figure 1. Six Domains of Youth Co-Lab's Ecosystem Diagnostic Framework



Source: Youth Co:Lab Report (2021)

As this research refers to the previous study, the sixth domain (access to the market) has been included in all the other domains and is stated explicitly in either data collection tools or data analysis. Detailed definitions of the framework's domains are listed in Table 2 below.

Table 2. Definitions of the Five Key Domains

Domain Title	Domain Analysis/Definition Scope
Access to Finance and Incentives	• The availability and accessibility of different financing options and incentives for youth entrepreneurs provided by the government and financing institutions. • Incentives for investors and funders to support youth-led businesses. • Financial literacy and understanding of different financing options among young people and young entrepreneurs.
Human Capital and Entrepreneurship Culture	• Entrepreneurship education in the formal education system and other capacity building programs. • The state of entrepreneurship culture and youth interest in becoming entrepreneurs. • Programs and facilities for supporting the development of human capital and entrepreneurship culture. • Ease of finding talent in the entrepreneurship sector.
Business Development Support and Infrastructure	• Availability and accessibility of business development support programs and structures, such as incubators and accelerators, efforts to develop business development support systems and infrastructure for young entrepreneurs. • Accessibility to physical infrastructure.
Policy and Regulatory Framework	• Existence and implementation of policies and regulatory frameworks relevant to and supportive of youth entrepreneurship. • Efforts to develop the policy and regulatory framework. • Extent to which bureaucratic and legal structures and processes related to business origination and development are youth-friendly.
Innovation and Technology	• Innovation and technology support available and accessible to young entrepreneurs. • The use of digital solutions and technology for business development. • Efforts to support young (aspiring) entrepreneurs to innovate and use technology in business operations. • Innovation, technology, and other supporting elements that may further advance the development of youth entrepreneurship. • Development of innovation and technology-based enterprises.

Source: Youth Co:Lab Report (2021)

2.4 Research Methodology, Data Collection Tools, and Limitation of the Study

This research was conducted using a mix-method approach, combining quantitative and qualitative data collection. This research examines the youth green entrepreneurship ecosystem from a national view and the regional scope, including Riau for western Indonesia, West Nusa Tenggara for central Indonesia, and West Papua for western Indonesia.

Data collection was carried out through several methods: desk research, online survey, key informant interview (KII), focus group discussion (FGD), and Mentimeter (Table 3). ***Desk studies*** were conducted by examining the existing relevant secondary data analysis provided by the national and sub-national government data sources. Furthermore, this study reviewed previous studies related to youth entrepreneurship for green economic recovery to identify the policy which supports the green business by youths, both nationally and regionally. An ***online survey*** was carried out by targeting the youth-led green entrepreneurs in three regions regarding their participation, understanding, challenges, and effort for green economic recovery throughout COVID-19.

Key informant interviews were conducted with key stakeholders in national and regional government, associations, private companies, non-governmental organisations, investors, and business incubators. Data and information collected from interview would be analysed to answer the research questions regarding the youth-led enterprises' ecosystem and its contribution to green economic recovery as well as to find out strategic coordination of the government and other stakeholders for further support of sustainable and green economic recovery led by the youth entrepreneurship (See Annex 4). ***Focus group discussions were targeted*** to discuss the initial findings of the research and gain feedback from stakeholders coming from government and youth entrepreneurs from three regions (See Annex 5). This discussion aimed to gain insights regarding the youth entrepreneurship ecosystem in each region and the relevant policies and programs from local government in supporting the green economic recovery led by youth entrepreneurship oriented explicitly to green business.. For the FGD, the ***Mentimeter*** tool assessed the participants' views on the regional youth entrepreneurship ecosystem.

The **limitation of the study** is the time constraint for the data collection process (only three weeks for primary data). Several respondents (government, large private companies, and youth entrepreneurs) were relatively slow and gave limited responses. Not all targeted respondents were willing to be interviewed or participate in the FGD process.

Table 3. Methodology Matrix

Objectives	Data Collection	Data Sources and Sample Size
Desk Research		
• To produce an overview of youth profile and youth entrepreneurship in Indonesia. • To review existing policies to support the green business ecosystem in Indonesia.	Quantitative method: • Secondary data analysis (statistics) Qualitative method: • Policy reviews • Secondary data analysis (literature) • Institutions' report and documents	• Indonesian Youth Statistics (BPS) • State of the Labour Force in Indonesia (BPS) • ILOstat database • GoI's regulation • Sub-national regulation/policy
Online Survey		
• To map profiles of youth-led green entrepreneurs in Indonesia. • To understand youth perceptions of climate change and the COVID-19 pandemic. • To know youth views on the green business ecosystem in Indonesia.	The survey was conducted online using Google Form. The criteria of respondents were young people aged 15-30 years old and having a green business.	There were 300 respondents in total spread across three regions; western Indonesia (N=260), central Indonesia (N=38), and eastern Indonesia (N=2).
Key Informant Interviews		
• To collect qualitative data on	Invited lists of young green entrepreneurs and	See Annex 4 to see full lists of KII participants.

Objectives	Data Collection	Data Sources and Sample Size
stakeholders' experiences and identify opportunities to further develop the youth entrepreneurship ecosystem. • To collect data on youth green entrepreneurs' perceptions of the green business ecosystem in Indonesia and to map their strengths and challenges that further can be used as materials to formulate policy recommendations.	government officials.	
Focus Group Discussion		
To collect data on all parties' views on the green business ecosystem in Indonesia.	Invited lists of government, entrepreneurs, financial institutions, business incubators, business associations, and others.	See Annex 5 to see full lists of FGD participants.
Mentimeter		
To collect data on FGD participants' views on five key domains that shape the green business ecosystem in Indonesia.	FGD participants were given a chance to assess the condition of five key domains through the Mentimeter platform.	FGD participants.

3. CONTEXTUALISING YOUTH-LED GREEN ENTREPRENEURSHIP IN INDONESIA

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3. Contextualising Youth-Led Green Entrepreneurship in Indonesia

At the time of the research, GoI has not yet passed the national entrepreneurship law[2]. However, according to the draft bill released on 17 December 2020, entrepreneurship is defined as the spirit, attitude, behaviour, and ability to manage a business that leads to seeking opportunities and creating productive business activities by utilising economic and social resources effectively to produce value-added, competitive, and sustainable goods and services. In general, the bill defines an entrepreneur as everyone who demonstrates entrepreneurship and carries out business or activities in certain fields.

There is currently no definition of youth entrepreneurship in GoI's regulation. However, Government Regulation of the Republic of Indonesia Number 41 of 2011 on Entrepreneurship Development and Youth Pioneering, and Provision of Youth Infrastructure and Facilities, defines youth entrepreneurship development as activities to develop potential skills and business independence. The activities include training, apprenticeship, mentoring, partnership, promotion, and access to capital assistance. As for youth-led green entrepreneurship, it is not yet also acknowledged in GoI's regulations.

Consumers' demand for sustainable products in Indonesia are growing. According to the FMCG Gurus' survey (Food Ingredients Asia, 2022), in Q3 2019, out of 1,000 consumers in Indonesia 66% of them were concerned about the current state of the environment. Eighty per cent of the consumers said that they researched brand environmental pledges. A study on consumer perception conducted by WWF Indonesia and Nielsen also stated that the awareness of Indonesian people in using environmentally friendly products had significantly improved, marked by 63% of consumers preferring to buy sustainable products[3]. The engagement of youth in tackling climate change through entrepreneurship needs to be constantly encouraged since their curiosity and innovation can lead youths to be pioneers in the green economic recovery.

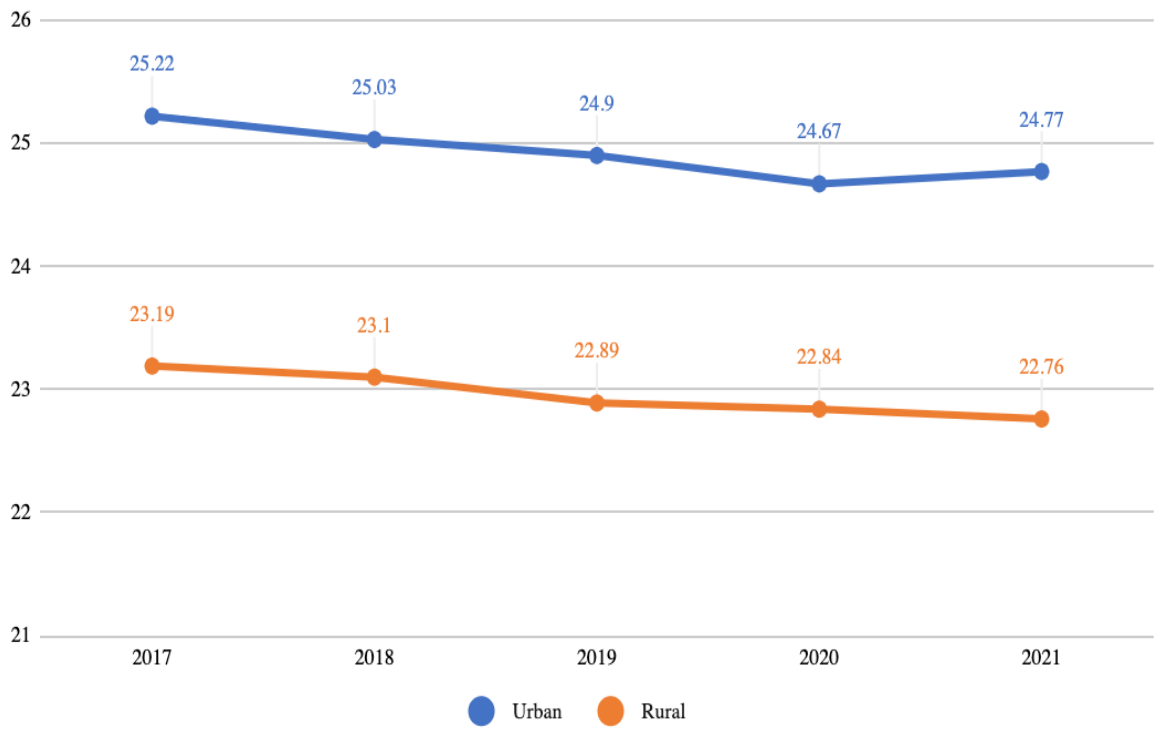
[2] The draft bill has been in the Indonesian House of Representatives' National Legislation Program 2020-2024 since 17 December 2019. The bill can be accessed in https://berkas.dpr.go.id/pusatpuu/na/file/na-154.pdf

[3] https://en.tempo.co/read/479890/nineteen-shot-in-mothers-day-parade

3.1 Youth Population and Labour Force Participation Rate among Youth in Indonesia

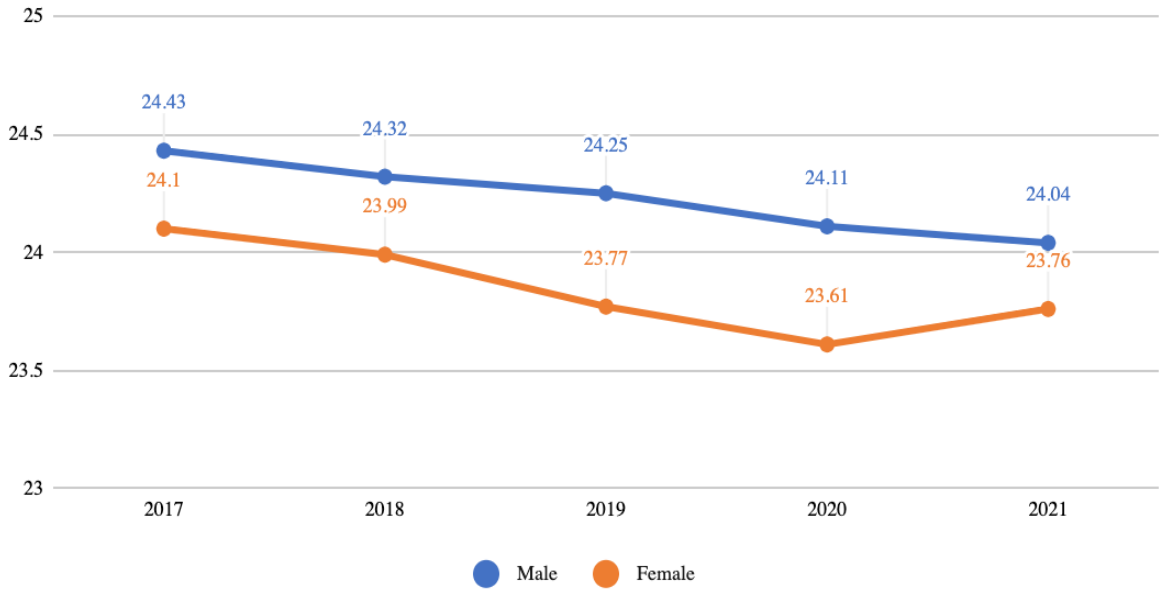
Throughout 2017-2021, around 24.9% of the population in urban areas could be defined as young people, while in rural areas, the percentage was 0.2 lower than its urban counterpart (Figure 2). Further examination showed that West Papua had the highest percentage of young generation in both urban and rural areas (Figure 3). It can also be noticed that more youth were found in the rural area of Riau compared to the Indonesian average. In Figure 4, the youth percentage is divided by gender, and it shows that the percentage of male youth is higher than female youth in all periods.

Figure 2. Percentage of population aged 16-30 by residence



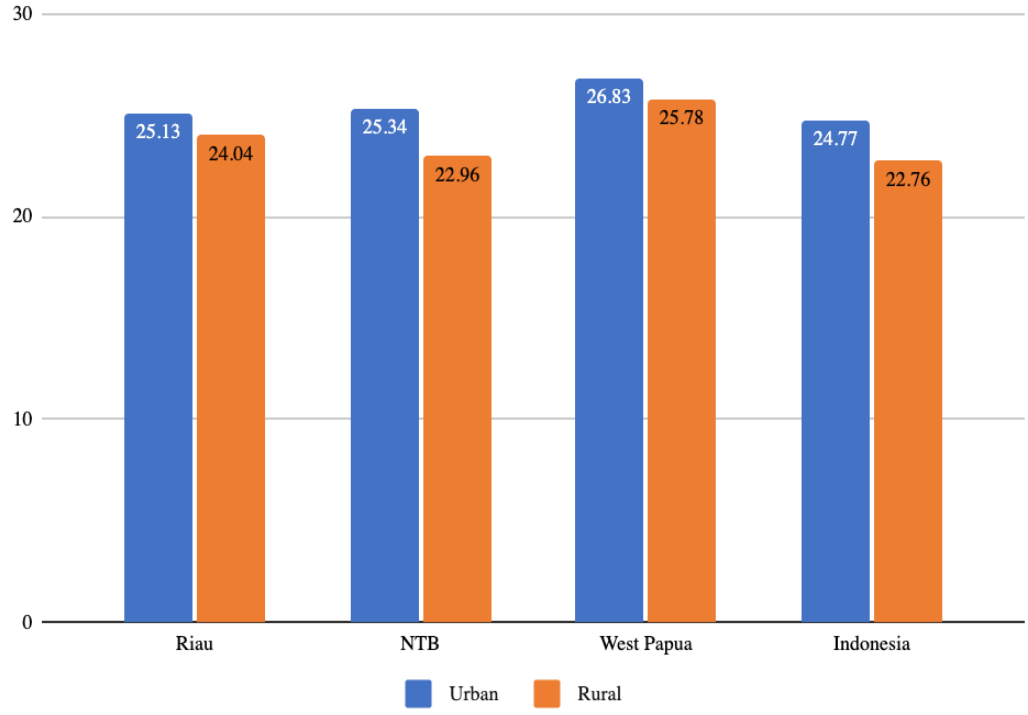
Source: Indonesian Youth Statistics 2017-2021 (BPS), processed

Figure 3. Percentage of population aged 16-30 by gender



Source: Indonesian Youth Statistics 2017-2021 (BPS), processed

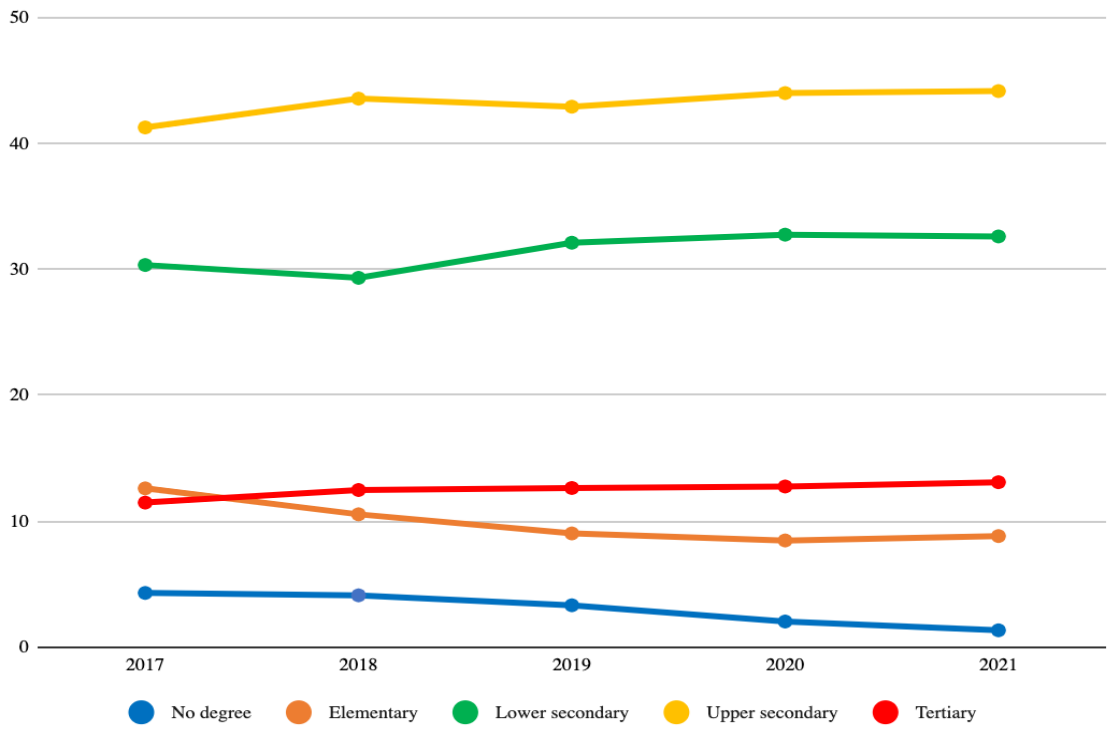
Figure 4. Percentage of youth population in Indonesia and three selected regions in 2021



Source: Indonesian Youth Statistics 2017-2021 (BPS), processed

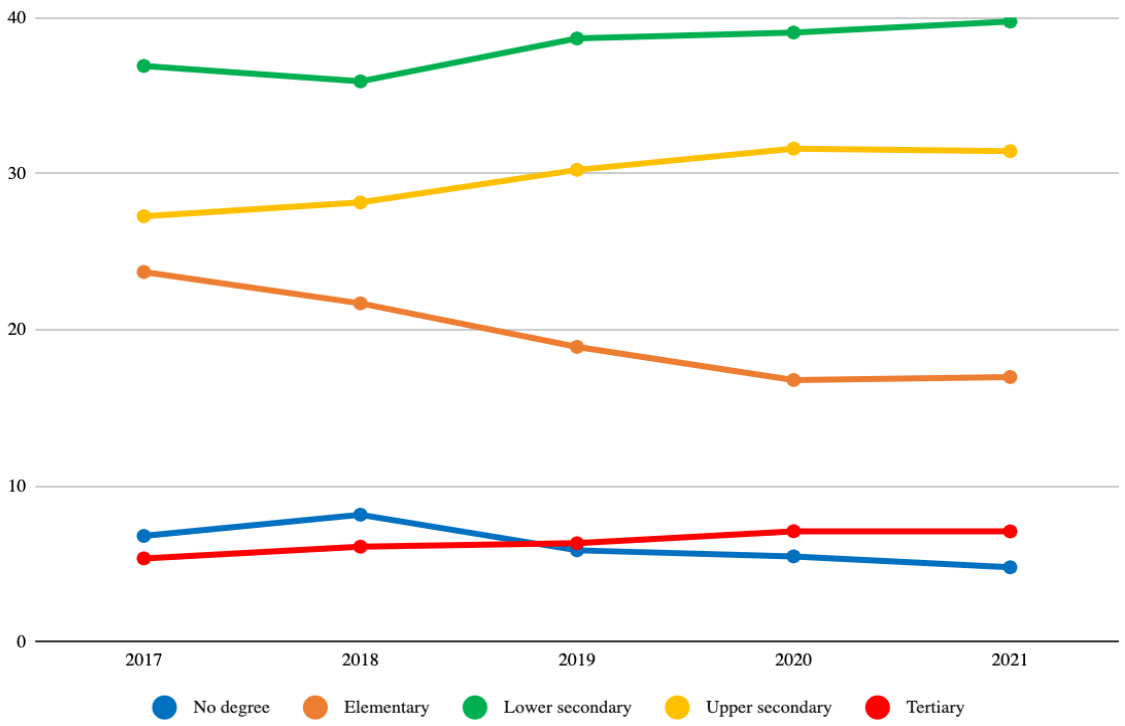
Figure 5 and Figure 6 displays the last educational degree the youth possessed from 2017 to 2021. Youth with a secondary degree had the highest percentage. Further observation showed a considerable difference between youth with no degree and youth with tertiary education. The percentage of youth who had not finished any educational degree in urban areas was under 5% throughout the five years, while in rural areas, the number was always larger than 5%. The urban area was also filled with highly educated youth, as they comprise more than 10% of the population. In comparison, rural areas only had around 6.3%. However, there was a slight increase in the highly educated youth who lived in rural areas.

Figure 5. Youth education level in urban area



Source: Indonesian Youth Statistics 2017-2021 (BPS), processed

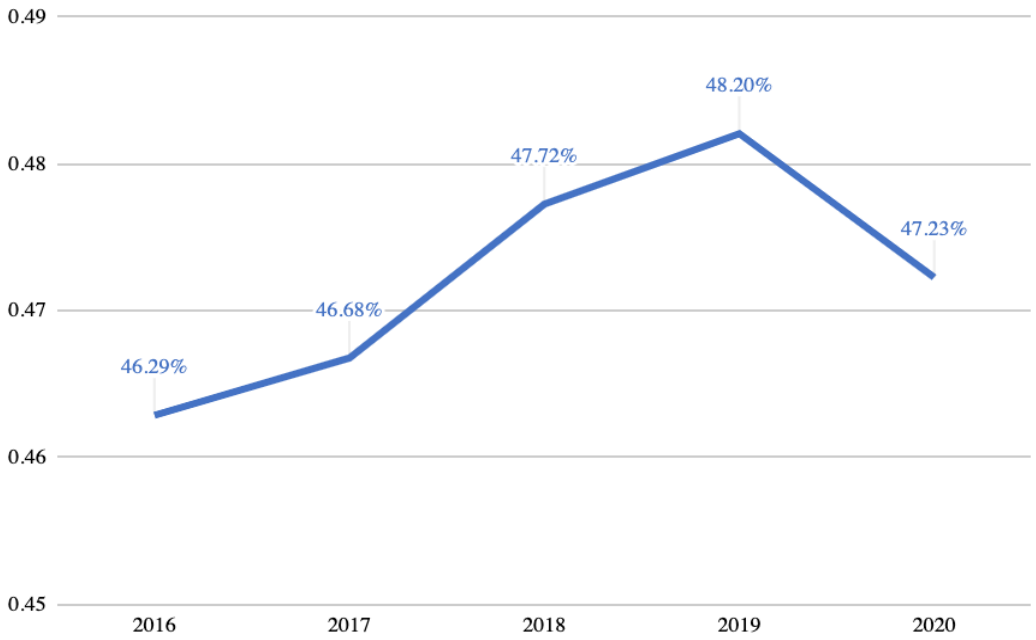
Figure 6. Youth education level in rural area



Source: Indonesian Youth Statistics 2017-2021 (BPS), processed

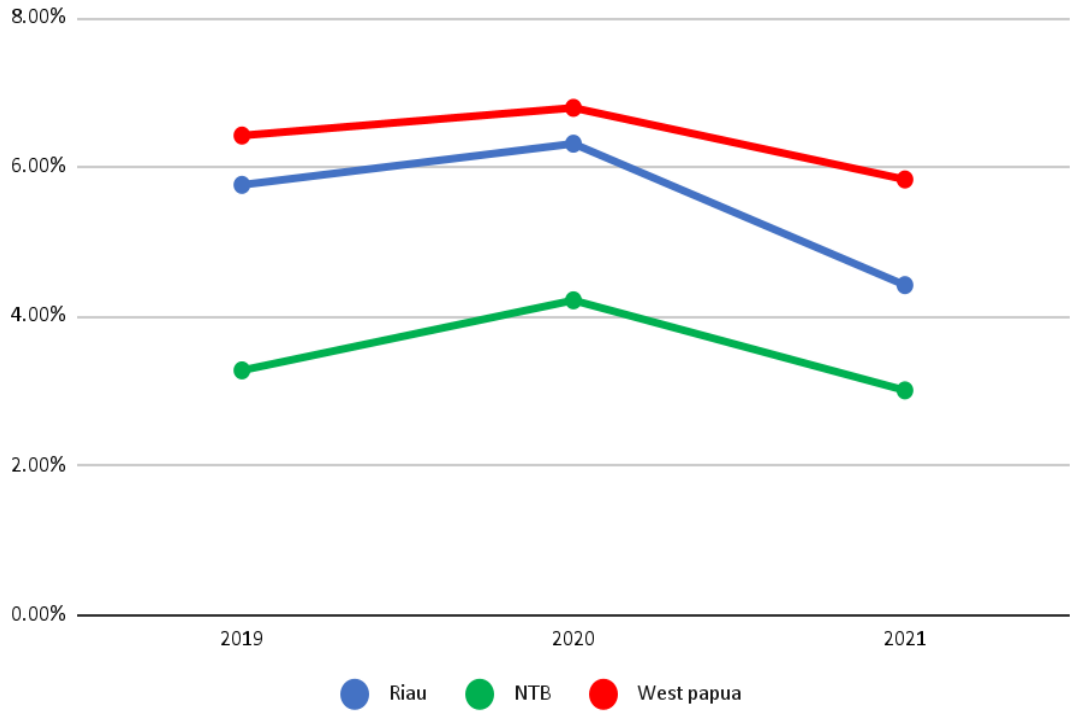
According to the data from ILO (2020), there was a constant increase in labour force participation rate (LFPR) among young people between 2016 and 2019 (Figure 7). After reaching its peak in 2019, the number fell quite strongly due to the pandemic. A similar phenomena was also found by observing the unemployment rate in the three selected regions (Figure 8). The unemployment rate in those regions had increased in 2020. Fortunately, the number eased up again in the next year. To investigate further, the data were collapsed into two gender groups. In this part, it was found that the female youth in the selected regions experienced lower unemployment rate during the pandemic (Figure 9). In Riau and West Papua, unemployment was declining. In West Nusa Tenggara (NTB), there was also a decrease despite it not being too considerable.

Figure 7. Labour force participation rate for ages 15-24 (modelled ILO estimate)



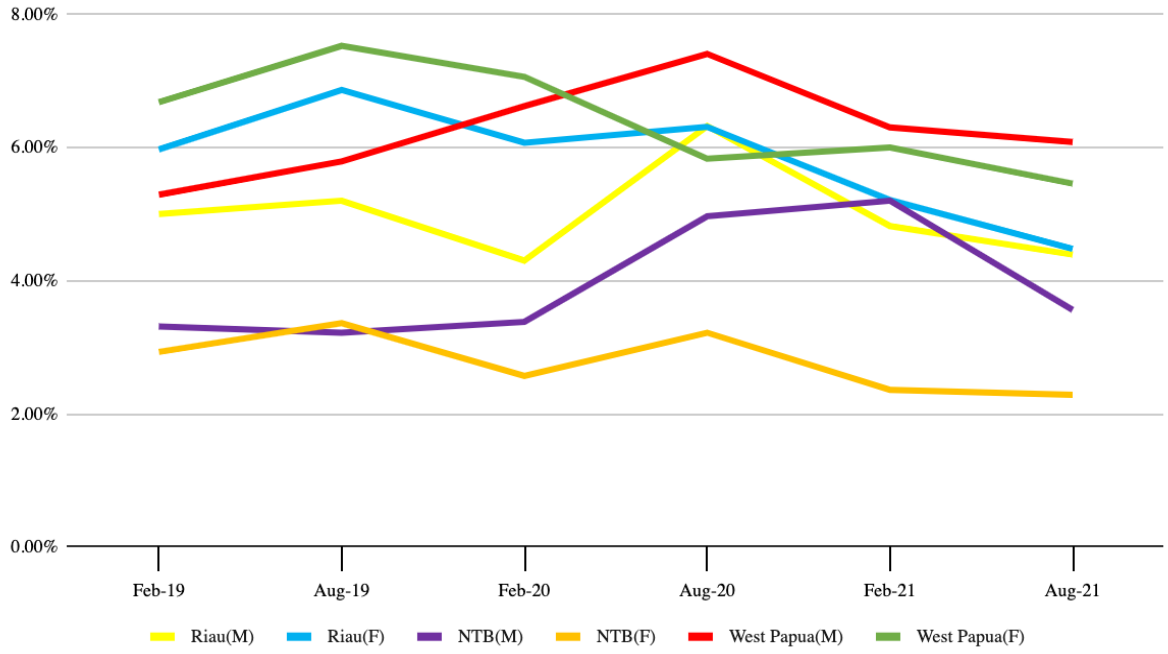
Source: International Labour Organisation, ILOSTAT database

Figure 8. Unemployment rate in three selected regions



Source: State of the Labour Force in Indonesia 2021 (BPS), processed

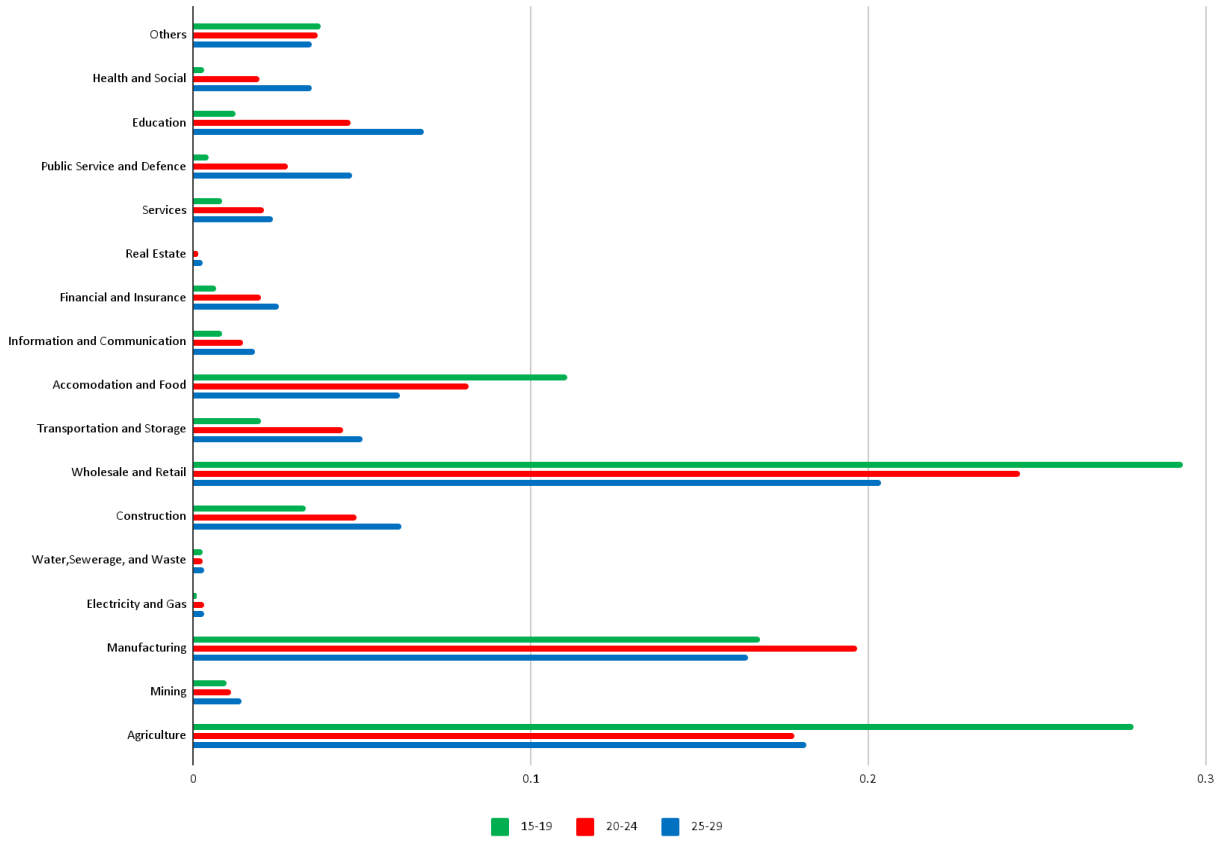
Figure 9. Unemployment rate in three selected regions by gender



Source: State of the Labour Force in Indonesia 2021 (BPS), processed

In 2021, most young people in Indonesia worked in agriculture, manufacturing, and wholesale and retail (Figure 10). The "green business" industry sector is not yet defined in the data. Nevertheless, it can be observed that Indonesia has much potential to develop a green business as the agriculture and manufacturing sector can be integrated with sustainable or environment-friendly concepts.

Figure 10. Distribution of workers from different groups in each industry

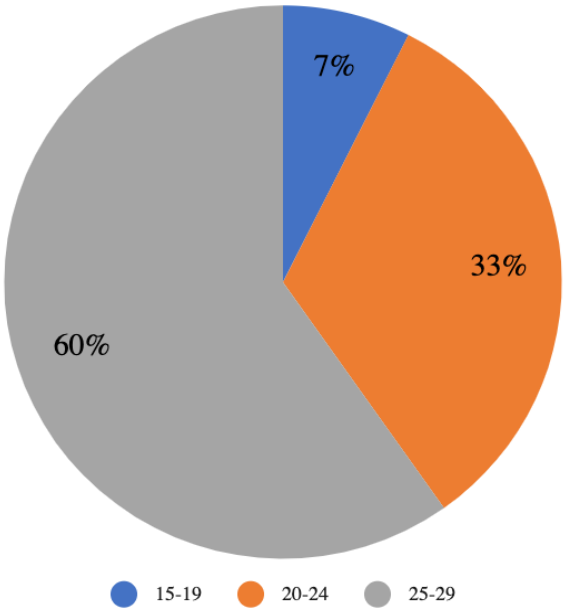


Source: State of the Labour Force in Indonesia 2021 (BPS), processed

3.2 Youth Entrepreneurship Trends in Indonesia

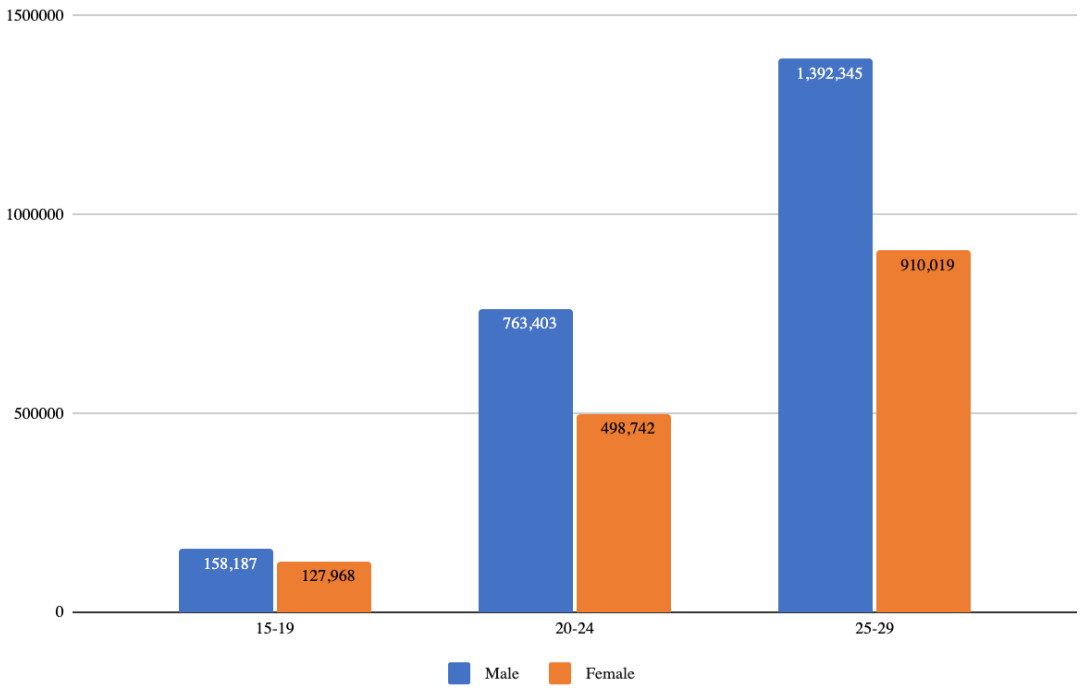
Most youth entrepreneurs are 25-29 years old; this age group comprised around 60% of the whole youth population, whereas 33% of the population were 20-24 years old (Figure 11). Age 25 and over might be the best age to start a business, as an individual may have reached maturity in the working/business world at that age. They may have enough experience and decent know-how to enter entrepreneurship. When the data is disaggregated by gender, the number of male entrepreneurs was considerably higher compared to female entrepreneurs (Figure 12). However, there was no significant difference in the number of entrepreneurs between male and female in the age group 15-19.

Figure 11. Distribution of youth entrepreneurs by age



Source: State of the Labour Force in Indonesia 2021 (BPS), processed

Figure 12. Distribution of youth entrepreneurs by gender



Source: State of the Labour Force in Indonesia 2021 (BPS), processed

3.3 Profile of Youth Entrepreneurs in Green Sectors

One of the research tools used in this research is an online survey. The questionnaire was conducted to gain information from young green entrepreneurs about their personal information, business profiles, perception of climate change and COVID-19, and views on the green business ecosystem in Indonesia. The survey successfully extracted data from 300 respondents spreading across Indonesia. The characteristics of all respondents are presented in Table 4-14.

Table 4. Gender Distribution

Gender	Percentage
Male	31%
Female	**67%**
Non-binary	1%
Prefer not to say	1%

Source: Online Survey (N=300)

Table 5. Age Distribution

Age	Percentage
15-19	2%
20-24	29%
25-30	**69%**

Source: Online Survey (N=300)

Table 6. Distribution of Education Level

Education Level	Percentage
Did not graduate from primary school	2%
Primary school	1%
Junior high school	4%
Senior high school	**60%**
Polytechnic/University	33%

Source: Online Survey (N=300)

Table 7. Business Location

Business Location	Percentage
Western Indonesia	**87%**
Central Indonesia	13%
Eastern Indonesia	1%

Source: Online Survey (N=300)

Table 8. Business Type

Type of Business	Percentage
Product	**79%**
Service	21%

Source: Online Survey (N=300)

Table 9. Age of Company

Length of Business Established	Percentage
< 1 year	28%
1-3 year	**49%**
> 3 year	23%

Source: Online Survey (N=300)

Table 10. Motivation of Entrepreneurs

Main motivation in choosing green entrepreneurship	Percentage
Become a change maker for environmental improvement	24%
Looking for opportunities for better profits	17%
All the answers above are correct	**58.7%**
Other: To increase the value of forest products that have not been utilised	0.3%

Source: Online Survey (N=300)

Eighty-two per cent of youth-led enterprises, that focus on green business, were founded by one or two persons; more than two persons founded the rest (Table 11). Eighty percent of the respondents only hire five people or less, and 12% hire 6-10 people (Table 12). Therefore, the majority of respondents are classified as micro and small enterprises. More than half of the surveyed enterprises are active in developing new or improved green products (Table 13). Almost a quarter of them develop network systems that support green business. Twelve percent of them develop new tools, software, systems & technologies. Moreover, the rest are active in business and consulting services.

Table 11. Number of Founders

Number of founders	Percentage
1 person	**41%**
2 persons	**41%**
> 2 persons	17%

Source: Online Survey

Table 12. Number of Employees

Number of workers in the business	Percentage
< 5 persons	**80%**
> 10 persons	8%
6-10 persons	12%

Source: Online Survey (N=300)

Table 13. Distribution of Business Sector/Industry

Detailed sector of green business	Percentage
New tools, software, systems & technologies: 1) energy technology, 2) water treatment technology, 3) remediation technology, and 4) predictive AI technology	12%
Business consulting and consulting services, education: 1) training & education, 2) technical consulting services, 3) sustainability measurement & planning, and 4) consulting services	8%
Development of new or improved products: 1) recycled & low carbon products, 2) waste reduction systems, 3) green clothing, 4) organic and zero-waste food	**56%**

products	
Trading/commerce platforms & networks: 1) online marketplaces, 2) green distribution systems, 3) consumer-focused applications, and 4) circular economy networks	24%

Source: Online Survey (N=300)

Table 14 shows that most of the green youth-led businesses were financed by their family, friends or colleagues, and personal savings. Seven per cent of them were financed by financial institutions. Independent investors also took a moderate role in funding green businesses contributing 12% combined. This result could indicate that green youth-led entrepreneurs still have difficulties accessing funding, and green-oriented businesses are still labelled as non-lucrative businesses in Indonesia.

Table 14. Funding Sources

Main funding resource of green business	Percentage
Family	**50%**
Friend or colleague	8%
Angel investor	6%
Impact investor	4%
Industry-agnostic investor	2%
Financial institutions (bank, insurance, cooperative)	7%
Government institution	2%
Trust fund	2%
Personal savings	19%

Source: Online Survey (N=300)

For this study, three FGDs were also carried out. The three separate rounds of FGDs were conducted to represent the three selected main regions. Table 15 shows a short profile of all youth-led green entrepreneurs that have participated in the FGDs.

Table 15. List of Young Entrepreneurs in Green Business as FGDs Respondents

Region	Representative	Position	Business Name	Business Profile
Western Indonesia	Wahyu Puji Pamungkas	CMO	SIAB Indonesia	SIAB Indonesia (Surakarta) seeks to overcome problems in clean water from upstream to downstream; discovery of springs, water filtration, water quality monitoring, and water distribution by utilising IoT technology.
	Ika Juliana	CEO	Greenie	Greenie Indonesia (South Tangerang) is a green start-up that focuses on bringing innovation for sustainable living. Greenie empowers non-timber farmers and artisans to produce sustainable furniture.
	Afifah Putri Adita	Founder	Gerai Prabumi	Gerai Prabumi (Padang) has a mission to reduce the amount of waste by making plastic-free and affordable products for everyone.
	Gabriel Sebastian Butarbutar	CEO	EcoplastID	EcoplastID (Bandung) is a biotech startup that is developing bioplastics from agricultural waste such as empty palm oil bunches as an alternative to plastic bags.
	I Wayan Santika	Founder	*Desa Wisata Ekang* (Ekang Tourism Village)	*Desa Wisata Ekang* (Bintan Island) is a community, cultural, and environmental-based tourism village in the

				Riau Islands Province.
Central Indonesia	Hananto Darmawan	Founder	*Pusat Pengelolaan Sampah Plastik* (Plastic Waste Management Center)	*Pusat Pengelolaan Sampah Plastik* (Sumba) aims to reduce plastic waste, especially bottles and glasses used for drinking mineral water and to become the first place for plastic waste management education on Sumba Island.
	Roaetun Nabiya	Staff	Geopark Rinjani	Geopark Rinjani (Lombok) is one of 4 geoparks in Indonesia that have been recognised by the world through the UNESCO Global Geopark (UGG). The goal is to benefit, explore, appreciate, and develop ecosystem heritage for conservation, education and sustainable development purposes.
	Nur Rahmi Yanti	Owner	Yant Sorghum	Yant Sorghum (Central Lombok) is a company that focuses on the development of sorghum by women farmers through the farmer corporation concept. Yant Sorghum tries to process all parts of sorghum (seeds, stems and leaves) as much as possible.
Eastern Indonesia	Nurdana Rizki Pratiwi	Manager	*Yayasan Maniambyan Raja Ampat* (Maniambyan Raja	*Yayasan Maniambyan Raja Ampat* aims to realise sustainable natural resource conservation through

			Ampat Foundation)	community-based tourism development, human resource development, and partnerships.

3.4 Youth-Led Green Enterprises and COVID-19 Pandemic

U-Report Indonesia (2020) showed that 79% of the youth entrepreneurs reported that COVID-19 negatively impacted their business. Out of 79%, 21% said that their business completely stopped due to the COVID-19. They stated that COVID-19 impacted the demand due to mobility restrictions regulated by the government. Some said there was a lack of demand from investors and the rest had issues with the supply & demand chain, market trust, and distribution. Table 16 shows several green businesses' responses to the negative impact of the pandemic.

Table 16. Green Business Response During the COVID-19 Pandemic

Kepul	
Short Profile	Kepul is an innovation in an effort to optimise the sale and purchase of recyclable waste. This application is used by people who want to sell waste to collectors, those who make a living by buying garbage from the community to then resell it to big collectors, or waste recycling factories.
Location	Medan, North Sumatera
Response	During COVID-19, Kepul realises that there are groups of people that have lost their jobs and have limited access to daily necessities. In order to address this challenge, Kepul transformed its business model to be a bank for plastic waste where people who can't access daily necessities could exchange plastic waste in order to access daily basic needs (*sembako*).
Tinung Rambu	
Short Profile	Tinung Rambu, a weaving brand, was initiated as an effort to carry out a movement to empower women and support young children in East Nusa Tenggara. The five main values of Tinung Rambu are women empowerment, fair trade, environmentally-friendly, originality and cultural preservation.
Location	Sumba, East Nusa Tenggara

Response	Tinung Rambu empower women in the Sumba area to create a fashionable mask that reuses the traditional fabric that was designated to be fashion products of Tinung Rambu. The result of this sale will be used to support women in Sumba who struggle to have their daily necessities.
Maniambyan Raja Ampat (MARA) Foundation	
Short Profile	The MARA Foundation has an alternative livelihood program whose mission is to improve the livelihoods of local communities, both ecologically and economically.
Location	Raja Ampat, West Papua
Response	Although product sales have stopped completely due to the impact of the COVID-19 pandemic. During 2020, the MARA Foundation still actively carried out activities aimed at developing the capacity of the people involved and developing operational and management systems at the MARA Foundation. It was recorded that throughout 2020, the team still carried out routine pick-up of local community products 4 times, to support the sustainability of local product stocks, as well as to give time to reduce the production process until it stopped completely, until the pandemic period is over. The local community's interest in 2020 reached its peak, with the involvement of 30 craftsmen who were actively producing handicraft products reaching 2,511 products. The production trend continued to increase until it reached peak production in April 2020 and then stopped completely in May 2020 due to the implementation of the lockdown in Raja Ampat.
Greenie	
Short Profile	A green start-up that focuses on bringing innovation for sustainable living.
Location	South Tangerang, Banten
Response	During the COVID-19 pandemic, Greenie experienced a lack of funding and declining sales. In fact, according to Greenie, the people of Indonesia, including Banten, are still actively buying property. In general, Greenie also had difficulty finding investors because most investors prioritise businesses with profit, while Greenie offers a business that focuses on environmental impact. Greenie also claimed that only few investors focus on green business. Another challenge experienced by Greenie is the difficulty in introducing its products to the market.

Source: U-Report Indonesia (2020), MARA Foundation's document, FGD (2022)

Table 17. Impact of COVID-19 Pandemic

What is the biggest impact of the COVID-19 pandemic on your green business?	Percentage
Many workers are sick so that it interferes with the running of the business	8%
Less investment/financial support for business	5%
Disruptions in the supply chain	4%
Reduction of working hours (productivity) and wages	5%
Decline in the number of consumers due to the economic crisis	**37%**
Decrease in business revenue due to mobility restrictions	33%
Changes in consumer needs	7%

Source: Online Survey (N=300)

Table 17 shows the most significant impact of the pandemic on respondents' business activity. It can be observed from the table that the decline in demand was claimed to be the main problem that the pandemic caused. In second place, lower business revenue due to government-imposed mobility restrictions was chosen by 33% of the respondents to be the biggest impact of the pandemic. Eight per cent of the respondents stated that sick workers disrupted their business the most. Seven per cent of them said that they needed to change their products or services to meet the new consumer demand, which might be difficult for some entrepreneurs. Five per cent of them said that the financial support was considered too small.

3.5 Stocktaking of Existing Policy in Youth Entrepreneurship & Green Economy

Table 18 examined the existing policies to support youth-led enterprises and the implementation of the green economy, both on national and regional levels. The government has instituted policies and strategic plans that concern youth entrepreneurship development and long-term goals for green economic implementation. On the ministerial level, several sectors have included sustainability and environmental aspects as a part of their strategic plan, mainly aligning with economic and business actors. Furthermore, the latest strategic plans established by the national government have been adjusted to support the implementation of a green economy[4]. The national government also aims to provide program initiatives and regulatory frameworks that facilitate the growth of youth entrepreneurs working for small and medium enterprises through incentives, training programs, and institutional support. These regulations will enhance future opportunities to build the youth entrepreneurship ecosystem and advance the commitment to the green economy.

On the other hand, the sub-national policies that specifically facilitate the growth of youth entrepreneurship remain limited. It reflects that the local governments have yet to establish policies or regulations that promote a green economy and youth-led entrepreneurship. While the entrepreneurship programs are considerably high, these initiatives target broader scope. The regulation frameworks are limited to general entrepreneurship sectors, while the gap to enhance youth-led green business still needs to be closed in the future.

[4] Green Recovery Roadmap Indonesia 2021-2024

Table 18. Existing Policy/Plan/Roadmap/Law/Guideline on Youth Entrepreneurship and Green Economy

Level	Policy/Plan/Roadmap/Law/Guideline	Issued by	Analysis
National	Green Recovery Roadmap Indonesia 2021-2024	Ministry of National Development Planning	The roadmap serves to deliver two key post-COVID green recovery outcomes. The first outcome is to see green recovery initiatives acknowledged as priorities in Indonesia's national development planning and budgeting processes. The second outcome is that there are sufficient funding pathways secured to sustain longer-term green economy development.
	Government Regulation of the Republic of Indonesia Number 7 of 2021 on Ease of Protection, and Empowerment of Cooperatives and Micro, Small and Medium Enterprises	President of Indonesia	The regulation aims to facilitate the empowerment of cooperatives and small, medium enterprises through financial incentives, funding and development incubation. The government specifically targets funding to cooperatives (*koperasi*) which develop environmentally-friendly technology and environmentally responsible SMEs. Furthermore, the government will provide

Level	Policy/Plan/Roadmap/Law/Guideline	Issued by	Analysis
			incubation programs for SMEs which focus on technology and/or environmentally friendly businesses.
	Presidential Regulation Number 2 of 2022 on the Development of National Entrepreneurship in 2021-2024	President of Indonesia	This regulation synergises National Entrepreneurship Development policies and programs organised by ministries/agencies, regional governments, and stakeholders.
	Regulation of the Minister of Manpower and Transmigration Number 11 of 2013 on Guidelines for the Implementation of the National Job Training System in the Regions	Minister of Manpower and Transmigration	This regulation aims to provide guidance in enhancing the professional competency of manpower through job training and certification programs, both on a national and regional level. The program includes training and capacity building in entrepreneurship to encourage participation in local development.
	Law of the Republic of Indonesia No. 3 of 2014 on Industry	Indonesian House of Representatives	The regulation focuses on industrial entrepreneurship development as the pillar of the national economy. It promotes the building of industrial entrepreneurship

Level	Policy/Plan/Roadmap/Law/Guideline	Issued by	Analysis
			through business incubators, training, and empowerment of local wisdom through innovation and creativity. Furthermore, the government attempts to build a green industry which supports the commitment to be environmentally friendly and sustainable by setting green industry standardisation and other regulations.
	Strategic Plan of the Directorate General of Vocational Education for 2020-2024	Ministry of Education, Culture, Research, and Technology	The strategic plan targets to increase the quality of vocational education toward industry-standards to create vocational school graduates that are work-ready or possess entrepreneurial skills to initiate their business at least a year after graduation. The Entrepreneurship Skill Program will partner with industries in the development of training curriculum and certification to align the competency of vocational school graduates with industrial needs.
	Program Pembinaan Mahasiswa Wirausaha	Ministry of Education,	The program for universities to design an

Level	Policy/Plan/Roadmap/Law/Guideline	Issued by	Analysis
	(Entrepreneurial Student Development Program) 2022	Culture, Research, and Technology	entrepreneurial development process with the principle to develop the character of a 'creative technopreneur'.
	Ministry of Tourism and Creative Economy/Agency for Tourism and Creative Economy Strategic Plan 2020-2024	Ministry of Tourism and Creative Economy/Agency for Tourism and Creative Economy	The strategic plan aims to increase the integrated and sustainable tourism with the creative economy. The attempt aims to utilise green tourism and sustainable tourism which could be implemented through ecotourism and recycling. However, despite the escalating market demand for tourism destinations which commit to environmental responsibility. The challenges such as lack of awareness of tourism business, lack of incentive for sustainable tourism, and the lack of CSR allocations for tourism development based on local community empowerment needs to be solved.
	Strategic Plan of the Ministry of Cooperatives and Small and Medium Enterprises for 2020-2024	Ministry of Cooperatives and Small and Medium Enterprises	The strategic plan targets to implement survival strategies and approaches for cooperatives (*koperasi*) and medium

Level	Policy/Plan/Roadmap/Law/Guideline	Issued by	Analysis
			enterprises after the COVID-19 pandemic by understanding business and market potential in the new normal era, including green business. However, the gap remains as there is no further plan which specifically focuses on green business.
	Sustainable Finance Roadmap Phase II (2021-2025)	Financial Services Authority	The roadmap aims to increase the understanding and capacity of financial services sector actors to move towards a low-carbon economy. The financial industry has responded positively to this sustainable finance initiative. However, some gaps remain to be filled, such as the industry's low awareness of sustainable finance, the absence of commonly agreed green standards on a national scale, and untapped business opportunities in the sustainable sector. Some of these gaps must be resolved immediately, so that the financial industry can maximise opportunities as market

Level	Policy/Plan/Roadmap/Law/Guideline	Issued by	Analysis
			and societal demand for sustainable financial products and services increases.
	Strategic Plan of the Ministry of Education and Culture for 2020-2024	Ministry of Education and Culture 2020-2024	The strategic plan aims to develop education programs that increase entrepreneurial skills. However, the program only focuses on vocational schools.
	Guidelines for the Implementation of Green Growth Training	State Administration Institute	The guideline aims to build the State Civil Apparatus' commitment to formulate and enact policies to mainstream green economic growth through training. The guideline consists of 3 kinds of training (*Pelatihan Pro Hijau*/Pro-Green Training 1, 2, and 3).
Sub-national	Riau Province Regional Regulation Number 12 of 2015 on Protection and Development of the Riau Province Creative Economy	Governor of Riau	The regulation aims to facilitate the creation of a conducive entrepreneurship climate for creative industries through aspects of business competition, facilities and infrastructure, business information, business licensing, trade promotion, and

Level	Policy/Plan/Roadmap/Law/Guideline	Issued by	Analysis
			institutional support.
	Regional Regulation of West Nusa Tenggara Province Number 12 of 2008 on Regional Credit Guarantee Agency for Cooperatives, Micro, Small and Medium Enterprises	Governor of West Nusa Tenggara	The regulation aims to increase funding capacity and facilitate activities of cooperatives (*koperasi*), micro, small and medium enterprises. More opportunities are needed in the business world to access funding that fulfil lack of required collateral and other non-bank options.
	Green Investment Blueprint for Papua and West Papua	*Yayasan Inisiatif Dagang Hijau* (Green Trade Initiative Foundation)	The blueprint aims to co-invest and deliver economic prosperity through the creation of employment and entrepreneurial opportunities. It focuses on attracting business investments to establish low carbon, sustainable value chains in Papua and West Papua. In line with the SDG and mainstreamed through public-private collaborations reflected by the alignment of provincial spatial and development plans.

3.6 The Perception of Young People of Youth-Led Enterprises' Contribution to Climate Change Mitigation and Adaptation in the Context of Green Recovery

This section presents the respondents' perceptions of climate change and the COVID-19 pandemic. According to the survey, most people stated that land destruction and fossil power plants were the primary sources of greenhouse gas (GHG), 30% and 23% respectively (Table 19). In third place was the emission from factory smoke (17%). On the other hand, thirteen per cent of the respondents said that the primary source of emission came from transportation; an identical result can be seen in the "commercial and residential waste" option . Less than 5% of the respondents claimed that livestock was the most significant source of GHG in Indonesia. A report from Ritchie & Roser (n.d.) claimed that in 2018 most of the GHG emissions in Indonesia were produced from land-use change and forestry, almost three times the emissions that electricity production produced. Manufacturing, transportation, and waste sectors also made a considerable contribution.

Table 19. Source of GHG

In your opinion, which is the biggest source of greenhouse gas (GHG) emissions?	Percentage
Factory smoke	17%
Land destruction and forest fires	**30%**
Commercial and residential waste	13%
Fossil power plants (coal, oil and natural gas)	23%
Livestock (cattle, farmland, and rice production)	4%
Transportation	13%

Source: Online Survey (N=300)

Table 20 displays the surveyed opinion on the most troubling impacts that could be caused by ongoing climate change. More than a quarter of the surveyed entrepreneurs feared a possible global economic crisis. Hotter temperatures and clean water shortage also took a considerable amount, 19% and 18%, respectively. On the other hand, twenty-

four per cent of the respondents answered increased health risks, food insecurity, and extinction of living things as the most worrying impact. While, only seven per cent of the respondents worried about rising sea levels that could sink small islands. A study by Wade & Jennings (2016) reported that Southeast Asian countries were very vulnerable to climate change. For instance, the Mekong Delta in Vietnam, which produces most of the country's rice, is especially vulnerable to rising sea levels (ibid.). In Indonesia, the economy is always very dependent on agriculture; a long-term and permanent shock on the sector could affect the economy atrociously[5].

Table 20. Perceived Impact of Climate Change

What are the most worrying impacts of the climate crisis on young people?	Percentage
Bigger storm	2%
Poverty and displacement	2%
Extinction of living things	8%
Food insecurity	8%
Clean water crisis	18%
Global economic crisis	**26%**
Increased drought	3%
Increased health risks	8%
Hotter temperature	19%
Sinking of small islands (rising sea level)	7%

Source: Online Survey (N=300)

The following table (Table 21) shows the most favourable actions that were claimed to be the best to mitigate the impact of climate change. More than half of the respondents stated that conserving the forest more could be the best way to mitigate climate change. A quarter of them said transforming existing businesses into more eco-friendly and sustainable ones could be the appropriate measure. More than ten per cent claimed that renewable energy is the best solution. Tacconi and Muttaqin (2019) reported that Indonesia had been the second-largest GHG emitter from the forest in the past few years.

[5] https://www.fao.org/3/y4632e/y4632e0l.htm

It indicates that the study backs up the perception of surveyees as the surveyees thought conserving forests and mitigating forests and peatland fires were the most appropriate solution to mitigate climate change.

Table 21. Solution to Climate Change

What is the most appropriate solution to minimise the climate crisis?	Percentage
Switch to sustainable transportation	3%
Forest conservation, including stopping natural forest clearing, land conversion, and forest and peatland fires	**52%**
Converting fossil energy into clean and renewable energy	11%
Reduce consumption of meat and dairy	9%
Transformation from conventional business to green business	25%

Source: Online Survey (N=300)

4. NATIONAL DEEP DIVE INTO THE DOMAINS OF THE YOUTH-LED GREEN ENTREPRENEURSHIP ECOSYSTEM

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4. National Deep Dive into the Domains of the Youth-led Green Entrepreneurship Ecosystem

The green economy has the benefits of creating green jobs and investment, encouraging sustainable natural resource management and increasing sustainable economic growth. Indonesia's per capita income projection from this economic transformation will grow 7% in 2045[6]. Global market for environmentally sound products and services is expected to double from US$1,370 billion per year now to US$2.740 billion in 2020. Half of this market is related to energy efficiency and balance in the field of transportation management, supply water, sanitation and waste in a sustainable manner.[7] (ILO, n.d.). The results of the 2020 population census[8] showed that the number of Millennials and Gen X is very dominant, which means young people will play a very important role and have the opportunity to realise a brilliant career in the green job sector.

In this case, youth-led green entrepreneurs play a vital role in the green economy recovery. This section discusses the youth-led green entrepreneurship ecosystem at the national level, consisting of key issues of green business, the most important elements in the green business ecosystem, an assessment of 5 domains by youth-led green entrepreneurs, and youth-led green entrepreneurs' views on each domain.

In **Table 22**, youth-led green entrepreneurs were asked about the key issues of their businesses. It is found that almost half of the respondents stated that human capital and entrepreneurship culture was one of the key issues, along with access to finance and incentives as well as innovation and technology. It is in line with the finding in the interview expanding their markets needs to be increased. Government institutions as enablers of business stated that the youth mindset on the culture of entrepreneurship must also be developed further.

[6] Kementrian PPN/Bappenas. (2022). *Dukungan Bidang Ketenagakerjaan dalam Pengembangan Geopark, 27 April 2022*. Bahan Paparan Plt Deputi Bidang Kemaritiman dan Sumber Daya Alam.

[7] https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-jakarta/documents/publication/wcms_149950.pdf

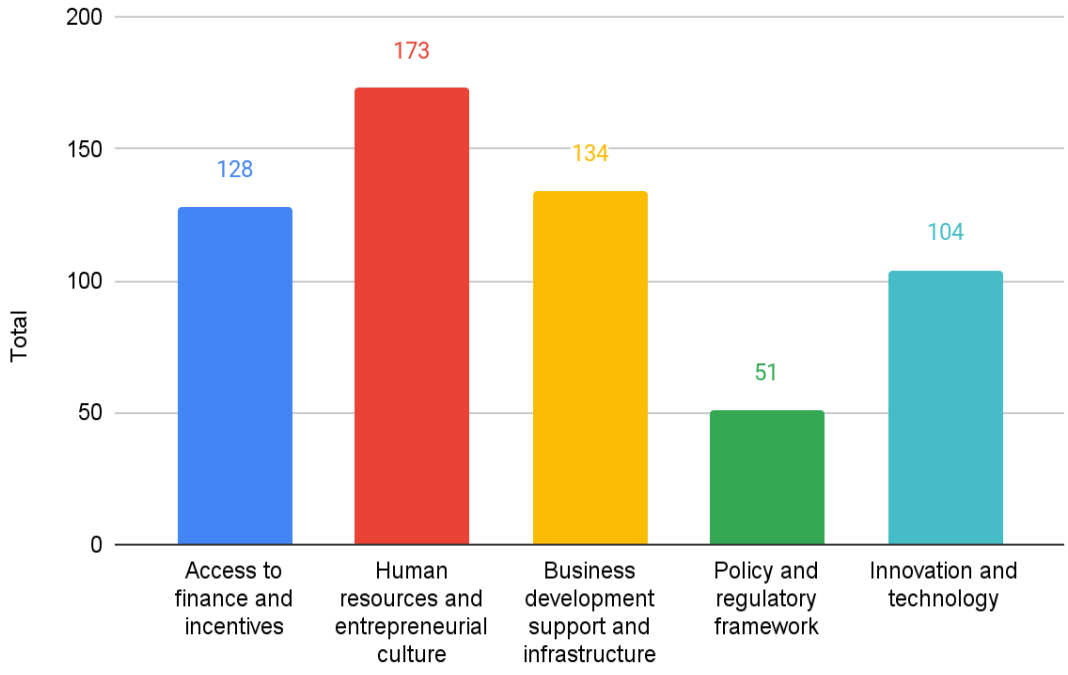
[8] BPS Census 2020.

Table 22. Key Issues of Green Business

Key issues of green business	Percentage
Access to finance and incentives	20%
Human capital and entrepreneurship culture	**40%**
Policy and regulatory framework	6%
Business development support and infrastructure	15%
Innovation and technology	18%

Source: Online Survey (N=300)

Figure 13. Most important elements in a green business ecosystem



Source: Online Survey

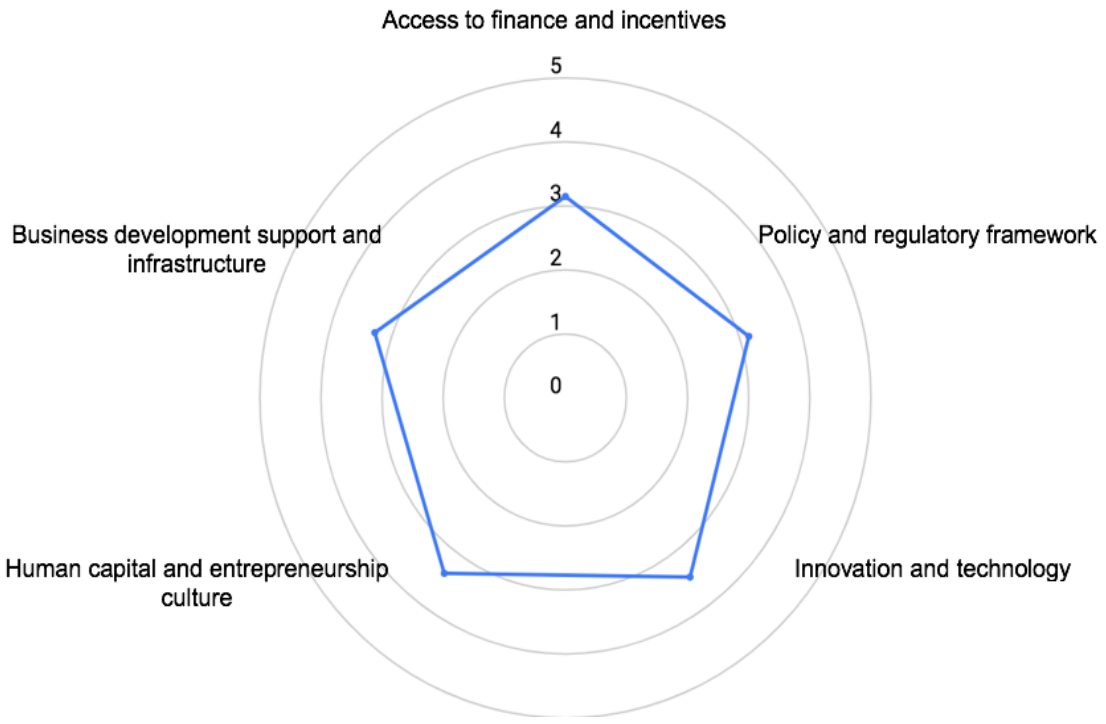
Note: Each respondent (N=300) was able to choose more than one element

Youth entrepreneurs' growth depended on the green business ecosystem that nurtured their talents, turning them into innovations. About 173 youth stated that "human resources and entrepreneurial culture" was the most important element in the ecosystem, followed by business development support and infrastructure (134 youths), and access to finance and incentives (128 youths). Training youth in green entrepreneurship is a concrete step to developing human resources and entrepreneurial culture, conducted by government institutions, CSR programs of state-owned enterprises and large multinational companies,

financial institutions (such as the Bank of Indonesia), education institutions, and incubators.

According to data from the Ministry of Cooperatives and SMEs, the lack of a conducive entrepreneurial ecosystem has made the number of entrepreneurs in Indonesia reach only 3.47% of the entire population. This number is still too small compared to Singapore, which has reached 8.5%, or Malaysia and Thailand, with 4.5%. This lack of a conducive ecosystem is also reflected in the Global Entrepreneurship Index (GEI) ranking. According to GEI data for 2019, Indonesia is still ranked 75th out of 137 countries. Indonesia's GEI position is still lagging behind several ASEAN countries. For example, Singapore is ranked 27th, Malaysia 43rd, Brunei Darussalam 48th, Thailand 54th, and Vietnam 73rd.

Figure 14. Ecosystem assessment by youth-led green entrepreneurs (national)



Source: Online Survey (N=300)

Figure 14 presents the national view on the youth-led green business ecosystem according to online surveys of 300 respondents across Indonesia, including western, central, and eastern regions. According to the key domains assessment by youth entrepreneurs, it is revealed that all the domains have achieved positive results for the ecosystem. The five domains exceed the average value of 3 out of 5.

According to the interviews conducted with the youth-led entrepreneurs, it is found that although green businesses held opportunities, those entrepreneurs still found it difficult to obtain access to the market. **Market access is not yet widely available for youth-led green entrepreneurship.** Youth-led green entrepreneurship commonly found the Indonesian market small and difficult to access. Almost half of the interviewed entrepreneurs found the market size and demand unfavourable for doing green business. Based on interviews and FGD, the enablers and small business entrepreneurs agreed that the green market was difficult to access. Market opportunities were reserved for larger, more established companies and often international ones.

Consumers in developing countries such as Indonesia are mostly sensitive to price and have yet to embrace sustainable buying behaviour or preference. The niche market, which is limited in market size, is yet to be explored by youth-led businesses. It shows that youth-led entrepreneurs need to learn about the business and consumer market of green products/services and how to develop products/services that cater to the green market in their scale of economy. The market for green products and services can be identified through extensive market research, which youth-led micro, small-medium enterprises rarely can do. It can be stated that there is a link between the human resources domain and the ability to access the market. To overcome these challenges, the Ministry of National Development has been working to foster green economic impact by issuing a Low Carbon Development Indonesia (LCDI) that aims to support a green investment climate, strengthen cross-sectoral integration in decision-making, and sustain economic and social growth through development activities with low GHG emissions and minimisation of natural resource exploitation.

4.1 National View on Access to Finance and Incentives

Many green businesses have limited access to financial services, including fintech. Many youths expressed that they experience difficulties accessing finance for doing green business. Financial institutions have not explored or provided special lending programs for youth entrepreneurs. From the interview with a financial institution, Investree, they have funded many businesses in the trading sector and creative media. However, they have not yet provided incentives in the form of capital for environment-friendly types of businesses.

Table 23. Rate of Financial Support for Entrepreneurs in Indonesia

How do you rate the financial support for entrepreneurs in Indonesia?	Percentage
Very poor	3%
Poor	15%
Fair	**51%**
Good	22%
Excellent	8%

Source: Online Survey (N=300)

In **Table 23**, it can be depicted that among the youth-led entrepreneurs, half of them rated the financial support to be fair. Twenty-two per cent rated good, and 15% said it was poor. Financial institutions must provide more accessible funding options (Table 24), such as special incentives for green businesses.

Table 24. Improvement Needed from the Financial Aspects

What needs to be improved from the financial aspects in the green business ecosystem?	Percentage
Access of funding options from financial organisations	**46%**
Incentives for shareholders and funders to support youth-led entrepreneurship	26%
Financial literacy for entrepreneurs	18%
Availability of low-interest loans	10%

Source: Online Survey (N=300)

4.1.1 Strengths and Opportunities in the Access to Finance and Incentives

- The government issued Presidential Instruction Number 6 of 2007 on Policies for Accelerating Real Sector Development and Empowering Micro, Small and Medium Enterprises (MSMEs). The *Kredit Usaha Rakyat* (KUR/People's Business Credit) program was officially launched on 5 November 2007. The financing disbursed by KUR comes from bank funds or financial institutions that are KUR distributors. The funds provided are in the form of working capital, and investment funds channelled to individual/individual MSMEs actors, business entities and/or business groups that have productive and viable businesses but do not have additional or feasible collateral but are not yet bankable.

- KUR established since 2007[9] is one of GoI's programs to increase access to financing for MSMEs, which are channelled through financial institutions with a guaranteed pattern. The KUR program based on Presidential Decree is intended to strengthen business capital capabilities in implementing policies to accelerate real sector development and empower MSMEs[10].

- Furthermore, to accelerate the development of MSMEs, in line with the issuance of the *UU Cipta Kerja* (Job Creation Bill), the Financing Policy Committee for MSMEs, chaired by the Coordinating Minister for the Economy, decided to change some KUR policies. The changes are: 1) interest rates were lowered from 7% to 6 %, and 2) the total KUR ceiling is increased from 140 trillion to 190 trillion in 2020 and will gradually increase up to 325 trillion in 2024[11].

- The Ministry of Communication and Information Technology has developed a digital training program called Digital Talent Scholarship (DTS) since 2018[12] for MSMEs and Mentor of MSMEs in which financial literacy is incorporated into the material of Talent Scouting Academy (TSA), Digital Entrepreneurship Academy (DEA), and Professional Academy (PROA) programs. The program has trained about 256,700 people.

[9] https://kur.ekon.go.id/maksud-dan-tujuan#:~:text=Program%20KUR%20secara%20resmi%20diluncurkan,UMKM%20individu%2Fperseorangan%2C%20badan%20usaha

[10] Instruksi Presiden Nomor 6 Tahun 2007 tentang Kebijakan Percepatan Pengembangan Sektor Riil dan Pemberdayaan UMKM.

[11] KUR • Perubahan Kebijakan Kredit Usaha Rakyat (KUR) Tahun 2020 (kur.ekon.go.id)

[12] https://digitalent.kominfo.go.id/tentang-kami

- Bank Indonesia since 2017[13]together with the Ministry of Manpower and the Ministry of Tourism and Creative Economy, are strengthening the acceleration of increasing MSMEs' financial access to encourage more comprehensive MSMEs financing access and strengthen MSMEs' financial literacy. It is realised through the Financial Information Recording Application Information System (*Sistem Aplikasi Pencatatan Informasi Keuangan*/SIAPIK). The system is accessible to youth entrepreneurs, where they can freely download the apps on their mobile phone or PC.

- Youth-led entrepreneurs can access the digital platform for peer-to-peer money lending, as many providers of fintech target MSMEs that do not have access to finance from traditional banks. Peer-to-peer lending has been available before the pandemic, since 2017.

4.1.2 Challenges and Gaps in the Access to Finance and Incentives

- Almost half of the respondents stated the need to improve access to funding options, incentives and financial literacy. From the investment side, Indonesia's financial regulations and institutions do not focus specifically on green business, so there are only a few venture capitals which entrepreneurs can obtain in Indonesia. According to business incubators, this phenomenon has resulted in some startups not focusing on Indonesian investors but targeting foreign support to develop their business.

- Currently, funding opportunities are mostly available in large cities, whereas in remote rural areas, they are minimal. The minority, indigenous community, and rural youth entrepreneurs still find it challenging to find funding. Therefore, specific inclusive capital for the green economy is needed. There is also a need for more inclusive information in finance reaching rural areas.

- Most banks do not fund informal businesses as they are found to be not bankable. Therefore, micro-credit schemes such as one offered by Grameen Bank[14] which offers group loan services to small business, could be helpful in Indonesia.

[13] https://bisnis.tempo.co/read/1568003/bi-aplikasi-siapik-bantu-umkm-dapat-kredit-bank-rp-183-miliar-tahun-lalu/full&view=ok

[14] https://grameenbank.org/un-report-role-of-microcredit-in-the-eradication-of-poverty/

4.2 National View on Human Capital and Entrepreneurship Culture

It is found that the issue of human capital was considered the key issue of green business by youth-led green entrepreneurs (Table 22). According to interviews with youth-led entrepreneurs and their enablers, this is urgent to address. It was reflected in the lack of managerial capabilities in implementing its business strategy. Lack of understanding of the business process and strategy that, according to incubators, indicates the human resources' low capacity. Besides, the inability to manage administration and finance is still inherent in the practice of youth-led green entrepreneurship in Indonesia.

Table 25. Rate of Human Capital Aspects to Support Green Business

How do you rate human capital aspects to support the green business ecosystem in Indonesia?	Percentage
Very poor	4%
Poor	10%
Fair	**39%**
Good	35%
Excellent	11%

Source: Online Survey (N=300)

According to **Table 25**, the youth-led entrepreneurs rated the human capital aspects to support the green business ecosystem in Indonesia to be fair (39%) and good (35%). It means that there is still room for improvement. Most youth-led entrepreneurs have the skills needed to start a business, but their skills were usually acquired through workplace trial and error in relatively simple business activities. Business formation, operation, management, and financial literacy are required skills acquired through formal education and training.

Table 26. Improvement Needed from the Human Capital Aspects

What is the most important thing that needs to be improved regarding the human capital aspect of the green business ecosystem?	Percentage
Skilled workforce	13%
Management quality	6%
High-quality guidance	12%
Availability of management training	4%
Entrepreneurship education in the formal education system and other capacity building programs	20%
Programs and facilities that support the development of human resources and an entrepreneurial culture	**43%**
Convenience to finding talent in the field of entrepreneurship	3%

Source: Online Survey (N=300)

According to **Table 27**, the most important thing that needs to be improved in entrepreneurial culture in a green business ecosystem are planning and systematic (30%), youth-led green business may have limited capacity to integrate green practices into business planning and develop systems in their business to be simple, flexible and result-oriented evolving systems, rather than process-oriented[15]. Quick approval mechanism for innovative ideas, followed by self-confidence (18%) are favoured. Most entrepreneurs still think that entrepreneurship only focuses on marketing their products/services. However, entrepreneurs are individuals who have to obtain the ability to think systematically and plan for a better future. They must have the growth mindset to think creatively and act innovatively in seeking new opportunities and breakthroughs that generate ideas and products of high economic potential.

[15] https://ec.europa.eu/programmes/erasmus-plus/project-result-content/02d106a1-ed06-4e42-bfcf-dda5ce79fe93/B5%20-%20Entrepreneurial%20Culture.pdf

Table 27. Improvement Needed on Entrepreneurial Culture Aspects

What is the most important thing that needs to be improved on entrepreneurial culture in a green business ecosystem?	Percentage
Persuasive	3%
Business/startup activities	16%
Risk tolerance	3%
Persistence	11%
Self-confidence	18%
Model	4%
Planning and systematic	**30%**
Efficiency-oriented	6%
Keen and act on opportunities	9%

Source: Online Survey (N=300)

4.2.1 Strengths and Opportunities in the Human Capital and Entrepreneurship Culture

- Human resource development is the focus of development in the 2020-2024 national mid-term development plan. Therefore, many programs are developed by the government to foster human resources development, including entrepreneurship.

- Since 2020, the Directorate of Training Courses of the Ministry of Education, Culture, Research and Technology offers young people aged 15 to 30 an entrepreneurial skills education program to foster an entrepreneurial mental attitude in managing self-potential and incentives available in the form of equipment/tools for entrepreneurship business[16]. Thus, as early as possible, young people are exposed to basic entrepreneurship knowledge both theoretically and practically. In addition, those participating in this program must use local resources as their primary business orientation, which uplifts environmental issues. In 2021, the program trained 22,437 people in the Entrepreneurship Skill Education/*Pendidikan Kecakapan Wirausaha* (PKW)[17].

[16] https://radioedukasi.kemdikbud.go.id/read/2373/kemendikbud-menyediakan-program-pelatihan-keterampilan-dan-kewirausahaan.html

[17] Peraturan Dirjen Vokasi Nomor 1 tahun 2022 tentang Juknis Program Pendidikan Kecakapan Wirausaha, and https://vokasi.kemdikbud.go.id/panduan

- The Ministry of Communication and Information Technology launched the digital scholarship program (DTS) as a digital platform for training entrepreneurs and enablers (MSMEs mentors). Their curriculum provides knowledge on how to start a business and manage it, but not specifically for green businesses. About 263,500,000 people have been trained since the program started in 2018[18].

- Indonesia was the highest of all Global Economy Monitor participating economies in "Entrepreneurial education at school" (6.6) and "Entrepreneurial education post-school" (7.2). The educational results are particularly noticeable, where the study found that improvement in the assessment of entrepreneurial education portends a more robust set of future conditions for dynamic entrepreneurship in Indonesia (GEM, 2020).

- Companies/incubators are getting more creative in developing human resources. For example, the Plastic Bank company since 2018 collaborates with several schools by integrating the idea of recycling into the elementary school curriculum, then making the school a partner. Later, a worker will be assigned to pick up plastic waste in the school.[19]

4.2.2 Challenges and Gaps in the Human Capital and Entrepreneurship Culture

- The main struggle is in their education and marketing methods so that their business can run and build awareness. It is essential to help them in business development and expand their network. Every startup needs knowledge on how to develop their business by connecting with mentors at startups to be able to provide consultations or provide workshops.

- Training for green business focused on youth is still minimal. There is no national digital platform for green entrepreneurship training that prospective green entrepreneurs can access.

[18] https://digitalent.kominfo.go.id/

[19] Plastic Bank Indonesia Selamatkan Polusi Laut dari 1 Miliar Botol Plastik, Bukti Kerja Nyata - Tribun-bali.com (tribunnews.com)

- The concept of green business is still uncommon in Indonesia. Some people think that money cannot be generated through the green economy. There is also a generational gap where young people care about the environment, but older generations care less.

- There are only a few programs on campuses (higher education or vocational school) that address green business and foster green entrepreneurship for their students. Green entrepreneurship is part of education for sustainable development (ESD) implemented in some elementary, middle school, and high schools in Indonesia. An example of such is conducted in Bali Green School, since 2008. The alumni have become well known green leaders and entrepreneurs[20].

4.3 National View on Business Development Support and Infrastructure

Business development support and infrastructure are critical for ensuring the effective functioning of the economy including green business. According to almost half of the respondents, the business development support and infrastructure aspects to support the green business ecosystem in Indonesia were rated fair, and about 30% rated good (Table 28). It means that there is still room for improvement in this domain.

Table 28. Rate of Business Development Support and Infrastructure Aspects to Support Green Business

How do you rate business development support and infrastructure aspects to support the green business ecosystem in Indonesia?	Percentage
Very poor	3%
Poor	12%
Fair	**46%**
Good	30%
Excellent	9%

Source: Online Survey (N=300)

[20] Information on Green School Bali's alumni can be accessed on https://www.greenschool.org/bali/our-alumni/

Business development support and infrastructure are needed to be improved in a green business ecosystem. As depicted in Table 29, about 30% of respondents said there is a need to improve accessibility to business development services and accessibility to physical infrastructure (electricity, water, internet). Electricity and internet connection are key issues youth-led-entrepreneurs face in eastern Indonesia, especially in the small island community. Access to business development in rural areas is scarce, where information on business development and the program are limited. Business development is important for MSMEs in green businesses led by youths. An interview with a national business incubator stated that the youth have limited access to "creating or developing a circular economy and pioneering green business development is still difficult."

Table 29. Improvement Needed from Business Development Support and Infrastructure Aspects

What needs to be improved on business development support and infrastructure for the green business ecosystem?	Percentage
Business network	19%
Accessibility to business incubator/accelerator	14%
Accessibility to business development service	**30%**
Supply chain development/cluster initiative	8%
Accessibility to physical infrastructure (electricity, water, internet, etc.)	29%

Source: Online Survey (N=300)

4.3.1 Strengths and Opportunities in the Business Development Support and Infrastructure

Many incubators from higher education institutions, state-owned companies (BUMN), or local foundations have created good incubation programs that foster the youth-led business. They provide training programs, product/service development for the youth business, the opportunity for funding by introducing to different financial institutions and product commercialisation/marketing. These "one-stop services" that incubators provide give entrepreneurs the much-needed support to launch a successful business.

4.3.2. Challenges and Gaps in the Business Development Support and Infrastructure

- Business incubators create no specific programs for green businesses. Only a few green businesses are the clients of these incubators, and few incubators provide the green business program for youth-led businesses.

- Services of incubators are vital for youth-led green businesses. However, their numbers are limited and primarily located in urban areas, whereas their service in rural areas is minimal. Rural youths do not have the same access to incubators as youths in urban areas.

- Physical infrastructures, such as electricity, roads, transportation, and quality internet connectivity, are limited, especially in rural areas and small islands.

4.4 National View on Policy and Regulatory Framework

Indonesia has a "Green Growth Program" at a national level, which supports green growth to reduce poverty and ensure social inclusion, environmental sustainability and resource efficiency. Since 2013, the Ministry of National Development Planning of the Republic of Indonesia (Bappenas) has developed the Green Recovery Roadmap for Indonesia 2021-2024. According to respondents, regulatory aspects that support entrepreneurs in Indonesia are stated to be fair; only 25% rated it as good, and 15% rated it as poor.

Table 30. Rate of Regulatory Aspects to Support Green Business

How do you rate the regulatory aspects that support entrepreneurs in Indonesia?	Percentage
Very poor	3%
Poor	15%
Fair	**50%**
Good	25%
Excellent	7%

Source: Online Survey (N=300)

According to the survey results, the most important things that need to be improved on regulatory aspects of the green business ecosystem are policy and regulatory framework supporting youth entrepreneurship, research & development institutions, and policy, support, and industrial incentives. Currently, there is no specific policy and regulatory framework for green business and entrepreneurship. Green business classification is not available in the current Indonesian Standard Classification of Business Fields (KLBI)[21].

Table 31. Improvement Needed from Regulatory Aspects

What is the most important thing that needs to be improved on regulatory aspects of the green business ecosystem?	Percentage
Research & development institutions	22%
Taxing	3%
Business-friendly legislation and processes	10%
Foreign business hospitality	2%
Policy, support, and industrial incentives	21%
Policy and regulatory framework supporting youth entrepreneurship	**23%**
Youth-friendly bureaucratic and legal structure and process related to startup and business development	19%

Source: Online Survey (N=300)

4.4.1 Strengths and Opportunities in the Policy and Regulatory Framework

The policies mainly support capacity building, mentoring, partnerships, promotion, and assistance in funding and development incubation for youth-led entrepreneurs at the ministerial level. Ministries that formulated and implemented the policies are specifically: the Ministry of PPN/Bappenas, Ministry of Tourism and Creative Economy, Ministry of Education and Culture, Ministry of Cooperative and MSMEs, Ministry of Youth and Sport, Ministry of Manpower, Ministry of Villages, Development of Disadvantaged Regions, and Transmigration (Kemendes PDTT), Ministry of Industries, Ministry of Environment and Forestry, and Ministry of Information.[22].

[21] This classification is the official classification code for classifying the types of business fields in Indonesia. The KLBI is used by businesses to register for their business permit (NIB).

[22] Green Recovery Roadmap Indonesia 2021-2024 and Presidential Regulation Number 2 of 2022 on the Development of National Entrepreneurship in 2021-2024

4.4.2 Challenges and Gaps in the Policy and Regulatory Framework

- The gaps in policies and regulatory framework related to youth-led green business and green economic recovery are not due to the lack of development plans but rather due to the poor implementation of well-designed plans. Based on an interview with the Ministry of Cooperatives and SMEs, the realisation of strategic plans remains stuck as no further action regarding how to do what and which efforts to apply. As a result, current green business policies are still in the policy planning stage.

- The struggle for youth-led enterprise is in the long bureaucracy. Startups often experience struggles if they want to cooperate with corporations as the process is very long and complicated. Some startups manage their business depending on regulations. The hope is that there will be higher accountability for regulations. There needs to be cooperation from the government to make obligations for companies to reduce emissions and process waste.

- Some industrial sectors that still cause air pollution must report live monitoring to the Ministry of Environment and Forestry. Regulations already exist, but enforcing them still requires active actions.

4.5 National View on Innovation and Technology

The improvement of innovation and technology is crucial to a business' ability to improve its processes, bring new and improved products and services to market, increase its efficiency and, most importantly, improve its profitability. Innovation can be scaled up within technology to enhance product quality and expand market values to a notably exposed public. This section maps out the potencies of using innovation and technology among youth entrepreneurs in Indonesia, specifically those focusing on the green sector. According to Table 32, innovation and technology aspects that support entrepreneurs in Indonesia were stated to be fair, only 34% rated it as good, and 10% rated it as poor.

Table 32. Rate of Innovation and Technological Aspects to Support Green Business

How do you rate the innovation and technological aspects of the green business ecosystem?	Percentage
Very Poor	2%
Poor	10%
Fair	**42%**
Good	34%
Excellent	13%

Source: Online Survey (N=300)

Table 33. Improvement Needed from Innovation and Technological Aspects

What is the most important thing that needs to be improved regarding innovation and technological aspects of the green business ecosystem?	Percentage
Availability of accessible innovation and technology support for youth entrepreneurs	20%
Use of digital solutions and digital technology for business development	14%
Efforts to support aspiring young entrepreneurs to innovate and use technology in business operations	26%
Innovation, technology, and other supporting elements that can further advance the development of youth entrepreneurship	**32%**
Innovation and technology-based business development	9%

Source: Online Survey (N=300)

4.5.1 Strengths and Opportunities in the Innovation and Technology

- Current trends in youth-led green entrepreneurship are put around issues related to waste management. Since the issues are increasingly varied from time to time, renewable energy, electric vehicles, and carbon tax issues mark the ones with the highest number position in the green business sector. There will be an increase of awareness amidst people's mindset to perceive how to keep the environment more sustainable. Let alone that the effect of COVID-19 will also trigger young entrepreneurs' new ideas to make the business more varied.

- Many youth entrepreneurs utilise technology-based approaches as their business model. Within this strength, a private company such as Plastic Bank Indonesia (PBI) has adopted a blockchain-based/web-based platform, namely "Alchemy". This technology is implemented through the tracing activity where PBI works closely with scavengers and collectors to detect which duties have been done by workers. The system has also enabled collectors to report how much plastic is collected and sold. The collected plastic pellets will be purchased by PBI and resold to the industry. From this overview, digital solutions and technology for business development can be applied to various kinds of business models.

- New products play a crucial role in the economy of the country. Therefore green products currently developed by youth-led entrepreneurs are a new product for Indonesia and offer a variety of choices for the consumer. The youth-led green business generates new products and adopts or imitates existing green products.

4.5.2 Challenges and Gaps in the Innovation and Technology

- The use of new technologies, development of innovation and new business models are still a challenge for youth-led enterprises. According to a study (Bosma et al, 2021), those starting or running a new business were asked if they were using new technologies or procedures in their region, country, and world. In Indonesia, most entrepreneurs run a new business new to their area but not new to the world.

- Overall, based on the Global Competitiveness Index, Indonesia is ranked 65th out of 120 countries in technology absorption with a value of 0.4111, one of the lowest

countries in entrepreneurial ability in technology aspects (GEDI, 2019). This index measured innovation development such as the availability of investment in research and development (R&D), the presence of high-quality scientific research institutions, the collaboration in research between universities and industry, the protection of intellectual property, and technology absorption.

- According to an interview with a national incubator for digital start-ups, new ideas/creative technology products are harder to find within youth-led enterprises. Most of the youth's ideas already absorb available technology and innovation. The diffusion of new technology, and the capability to absorb it, is vital for innovative firms with high growth potential. The institutional variable, tech absorption, measures a country's capacity for firm-level technology absorption, as reported by the World Economic Forum.

Entrepreneurs' lack of innovation and technology adoption has to do with the education sector. Studies found that high entrepreneurial abilities are associated with startups in the medium- or high-technology sectors initiated by educated entrepreneurs and launched because of opportunity motivation in a not too competitive environment (Bosma et al, 2021). It will cause difficulty for youth-led enterprises to find and create the technology for new products and create the markets where people will buy them.

5. REGIONAL DEEP DIVE INTO THE YOUTH-LED GREEN ENTREPRENEURSHIP ECOSYSTEM IN WESTERN, CENTRAL, AND EASTERN INDONESIA

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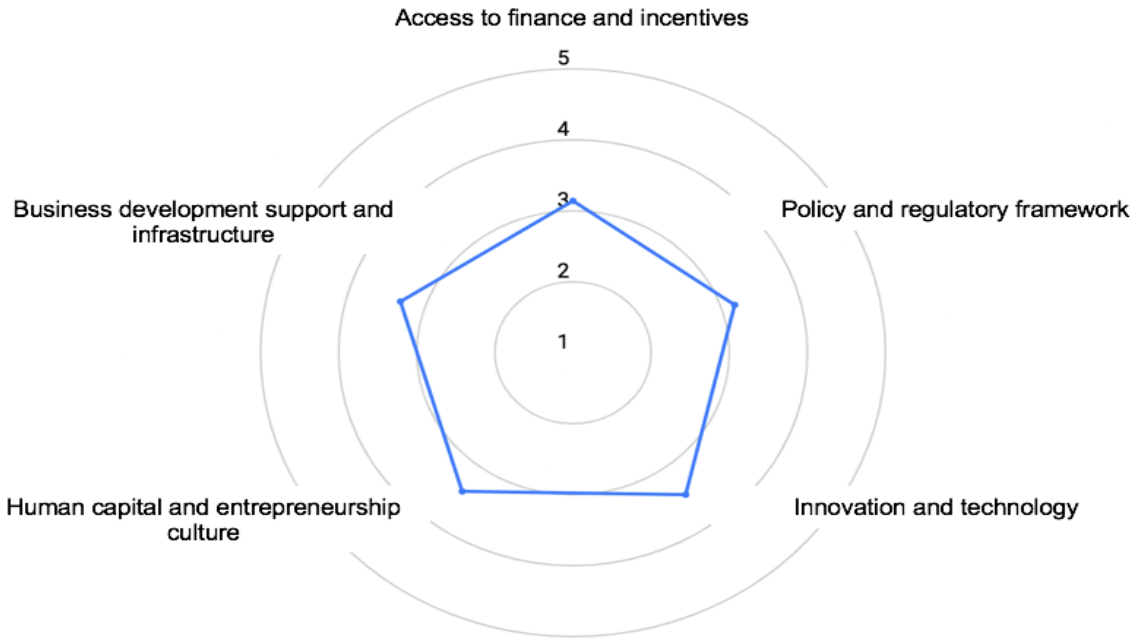
5. Regional Deep Dive into the Youth-led Green Entrepreneurship Ecosystem in Western, Central, and Eastern Indonesia

Using the domains of Youth Co: Lab's ecosystem diagnostic framework, this chapter presents findings of the ecosystem diagnostics conducted in Indonesia's western, central, and eastern regions. The following sub-national studies assess and map out current strengths,and opportunities, challenges, and gaps within each domain. This chapter also aims to identify specific youth-led green entrepreneurship ecosystems and their relation to the current enabling environment focusing on three regions as case studies, which are Pekanbaru, Riau (Western Indonesia), Central Lombok, West Nusa Tenggara (Central Indonesia), and Sorong, West Papua (Eastern Indonesia).

5.1 Current Condition of Youth-Led Green Entrepreneurship Ecosystem in Western Indonesia Region

This subchapter will elaborate on the strengths and challenges of regional and local conditions amidst the youth-led green entrepreneurship ecosystem within the western region of Indonesia, which comprises 18 provinces, including the islands of Sumatra, Java, and some of Kalimantan. To enrich a regional perspective, this section will include a case study from the province of Riau.

Figure 15. Ecosystem assessment by youth-led green entrepreneurs (western Indonesia)



Source: Online Survey (N=260)

Figure 15 illustrates the assessment of youth entrepreneurs of the western Indonesia region regarding the green entrepreneurship ecosystem. The five domains are assessed using a scale of one to five, ranging from very poor, poor, fair, good, and excellent. According to 260 youth entrepreneurs across the western Indonesia region, the survey results revealed that access to finance and incentive as well as policy and regulatory framework had exceeded the average value of 3 out of 5.

5.1.1 Strengths

Availability of government support for capacity building programmes.

Governments in the western region are more proactive in providing policies and regulatory frameworks that support youth entrepreneurship development than other regional governments. For instance, the Pekanbaru City Cooperatives and SMEs Agency have accommodated the enthusiasm of Family Welfare Movement (PKK) groups through Real Sector Business Development Training for Cooperative Management throughout Pekanbaru City in 2021. The activities carried out by PKK groups are fostering handmade activities such as recycling used materials into valuable products that can be sold in the market. The business run by EcoplastID is also supported by the government, such as funding grants and business incubation from the Ministry of Education, Culture, Research and Technology.

Youth entrepreneurs affected by COVID-19 are also granted capital assistance in one of the western provinces.

During the COVID-19 pandemic, the Trade, Cooperatives and Micro, Small and Medium Enterprises Authority of Riau Province also conducted data collection related to business actors affected by COVID-19 to be given assistance funds from the State Revenue and Expenditure Budget. Entrepreneurs thus are required to administer their business through a MATA (data updating) platform[1]. It is indicated that as many as 66,564 entrepreneurs and 60,000 have received financial assistance.

Several capacity buildings are offered for a first-stage start-up.

To compete with current conditions, some youth entrepreneurs agreed that their business models are adjusted due to COVID-19. In addition, the Industry and Trade Authority of Riau Province also builds communication and cooperation, provides motivation, and conducts online training to change business models to survive amid the pandemic.

Access to legal services and accelerators that support business development.

As the western region remains a showcase development for business, some ministries also provide support through their peculiar programs. As a primary example, the Ministry of Communication and Information has provided an annual "Digital Entrepreneur Academy" program starting in 2020 for young entrepreneurs to accelerate their businesses in terms of digital transformation. Deep dive into the local context, the Cooperatives and SMEs Authority of Pekanbaru City plays a role as a supervisor to serve start-up businesses in accessing legal services, such as Business Identification Number (NIB).

5.1.2 Challenges

Limited market due to unavailability of the regulatory framework that supports the sustainability of green businesses.

The market demand for a green business is relatively low. Until now, the green product market is still a niche market. Although the growth trend continues to increase, the population is still limited[23]. Hence, there remains the need for GoI support to boost awareness of its sustainability by providing related regulations. Most of the challenges young entrepreneurs face in western Indonesia are the difficulty of educating and providing understanding to the public. For example, a single-use plastic regulation can be applied as justification for running a business. However, it cannot be sustainably implemented as it has not been well nurtured among consumers. For example, at EcoplastID, several restaurants that offer value in supporting the use of eco-friendly products, their market segments are still in Jawa-Bali. On the one hand, it can be a strength and a good start in developing a green business in Indonesia, and on the other hand, it can be the other way around.

[23] https://www.pikiran-rakyat.com/ekonomi/pr-01320998/implementasi-bisnis-hijau-terkendala-pasar

Financial options schemes tend to prioritise profit over impact.

Since the green business proposes a socio-environmental impact, many investors avoid participating in such business projects. In fact, as an early-stage start-up, it is difficult to find investors who focus on green economy companies, let alone those who are willing to provide capital sustainably. Greenie is the impacted one who has difficulty finding investors because most investors only pay attention to profit rather than impact.

Uneven facilities are provided by some regional governments that support the youth-led green entrepreneurship ecosystem.

The regulations of youth-led green entrepreneurship in the western region of Indonesia remain small in number. The results of FGD indicate that youth entrepreneurs demand regulations from local governments to support youth-led entrepreneurship, especially concerning the green economy. Stories came from Gerai Prabumi (GP), whose business faces challenges in the supply chain process where GP is threatened in selling the product to the supplier.

Box 1. Youth-led green entrepreneurs' story about their successful business (western Indonesia)

"Cooperation between government and community is important.

Startups are striving from the bottom to support the green economy, and government from above to facilitate green economy regulation."

- Ika from Greenie -

Applying sustainable principles in the Indonesian community's lifestyle is increasingly becoming a popular trend, especially among young people, to preserve the environment. It has also become the initial background for Greenie to contribute by creating a sustainable lifestyle, as written in their tagline, *"bringing innovation for your sustainable living"*. Greenie itself is a start-up that focuses on producing environmentally friendly products derived from raw materials, especially agricultural and non-wood waste. Its main purpose is none other than to reduce the accumulated plastic waste.

In its efforts to produce a significant positive impact on the environment, Greenie certainly experienced several obstacles and challenges. They start from the difficulty of promoting environmentally friendly products to competing with other conventional products. Greenie has carried out various training and incubation activities regarding green business. However, to optimise the positive impact of green business, those activities are not enough. Support from various aspects is needed.

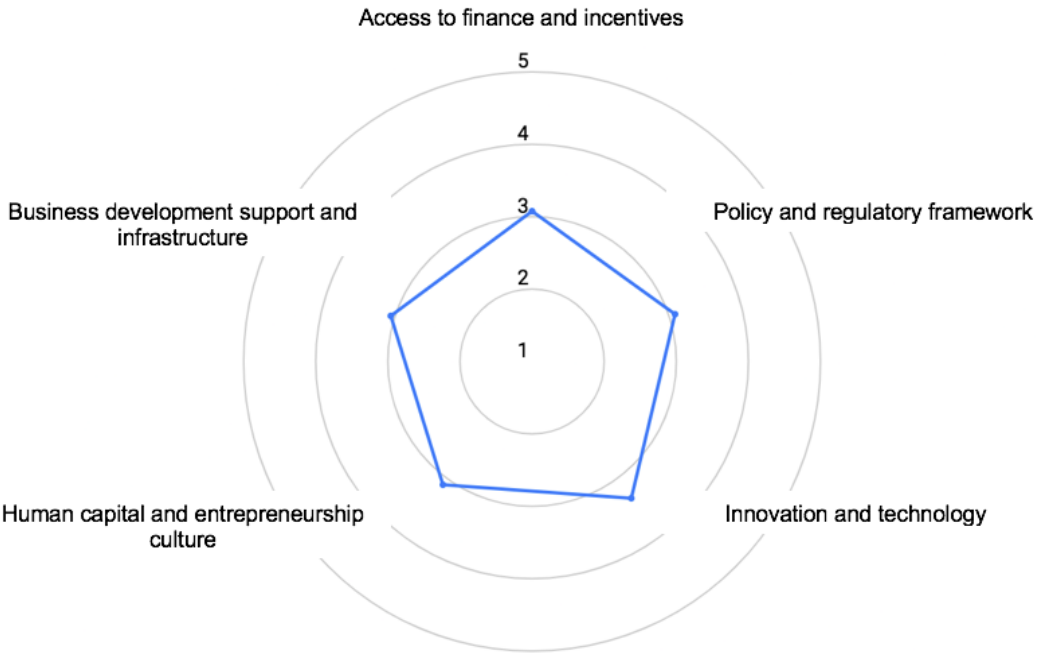
Access to funding is one of the most important things for Greenie and other green businesses to increase production scale. As far as Greenie's efforts have been, accessing capital remains challenging since most investors still argue that profit is the main consideration, not the impact. Not too many investors want to invest their funds in green businesses. It makes it difficult for Greenie to obtain sustainable capital.

Therefore, the government's role is critical to assist youth-led green entrepreneurship in carrying out their precious actions. Regulatory intervention is needed regarding access to funding, promotion, marketing, and strategies to compete with conventional products. Two-way cooperation between the government and the community needs to be improved. The government seeks the convenience and support of regulations, and the community will generate the initiation of green business activities. The government can also take advantage of important moments such as the G20 and other important events to support green businesses by being involved in these activities. In the future, the implementation of green business is expected to dominate economic activities in Indonesia to create a sustainable lifestyle and contribute to environmental sustainability.

Source: *Interview with Greenie*

This subchapter provides an assessment of the youth-led green entrepreneurship ecosystem conditions within the central region of Indonesia. Comprised of 12 provinces, including the island of Nusa Tenggara, Sulawesi, and some of Kalimantan, this subchapter presents challenges and strengths from local and regional views. Key domains are assessed through online surveys, KII and FGD. The region has implemented several efforts to internalise sustainable and environmental awareness as a tourism role model. However, the lack of support from local governments remains a challenge that needs to be faced by youth entrepreneurs. The study case of West Nusa Tenggara is added to enhance the understanding of central region conditions.

Figure 16. Ecosystem assessment by youth-led green entrepreneurs (central Indonesia)



Source: Online Survey (N=38)

According to 38 youth entrepreneurs from the central Indonesia region, it can be seen through the diagram that all the domains have achieved an average score of 3. The survey results regarding the green business ecosystem in Indonesia indicate that most domains have produced positive results, including business development support and infrastructure, access to finance and incentives, policy and regulatory framework, as well as human capital and entrepreneurship culture.

5.2.1 Strengths

NTB province has become one of the role models in the tourism sector in the central Indonesia region.

In terms of sustainable tourism, Bali, Yogyakarta, and Labuan Bajo are already better than tourism in Lombok (KII with the Director of Industry, Tourism and Creative Economy of the Ministry of National Development Planning of the Republic of Indonesia). However, this year, NTB has made progress, which was reported in the Suara Mataram News that The Ministry of Tourism and Creative Economy of the Republic of Indonesia again announced 100 nominations for the 2022 Indonesian Tourism Village Award (ADWI). From the list, four NTB tourist villages entered the top 100 from the previous 13 villages that entered the top 300. The ADWI award is one of the ways the Ministry of Tourism encourages the creative economy and the growth of tourism based on local potential. Because in every tourist village, there is potential that can be sold to improve the community's welfare (ITDP, 2022).

Accessibility to physical infrastructure for youth green enterprises ecosystem in Lombok.

Infrastructure related to entrepreneurship development has been prepared, such as the Mandalika MotoGP Circuit in NTB. In terms of human capital, youth in NTB Province can maximise this potential to enable the business ecosystem, especially in developing their business plan related to the trend. In addition, the MotoGP event might provide a multiplier effect for a new supply chain in businesses.

Some regional policies have incited green efforts in rural development.

Many young people in rural areas are offered access to entrepreneurial opportunities. One of which is through events that the regional governments hold. Hereby, young people are encouraged to manage their landscape environment. According to the “NTB Asri dan Lestari” policy program, which originated from NTB Province RPJMD for 2019–2023, the village authority has a prerogative role in managing their environment. Youths are an essential element in taking care of their environmental sustainability, and entrepreneurship remains a crucial effort to strive for this challenge.

The internalisation of environmental awareness through the curriculum.

Education institutions, especially universities, are incorporating entrepreneurship education in the curricula, and there are public and private sector organisations that provide entrepreneurship training for youth. It is found that the regional government of NTB province has an Ijo *Nol Dedoro* program that attempts to preserve nature and achieve zero waste[24]. The policy was implemented in 2021 to be established among students from elementary to high school.

5.2.2 Challenges

Lack of availability of financial support from local governments.

Another challenge is that financial support from the government is not yet accommodative. It leads youth entrepreneurs to seek funds out of their region. For example, Yant Sorghum uses financial assistance from private companies in Jakarta because they obtain larger funds than if they were to apply for funding from the government.

Poor implementation of existing policies, specifically one that supports entrepreneurship skills and business development.

Challenges exist in the implementation of existing policies. The government and associated stakeholders must prioritise a COVID-19 strategy rather than implementing the designed plans. From 2017 to 2020, there has been a program called "Increasing Entrepreneurship and Life Skills Growth for Youth" from the government of NTB province. However, it remained stuck in 2021 and 2022. The materials are a matter of youth entrepreneurs' input in marketing, product manufacturing, and others. The training originated from the regional government of the NTB RPJMD for 2019-2023, but it has to be adjusted with the current pandemic.

[24] Ijo Nol Nol Dedoro, Program Kelola Sampah Sejalan Zero Waste can be accessed on https://lombokjournal.com/ijo-nol-nol-dedoro-program-kelola-sampah-sejalan-zero-waste/

Existing strategic coordination has not accommodated all enabler environments.

Collaboration and coordination across stakeholders are needed to support the youth-led green entrepreneurship ecosystem. Challenges are found in central regions' governments which have limitations in supporting current ecosystems. Youth presence in every business collaboration remains small in numbers. As mentioned by the Geopark Rinjani organisation at FGD, it can be beneficial if youth can be involved in every governmental event, especially those related to green business.

Bureaucratic and legal structures processes related to business origination and development are not yet focusing on the green entrepreneurship ecosystem.

According to FGD, regulations related to green business development are still underlooked. However, in Southwest Sumba, where environmental issues remain an important topic, it is still not a top priority. The government prioritises more on infrastructure development, clean water, and stunting.

Lack of technology utilisation.

Instead of having problems with a supply chain in collecting plastic waste, PPSP adopts a manual way in terms of waste collection from the collectors. With this conventional style, youth entrepreneurs will only exist in person and among their consumers. In light of this situation, Yant Sorghum, one of the FGD informants, realised that technology is vital in maintaining and expanding business.

Box 2. Youth-led green entrepreneurs' story about their successful business (Central Indonesia)

"We were starting from only being able to collect a bit of plastic waste,

and now we can have a significant environmental impact and got the KALPATARU award at the district and provincial levels."

- Hananto from PPSP -

Plastic Waste Management Center (PPSP) was formed by Mr. Hananto and his wife as youth-led green entrepreneurs to solve unfinished waste problems in their hometown. To reach its current position, PPSP went through a long process starting in 2018, collecting PET-type plastic waste by promoting it through social media such as Instagram and Facebook and providing incentives to collectors, which only amounted to Rp1,500. In 2018, PPSP only collected 200 kg of waste until the following year, the waste collected increased to 1.5 tons, and they were able to buy press tools for waste processing. Finally, in 2020, PPSP successfully collected as much as 5 tons of waste and was also trusted to be a filter media supplier for septic tanks for village sanitation activities in West Sumba Regency by the Indonesian Ministry of Public Works and Public Housing.

In marketing the waste products, PPSP sells the products to a large recycling company in East Java Province. PPSP has also collaborated to expand the network of plastic waste collectors and supplies with the Southwest Sumba Regional Government. Recently, PPSP has had many alternative target markets to market its waste products. However, support from various aspects is needed so the green business that PPSP runs can be well implemented.

PPSP has faced many obstacles and challenges to get its achievement at this point. In the early years of starting the plastic waste management business, PPSP felt that it did not get attention from local governments, even though the issues brought up by PPSP were quite substantial. In East Nusa Tenggara province, the issues that the local government prioritises are related to infrastructure development, clean water, and stunting. However, this does not reduce the enthusiasm of the entire PPSP team to run a green business. Finally, in 2021, PPSP managed to get the KALPATARU award at the district and provincial levels for its services in preserving the environment.

Source: *Interview with PPSP*

5.3 Current Condition of Youth-Led Green Entrepreneurship Ecosystem in Eastern Indonesia Region

This subchapter will dive into the conditions of the eastern Indonesia region, comprising provinces in Maluku and Papua. The strengths and challenges of the youth-led green entrepreneurship ecosystem within the eastern region of Indonesia provided in this chapter are the results from FGD and KII. Data from an online survey for the eastern region is not included in this chapter as the findings lack representation. According to the result, the eastern region has several supports ranging from local government and the youths. However, the region still faces many challenges, including the lack of infrastructure, human capital, and innovations. To complement the regional perspective, this chapter will include the case study of West Papua.

5.3.1 Strengths

Eastern Indonesia has policies that support youth-led entrepreneurship development. Some of the relevant policies and regulations are:

1) Since 2020, the Western Papua Provincial Government has implemented the PROSPEK (Village Development Strategic Program) program in all villages in Papua to strengthen people's economic development, mostly engaged in managing local potential. The regulation is derived from the Instruction of the President of the Republic Indonesia Number 9 of 2017 on the Acceleration of Welfare Development in Western Papua Province[25]. From this development trajectory, the Papua Provincial Government allocates funds for economic development activities and strengthening community institutions sourced from the Special Autonomy Fund. The amount of PROSPEK funds every year is adjusted to the amount of the Special Autonomy Fund received by the Papua Provincial Government[26].

[25] Instruction of the President of the Republic Indonesia Number 9 of 2017 on the Acceleration of Welfare Development in Western Papua Province can be accessed on https://peraturan.bpk.go.id/Home/Details/77318/inpres-no-9-tahun-2017

[26] Peraturan Gubernur Papua Nomor 26 Tahun 2016 Tentang Pedoman Pengelolaan Dana Program Strategis Pembangunan Ekonomi Dan Kelembagaan Kampung can be accessed on https://peraturan.bpk.go.id/Home/Download/49601/BATANG%20TUBUH.pdf

2) In 2018, there was a dialogue between the provinces of Papua and West Papua, civil society organisations, indigenous groups and the private sector, supported by the Coordinating Ministry of Maritime Affairs and Investments of the Republic of Indonesia and facilitated by Green Trade Initiative Foundation (IDH) to intervene investments in Papua, namely Green Investment Blueprint for Papua and West Papua[27]. The blueprint aims to co-invest and deliver economic prosperity by creating employment and entrepreneurial opportunities. It focuses on attracting business investment to establish low carbon, sustainable value chains in Papua and West Papua, in line with the SDG and mainstreamed through public-private collaborations reflecting on the alignment of provincial spatial and development plans.

Sector-focused business development support through the application of village funds.

Abundant natural resources have opened up multi-sectoral opportunities in applying for business development support. In the eastern Indonesia region, increasing social welfare can be started by utilising profitable local commodities. In Papua itself, there has been an implementation of a Green Economic Village to improve indigenous peoples' welfare while preserving the environment in Papua. The strategy is to allocate village incentives/funds to green economy villages and the Ecology-Based Financial Transfer (EFT) scheme based on the Jayapura Regent's Regulation. Commodities, such as cocoa, agarwood, vanilla, and coconut can be included in the supply chain of the Village-Owned Enterprises (BUMKam) to manage agricultural potential and trade.

[27] Green Investment Blueprint for Papua and West Papua. Retrieved from Green Trade Initiative Foundation document.

Socio-cultural capital support from local youth.

In 2020, Papuan statistics show that Papua is currently dominated by generations Y, Z, and Alpha. It indicates that most young people in the eastern Indonesia region, specifically Papua and West Papua, play a significant role in ensuring regional development. At the interview session with Kitong Bisa Foundation, it was said that Papuan youth could be a "middleman" in intervening in business developments that require the older generation of native Papuans. Because of their defensive nature, the Papuan older generation will be easily influenced by young people. This statement is reinforced by the fact that Papuan youth can be development agents, as mentioned by the Papuan Government[28]. It shows that Papuan youth have socio-cultural capacities and play an essential role in development.

5.3.2 Challenges

Young entrepreneurs in the eastern Indonesian region find it difficult to develop their capacities in entrepreneurship based on several problems:

1) **Limited work ethic**: There is a perception that the product is simply a subsistence obtained from the region. It matters the most to the needs of work. There is no motivation from the youths to develop a startup or enterprise in this context.

2) **Managerial resources**: Mainly due to the lack of entrepreneurship skills, managerial problems occurred, also lack of digital andfinancial literacy and minimal information to capital assistance.

3) **Lack of capacity in business development**: Meaning that the capacity of native Papuans is still limited to conduct innovation and technology development. The main problem is that product development has no special characteristics or unique selling proposition (USP) so product brands are not developed. The government only supports purchasing the product as a promotional effort, which does not help product development and competitiveness in the marketplace.

[28] https://papua.go.id/view-detail-berita-5529/pemuda-diajak-berpartisipasi-dalam-pembangunan.html

Weak development of innovation and technology-based enterprises.

Most businesses in eastern Indonesia, specifically in West Papua and Papua, are not effectively utilising resources and producing value-added competitive and sustainable goods and services. Thus far, business ideation is still limited to conventional marketing and only developed at internal discussion, so a community developer and market bridger, which usually comes from NGOs or CSO, plays a decisive role in maintaining the business. The presence of a bridger is essential to encourage iteration to build a way of thinking and intrigue innovation.

Inadequate infrastructure development in the eastern region of Indonesia.

Although physical infrastructure development has been widely improved in eastern Indonesia, there remains uneven development in western parts of eastern Indonesia, such as Raja Ampat. People in Raja Ampat feel that it is difficult to access the market due to the long-distance and expensive costs to transport. In 2018 itself, there was a problem that investors could not enter Papua because the products produced were still massive, and the topography was challenging.

Box 3. Youth-led green entrepreneurs' story about their successful business (Eastern Indonesia)

"Raja Ampat is well-known for its tourism, but not as a place to showcase the community's products. MARA local products always try to convince the community that its peculiar Raja Ampat products are uniquely associated with deep relations of its culture and tradition."

- Pratiwi from MARA's Local Product -

MARA is a local product originating from the eastern part of Indonesia, Raja Ampat Regency, produced by the West Papua Natural Resources Conservation Center (BBKSDA) together with the Fauna & Flora International–Indonesia Program (FFI–IP), in collaboration with the Raja Ampat Regency Government and Raja Ampat Maniambyan Foundation (MARA). Starting from the desire to empower women and the communityin contributing to economic activities and also the lack of sustainable efforts from the government, the Maniambyan Raja Ampat Foundation comes with their vision, namely *the realisation of sustainable natural resource conservation through the development of community-based tourism, human resource development, and partnership*.

MARA's local product management applies the socio-entrepreneurship principle, where social impact is the main goal of each activity. Since 2018, MARA's local products have been very active in producing goods, including local products, crafts, and woven. MARA's local products have succeeded in product differentiation from 15 to 50 types: traditional Raja Ampat woven fabrics, namely *kahene*, wali bags, *abob*, *bayai*, *kasana*, and others which have been sold in hundreds of pieces. Their success cannot be separated from their main goal: to empower the community. The effort has been proven by MARA's local products, which involve 30 women producing these goods.

Local MARA products apply efforts to protect the environment by slowly changing dyes from synthetic to natural. In terms of marketing, MARA's local products also collaborate with BUMN creative houses in providing galleries. Some of the challenges experienced by local MARA products are related to the availability and skills of their human resources. It can be improved by doing some training. There has also been quite a lot of training from the local government. However, there should be an improvement, such as increasing the training duration to enhance the community's skills.

In the future, MARA's local products have the potential to develop even more, considering that currently, environmental issues are being promoted. Furthermore, MARA's local products, which aim to have a good social impact on the surroundings and the powerful traditions and culture of Raja Ampat, can be a force to compete in the future in the green business world.

Source: *Interview with MARA's Local Product*

6. SUMMARY OF FINDINGS AND RECOMMENDATIONS

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6. Summary of Findings and Recommendations

6.1 Summary of Findings

The green-oriented business has been a neo-movement for green economic recovery. Youths play an essential role in realising alternative efforts to address environmental pressure and climate change through entrepreneurship. Nevertheless, the COVID-19 pandemic, which weakened Indonesia's economy, contributed to pain points for many youth-led green entrepreneurs, particularly in the green economy sector. As the demand dropped, there has been an adjustment in the green business ecosystem. Many youth entrepreneurs stated that COVID-19 impacted the demand due to mobility restrictions regulated by the government. Some said there was a lack of demand from investors and others had issues with the supply & demand chain, market trust, and distribution. However, several youth entrepreneurs said there was an increase in demand since the business model adopted digital-based businesses and offered customer convenience in their online transactions.

Youth-led green entrepreneurship contributes to green economic growth and significantly contributes to environmental recovery. According to the Indonesia Green Growth Program, the manufacturing sector includes the production and processing industry, clean technology, and waste recycling, adding 24% of the Indonesian GDP and is potentially escalating[29]. Implementing a circular economic approach to the five potential sectors, including food and beverages, construction, retail, textiles, and electronics, will benefit the GDP growth of approximately IDR593 trillion by 2030.

In addition, this approach will also benefit the environment as the waste will be reduced by 18–52% in every sector. Those youth-led green businesses that work on the waste management system play a significant role in the environmental recovery. As the second biggest global plastic waste producer, it is crucial for Indonesia to have youth-led green entrepreneurship that help reduce potential harm to the environment caused by plastic waste pollution. Some youth entrepreneurship have generated measurable impacts on

[29] https://www.google.com/url?q=http://greengrowth.bappenas.go.id/wp-content/uploads/2018/05/20160510161722.GGGI_Roadmap_Synthesis_Ind_lores_spread.pdf&sa=D&source=docs&ust=1653660215091225&usg=AOvVaw2VxZdeWyXT8U7iW1RMFk5l

the environment. Pusat Pengelolaan Sampah Plastik (PPSP), a youth-led green enterprise based in the central region of Indonesia, stated that they have successfully collected 1,5 tonnes of plastic to be recycled in 2019. A broader market and collection rate would increase the impact on environmental sustainability.

Furthermore, the growth of green entrepreneurship will promote social inclusivity, job creation, and nurture communities and households around them. Private companies, such as Plastic Bank Indonesia (PBI), generate social and environmental benefits from their mission on saving the environment. The company has cooperated with more than 12,000 plastic waste communities and successfully staves off sea pollution equal to one billion plastic bottles. On the other hand, Plastic Bank Indonesia has empowered the coastal communities and lowered poverty by giving opportunities for informal plastic collectors to meet their daily necessities. Partnering with various stakeholders, including Badan Penyelenggara Jaminan Sosial (BPJS), Plastic Bank Indonesia offers the benefit to these communities to support their well-being.

Based on these findings, Table 34 provides an overview of the key findings of ecosystem assessment from the enabling environment for youth-led green entrepreneurship in Indonesia.

Table 34. Key Findings of Ecosystem Assessment by Youth-Led Green Entrepreneurs (National)

Domain Title	Strengths and Opportunities	Challenges and Gaps
Access to Finance and Incentives	A variety of options for capital access is available through different financial institutions.	• Current financial regulations and institutions do not focus specifically on green business, so there are only a few venture capitals which entrepreneurs can obtain in Indonesia. • The financial industry's low awareness of sustainable finance, the absence of commonly agreed on green standards on a national scale and untapped business opportunities in the sustainable sector.
Human Capital and Entrepreneurship Culture	Training courses for youth aged 15 to 25 to gain entrepreneurial skills fostering an	There is no specific green entrepreneurship training program provided currently by the government

Domain Title	Strengths and Opportunities	Challenges and Gaps
	entrepreneurial mental attitude in managing self-potential and incentives are available in the form of equipment/tools for entrepreneurship business available from various government institutions and business incubators.	institutions at the national and sub-national levels.
Business Development Support and Infrastructure	Various incubators provide training programs, product/service development for the youth business, opportunities for funding by introducing to different financial institutions and product commercialisation/marketing.	• A lack of good infrastructure to support youth-led green business, such as physical infrastructure (roads, transportation, internet connectivity, small island electricity). • Incubator services can be found in many large cities, but few are available in rural areas and small islands.
Policy and Regulatory Framework	At a national level, Indonesia has a "Green Growth Program" and developed the Green Recovery Roadmap for Indonesia 2021-2024.	There is no specific policy or regulatory framework that defines and classifies green business. Therefore, there is no database available on green businesses or a registry on green businesses.
Innovation and Technology	• Green products and services currently developed by youth-led entrepreneurs consist of new products for Indonesia or products that imitate/adopt from existing products that offer various choices for the green consumer. • The youth-led green business generates new products and adopts or imitates existing green products.	• The use of new technologies, development of innovation, and new business models is still a challenge for youth-led enterprises. • Collaborations between R&D institutions that develop technology and innovations with youth-led green businesses are lacking.

6.2 Recommendations in Boosting Green Economic Recovery through Youth-Led Enterprises

Improving the overall ecosystem will require intervention in several key areas, such as policy, financing, markets, business acceleration, entrepreneurship culture, and human resources. In particular, a coherent and proactive national entrepreneurship policy would set the tone for dynamism throughout the sector (Ford et al., 2017). As UNDP has been focusing on the Sustainable Development sector, and it aligns with current studies on the youth-led green entrepreneurship ecosystem, executing well-crafted policies encourages a long and difficult cross-sectoral process. Thus, the following thematic focus in the five domains of Youth Co:Lab ecosystem diagnostic framework perhaps brings about an initially pragmatic step to consider which actions are required.

The recommendations for the government are addressed to the national coordinator (a. Coordinating Minister for Economic Affairs; b. Coordinating Minister for Maritime Affairs and Investment; c. Coordinating Minister for Human Development and Culture; d. Minister of National Development Planning/National Development Planning Agency; e. Minister of Finance and f. Cabinet Secretary) and head of implementation for national entrepreneurship development (Minister of Cooperatives and Small and Medium Enterprises), as the development of green entrepreneurship involves a collaborative approach as depicted in the decree[30]. Meanwhile, there is a role that private companies and business incubators could undertake, namely the provision of mentorship programs and facilitation of partnership in terms of the green business market for youth-led green entrepreneurs. Establishing these efforts can be done first by encouraging broad market information and awareness regarding the importance of micro, small and medium enterprises (MSMEs) in the green sector to be included in large corporations' initiatives.

[30] Presidential Decree No 2 year 2022 on National Entrepreneurship Development 2021-2024

Recommendations for National Level

1. **Access to Finance and Incentives**
    - Financial institutions, such as Bank Indonesia, should develop special green financing schemes and incentives for green businesses to access funding. Government-owned financial institutions (Ministry of Finance) could also integrate green funding schemes into their existing special microcredits (KUR) for youth-led green businesses. The scheme includes providing tax cuts for environmentally-friendly businesses, low in carbon emissions, or businesses oriented toward conservation and mitigation of environmental damage.

2. **Human Capital and Entrepreneurship Culture**
    - The Government (Ministry of Education and Culture) should embed green entrepreneurship education programs in the national and sub-national education system to ensure the sustainability of the next generations of youth-led green entrepreneurs.

    - Various parties, such as business incubators and training providers (Ministry of Education and Culture, State-owned Enterprises), are also highly encouraged to initiate activities and programs to enhance human capital in the green entrepreneurship sphere.

    - Green business-focused stakeholders should provide more inclusive access to green entrepreneurship training programs for youth in urban and rural areas and the youths in the small island community.

3. **Business Development Support and Infrastructure**
    - The government, mainly the Ministry of Cooperatives and Small and Medium Enterprises, should develop a more comprehensive green entrepreneurship database to classify which businesses are in the early stages and in the advanced stages. Every business also requires a single identification number as an identifier. It is necessary to know which businesses need coaching and assistance. Through an integrated database that all ministries can access, each business can be monitored

on the extent of its implementation and progress. In addition, the database can help identify mechanisms for inter-ministerial cooperation and other mechanisms.

- Integration of entrepreneurship programs and activities between ministries at a national level and government institutions at a sub-national level could create synergies and collaborations involving other private stakeholders.

- It is important to improve access to incubators for youth throughout the region, mainly on rural and remote islands (Ministry of Villages, Development of Disadvantaged Regions, and Transmigration). There is also a need to develop more incubators utilising digital and hybrid platforms.

- The Government, primarily the Ministry of Communication and Informatics and the Ministry of Public Works and Public Housing, should improve the physical infrastructure to develop internet connectivity, transportation, and logistic infrastructure for green business in rural regions, which are considered lacking in those infrastructures.

- To expand the green business market, the government could introduce special green products/services in public procurement schemes and also encourage youth-led green enterprises to apply for certification of green products/services at the national or international level.

4. Policy and Regulatory Framework

- The government, through the House of Representatives, should formulate national law or specific policy on youth-led green entrepreneurship to define and classify the business. It includes improving the current classification[31] of Indonesian economic activities that produce products/outputs, both in goods and services.

- Government should develop special indexing to measure the growth of green businesses and youth-led green entrepreneurs in Indonesia.

[31] In *Klasifikasi Baku Lapangan Usaha Indonesia* (KBLI/Indonesian Standard Industrial Classification), green business is not enlisted/not clearly defined in the current classification.

- Government should facilitate business permits for green businesses. Government bureaucracy in terms of green business licensing should be simplified.

5. Innovation and Technology

- Government-owned research institutions and private research companies should collaborate with green businesses to increase the rate of innovation and technology absorption in these youth-led businesses.

Recommendations for Sub-National Level

1. Access to Finance and Incentives

- Financial institutions, such as the Ministry of Finance and bank institutions, should create a guaranteed microfinancing scheme with a system that matches the development of young entrepreneurs in three regions of Indonesia. Microfinance schemes should be inclusive by combining the private sector, capital supplier, and local governments or NGOs/CSOs, as guarantors for young entrepreneurs.

- Incubator centres or accelerators in the regions could assist local SMEs/start-ups access broader capital instead of only being a hub for business development.

2. Human Capital and Entrepreneurship Culture

- There should be a strong member matchmaking component to entrepreneurship programs by working with existing business schools in three regions where the Directorate of Courses and Training, Directorate General of Vocational, Ministry of Education and Culture can bridge this suggestion to match technical talent with business talent and widen opportunities for youth groups.

- There should be a provision of a digital-based mentorship and platform for youth-led green entrepreneurs in three regions of Indonesia which could be accessed throughout. Currently, there is no national digital platform for

green entrepreneurship training that prospective green entrepreneurs can access.

3. Business Development Support and Infrastructure

- Prior to developing business development, for selected regions, such as the eastern region of Indonesia, accessibility to physical infrastructure must be a priority in regional development, both in strategic planning and development plans, particularly for the Regional Development Planning Agency

- The strategic need for physical entrepreneurship centres in small cities in Indonesia's central and eastern regions should be expanded. As it is still centralised in Java, such as the Bandung Creative Hub and Jakarta Creative Hub, the physical entrepreneurship centres could enable the reactivation and improvement of business communities in strategic areas for youth entrepreneurship development.

4. Policy and Regulatory Framework

- There should be a structured action in realising existing policies related to youth entrepreneurship. Thus far, the gaps in the realisation of regulations at the practical level are not due to the lack of development plans but rather the poor implementation of designated plans.

- There should be robust linkages between different ecosystem players in collaborations, joint programs, networking events, and possibly business associations. Reactivating programs related to youths and the creative economy can be a potential intervention, as the Department of Youth and Sport may take a role in interlinking the gaps.

5. Innovation and Technology

- There should be efforts to develop green entrepreneurship that considers which solutions will be generated and considers innovation from local contexts, relevance, and interests so that unique selling propositions (USP) can be attained. Thus, the presence of a bridger, such as the Department of Cooperatives and SMEs in each region, is essential to encourage iteration to build a way of thinking and stimulate local-based innovation.

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8. Annexes

Annex 1: In-depth Interview Guidelines for National-level Interview

KII Questions for Government (Ministries)

CURRENT YOUTH ENTERPRISES ECOSYSTEM AND ITS CONTRIBUTION TO GREEN ECONOMY

1. How does your institution define the green economy?
2. What ecosystem is impacted the most by the COVID-19 pandemic and climate change on green-based youth entrepreneurial businesses, both youth living in urban and rural areas?
3. What are the strengths, weaknesses, opportunities, and threats (SWOT) for young green entrepreneurs to run their businesses during this pandemic?
4. What does your organisation/institution think about the role of youth as green entrepreneurs in urban and rural areas?
5. Due to the small number of entrepreneurs in Indonesia, how do you increase the number of young people to become green entrepreneurs?
6. What kind of data and information sharing and exchange is needed for: [1] decision making, [2] more effective green entrepreneurship planning, [3] evaluation and monitoring?

CURRENT STRATEGIC COORDINATION, POLICY, AND REGULATORY FRAMEWORK

7. Looking at the current policies in the framework and income trends for youth green entrepreneurs in urban and rural areas, what are the existing policies and to what extent are policies anticipating the environmental needs of youth green entrepreneurship including their implications for the education/learning/training system?
8. Are there any financing options and incentives for youth entrepreneurs provided by the government? What kind of financing options are offered?
9. What kind of business development support programs does your organisation offer for young entrepreneurs? If so, to what extent can young entrepreneurs access this support to develop their businesses?

10. What are the gaps between existing policies and current needs that young entrepreneurs have to further expand their green entrepreneurship?
11. In youth-led green entrepreneurship, what mechanisms are used to enable wider stakeholder engagement, including communities, civil society and business organisations?

RECOMMENDATIONS ON IMPROVING GREEN ENTREPRENEURSHIP ECOSYSTEM

12. What kind of policies need to be formulated in the future related to the development of a green entrepreneurial youth ecosystem?
13. What needs to be improved, and implemented in the future so that the youth entrepreneurship ecosystem can play a more important role in the Indonesian economy?

KII Questions for Association

CURRENT YOUTH ENTERPRISES ECOSYSTEM AND ITS CONTRIBUTION TO GREEN ECONOMY

1. How does your institution define the green economy?
2. What do you think about the impact of COVID-19 and climate change on green entrepreneurial business?
3. What kind of green entrepreneurial youth ecosystem exists today? Does the existing ecosystem support youth green business?
4. What do you think about the contribution of youth green businesses to economic development?
5. What are the most common challenges faced by youth in green entrepreneurship, especially regarding the capacity, capability and dynamics amidst human resources and culture in youth business?
6. As many youth enterprises run businesses in the green sector, could you tell us what do you think about innovation and technology improvements in youth green business? From your observations, how are the challenges and opportunities?
7. What kind of data and information sharing and exchange is needed for: [1] decision making, [2] more effective green entrepreneurship planning, [3] evaluation and monitoring?

CURRENT STRATEGIC COORDINATION, POLICY, AND REGULATORY FRAMEWORK

8. How is the mechanism of cooperation between your organisation and the government, academics and other stakeholders currently being carried out to build green entrepreneurship in Indonesia?
9. What is the role of your organisation in building and fostering green entrepreneurship among youth?
10. Is there a specific program in your organisation regarding green entrepreneurship and youth?
11. In youth-led green entrepreneurship, what mechanisms are used to enable wider stakeholder engagement, including communities, civil society and business organisations?
12. Do you think policies and regulatory frameworks formulated and implemented by the government already support youth green entrepreneurship? What are the gaps?

RECOMMENDATIONS ON IMPROVING GREEN ENTREPRENEURSHIP ECOSYSTEM

13. What needs to be improved, or changed from the current government policies to enhance the green entrepreneurship ecosystem among youth?
14. What needs to be developed in the future so that Indonesia has more young people who are interested in green entrepreneurship?

KII Questions for Financial Institution/Investors

CURRENT YOUTH ENTERPRISES ECOSYSTEM AND ITS CONTRIBUTION TO GREEN ECONOMY

1. How does your institution define the green economy?
2. What do you think about the impact of COVID-19 and climate change on green entrepreneurial business?
3. What kind of green entrepreneurial youth ecosystem exists today? Does the existing ecosystem support youth green business?
4. What do you think about the contribution of youth green businesses to economic development?
5. What are your institution's regulations regarding providing financial options/support for youth green entrepreneurship? To what extent is financial support accessible for youth entrepreneurs?

6. What are your institution's roles in supporting the business development of youth green entrepreneurship?
7. Are there any programs in your institution that can increase the financial literacy of youth green entrepreneurs?
8. What kind of data and information sharing and exchange is needed for: [1] decision making, [2] more effective green entrepreneurship planning, [3] evaluation and monitoring?

CURRENT STRATEGIC COORDINATION, POLICY, AND REGULATORY FRAMEWORK

9. What is the mechanism of cooperation between your organisation and the government, academics and other stakeholders currently being carried out to build green entrepreneurship in Indonesia?
10. In youth-led green entrepreneurship, what mechanisms are used to enable wider stakeholder engagement, including communities, civil society and business organisations?
11. Do you think policies and regulatory frameworks formulated and implemented by the government already support youth green entrepreneurship? What are the gaps?

RECOMMENDATIONS ON IMPROVING GREEN ENTREPRENEURSHIP ECOSYSTEM

12. What needs to be improved, or changed from the current government policies to enhance the green entrepreneurship ecosystem among youth?
13. What needs to be developed in the future so that Indonesia has more young people who are interested in green entrepreneurship?

KII Questions for Private Companies

CURRENT YOUTH ENTERPRISES ECOSYSTEM AND ITS CONTRIBUTION TO GREEN ECONOMY

1. How does your institution define the green economy?
2. What do you think about the impact of COVID-19 and climate change on green entrepreneurial business?
3. What kind of green entrepreneurial youth ecosystem exists today? Does the existing ecosystem support youth green business?
4. What do you think about the contribution of youth green businesses to green economic development?

5. What kind of data and information sharing and exchange is needed for: [1] decision making, [2] more effective green entrepreneurship planning, [3] evaluation and monitoring?

ENTREPRENEURSHIP DYNAMICS

6. What are the most common challenges faced by your organisation, especially regarding the capacity, capability and dynamics amidst human resources and culture in youth business?
7. Could you tell us how your organisation faces challenges and utilise opportunities regarding innovation and technology?
8. What are the challenges and opportunities in realising green business (for example access to finance, distribution)?

CURRENT STRATEGIC COORDINATION, POLICY, AND REGULATORY FRAMEWORK

9. How is the mechanism of cooperation between your organisation and the government, academics and other stakeholders currently being carried out to build green entrepreneurship in Indonesia?
10. Since your organisation works in the green sector, how is your organisational connection to such business development support and networks, such as incubators, accelerators, and business services as well as the accessibility to physical infrastructure?
11. In youth-led green entrepreneurship, what mechanisms are used to enable wider stakeholder engagement, including communities, civil society and business organisations?
12. Do you think policies and regulatory frameworks formulated and implemented by the government already support youth green entrepreneurship? What are the gaps?

RECOMMENDATIONS ON IMPROVING GREEN ENTREPRENEURSHIP ECOSYSTEM

13. What needs to be improved, or changed from the current government policies to enhance the green entrepreneurship ecosystem among youth?
14. What needs to be developed in the future so that Indonesia has more young people who are interested in green entrepreneurship?

Annex 2: FGD Guidelines for Sub-National Level

Terms of Reference

"Youth Entrepreneurship and Green Economic Recovery"

I. Background

The Youth Entrepreneurship and Green Economic Recovery is a research project pursuing the understanding of the Indonesian youth entrepreneur ecosystem impacted by COVID-19 that focuses on green economic recovery as well as how they contribute towards green economic recovery efforts. This project would identify and elaborate the youth entrepreneurship effort for green economic recovery and its policy whether national or provincial level from three regions (Western, Central, Eastern Indonesia).

Research on Youth Entrepreneurship and Green Economic Recovery is derived from the COVID-19 situation which has brought along some multifaceted challenges to business growth in Indonesia. Based on the research by UNDP, two-thirds of Micro, Small, and Medium Enterprises (MSMEs) took in less revenue during the pandemic, while more than 80% had lower profit margins during COVID. More than 53% of MSMEs experienced a decrease in asset value. In another occasion, a previous roundtable, held by UNDP and UNICEF, has discovered that there is still a niche in the green economy sector that is still underdeveloped and scarcely touched by youth entrepreneurs.

However, the COVID-19 pandemic has provided a unique opportunity to compromise Indonesia's economic transition to a low carbon economy. Along with this, the Government has developed "National Economic Recovery" which focuses on comprehensive fiscal and monetary policies for economic recovery during COVID-19, of which 27% is to support MSMEs and corporations, including young entrepreneurs in startup/SMEs/social entrepreneurs' settings. Let alone, according to UNDP research in 2019, about 81% of Indonesian youth surveyed said they were interested in starting a business and, based on a survey by World Economic Forum, one-third of the country's young people between the ages of 15 and 35 want to become entrepreneurs. Thus, there need to be more efforts to push youths to initiate more ventures in that direction, especially in the context of green business.

II. Technicalities

Activities	Participants	Duration
Opening, welcoming remarks, introductory statement by facilitator		10 minutes
Topic 1: Current Youth Enterprise Ecosystem and Its Contribution to Green Economy	• Government • Youth Entrepreneurs & Association	35 minutes
Topic 2: Entrepreneurship Dynamics	• Youth Entrepreneurs & Association • Youth-led Business Communities	25 minutes
Topic 3: Current Strategic Coordination, Policy, and Regulatory Framework	• Government • Youth Entrepreneurs & Association	10 minutes
Topic 4: Recommendations on Improving Green Entrepreneurship Ecosystem	• Government • Youth Entrepreneurs & Association	35 minutes
Summarise the Discussion and closing remarks		5 minutes

III. Discussion Topic

Topic	Questions
1. Youth Enterprises Ecosystem and Current Green Economic Recovery	• What do you think about the impact of COVID-19 and climate change on green entrepreneurial business? • **What kind of green entrepreneurial youth ecosystem exists today? Does the existing ecosystem support youth green business?** • What do you think about the contribution of youth green businesses to green economic development?
2. Entrepreneurship Dynamics	• **What are the most common challenges faced by your organisation, especially regarding the capacity, capability and dynamics amidst human resources and culture in youth business?**

	• Could you tell us how your organisation faces challenges and utilises opportunities regarding innovation and technology? • What are the challenges and opportunities in realising green business (for example access to finance, distribution)?
3. Strategic Coordination, Policy, and Regulatory Framework	• **How is the mechanism of cooperation between your organisation and the government, academics and other stakeholders currently being carried out to build green entrepreneurship in Indonesia?** • Since your organisation works in the green sector, how is your organisational connection to such business development support and networks, such as incubators, accelerators, and business services as well as the accessibility to physical infrastructure? • In youth-led green entrepreneurship, what mechanisms are used to enable wider stakeholder engagement, including communities, civil society and business organisations? • Do you think policies and regulatory frameworks formulated and implemented by the government already support youth green entrepreneurship? What are the gaps?
4. Recommendations on Improving Green Entrepreneurship Ecosystem	• **What kind of policies need to be formulated in the future related to the development of a green entrepreneurial youth ecosystem?** • What needs to be improved, and implemented in the future so that the youth entrepreneurship ecosystem can play a more important role in the Indonesian economy?

Annex 3: Survey Online Questions

A. Respondent's Profile

A1.	Name of Respondent	
A2.	Gender	• Male • Female • Trans • Non-binary • Prefer not to say
A3.	Age	
A4.	Domain of Place	(city/province)
A5.	Respondent highest education	(1) Not graduated from primary school (2) Primary school (3) Junior high school (4) Senior high school (5) Polytechnic/University
A6.	Name of Business	
A7.	Type of Business	• Services • Product manufacturing
A8.	Correspondence Address of Business (Website/Social Media/Email)	
A9.	Establishment of Business	• Less than 1 year • 1 – 3 years • More than 3 years
A10.	Main motivation for green entrepreneurship (choose one)	• To become changemaker for the betterment of the environment • To seek opportunity for better profit • All of the above • Others (please specify)

B. Profile Green Business Youth-Led Entrepreneur

B1.	Main funding sources for green business	• Family • Friends • Angel investor • Impact investor • Industry-agnostic investor • Financial institution (bank, insurance, cooperation) • Government institution • Trust funds • Saving
B2.	Key issues in green business	• **Access to finance & incentives**: 1) difficulty in finding access to grants, 2) lack of financial literacy, 3) lack of incentives for investors and founders, and 4) lack of accessibility of financial options from government • **Human capital & entrepreneurship culture**: 1) lack of leadership experience in green business, 2) difficulty in finding business role models, and 3) lack of availability of management training • **Policy & regulatory framework**: 1) lack of government support, 2) difficult bureaucracy and legal structures, and 3) non-supportive policies and regulatory framework for youth entrepreneurship • **Business development support and infrastructure**: 1) few mentorships available and 2) lack of information of business networks • **Innovation & technology**: 1) lack of technology-based skills and 2) not enough innovation, technology, and other supporting elements that may further advance the development of youth entrepreneurship
B3.	Average age of youth entrepreneur	• Less than 20 years old • 20-24 years old • 25-30 years old
B4.	Education of entrepreneur	• Not graduated from primary school • Primary education • Secondary education • Higher education level
B5.	Number of co-founders	• Solo • Two

		• More than two people
B6.	Number of workers in company	• Less than 5 people • 6-10 people • More than 10 people
B7.	Academic background/field of study	• Engineering • Environmental science • Social or political science • Business and management • Arts and literature • Others (please specify)
B8.	Detailed sector of green business	• **New Tools, Software, Systems & Technologies**: 1) energy technologies, 2) water treatment technologies, 3) remediation technologies, and 4) predictive AI tools • **New or Improved Product Developments**: 1) recycled & low footprint products, 2) waste reduction systems, 3) green fashion, 4) organic and zero waste food products • **Trade & Commerce Platform & Networks**: 1) online marketplaces, 2) green distribution systems, 3) consumer-focused apps, 4) circular economy networks, and 5) screen reader support enabled • **Consultancy and Business Advisory Services, Education**: 1) training & education, 2) technical advisory services, 3) sustainability measurement & planning, and 4) consulting services • Others (please specify)

C. Youth Entrepreneur's Perception of Climate Change and the Covid-19 Pandemic

C1.	In your opinion, what is the biggest source of greenhouse gas (GHG) emissions (choose one):	• Land damages and forest fires • Transportation • Factory fumes (industry) • Fossil energy power generation (coal, oil and natural gas) • Livestock (cows, agricultural soils, and rice production) • Commercial and residential (waste)
C2.	The most worrying impacts of climate change on youth are (choose one):	• The extinction of living things (loss of species) • Clean water crisis • Increased droughts • Hotter temperatures • More severe storms • The sinking of small islands (rising ocean) • Food insecurity • More health risks • The global economic crisis • Poverty and displacement
C3.	The most appropriate solutions to minimise the climate crisis are:	• Forest conservation, including cessation of natural forest logging, land conversion, and forest and peatland fires • Conversion of fossil energy into clean and renewable energy • Transforming from conventional business to green business • Switching to sustainable transport • Reducing plastic use • Reducing meat and dairy consumption
C4.	The biggest impact of the COVID-19 pandemic to your green business:	• Decreased business income due to mobility restrictions • Decreased number of consumers due to economic crisis • Many business human resources are sick so that it interferes with the smooth running of the business • Reduced work hours (productivity) and wages • Disruption in the supply chain • The changing needs of consumers • Reduced financial investment/support for business

D. Assessment of Green Business Ecosystem

D1.	What is the most important element in the green business ecosystem? *choose that apply*	• **Access to finance & incentives**
		  - The availability and accessibility of different financing options and incentives for youth entrepreneurs provided by the government and financing institutions,
		  - Incentives for investors and funders to support youth-led businesses, and
		  - Financial literacy and understanding of different financing options among young people and young entrepreneurs
		• **Human capital & entrepreneurship culture**
		  - Entrepreneurship education in the formal education system and other capacity building programs,
		  - The state of entrepreneurship culture and youth interest in becoming entrepreneurs,
		  - Program and facilities supporting the development of human capital and entrepreneurship culture,
		  - Ease of finding talent in the entrepreneurship sector
		• **Business development support and infrastructure**
		  - Availability and accessibility of business development support program and structures, such as incubators and accelerators, efforts to develop business development support systems and infrastructure for young entrepreneurs
		  - Accessibility to physical infrastructure
		• **Policy & regulatory framework**
		  - Existence and implementation of policies and regulatory frameworks relevant to and supportive of youth entrepreneurship,
		  - Efforts to develop the policy and regulatory framework,
		  - Extent to which bureaucratic and legal

		structures and processes related to business origination and development are youth-friendly • **Innovation & technology** - Innovation and technology support available and accessible to young entrepreneurs, - The use of digital solutions and technology for business development, - Efforts to support young (aspiring) entrepreneurs to innovate and use technology in business operations - Innovation, technology, and other supporting elements that may further advance the development of youth entrepreneurship - Development of innovation and technology based enterprises
D2.	In your opinion, how do you rate the financial aspects (**access to finance & incentives**) in supporting entrepreneurs in Indonesia?	• Very poor • Poor • Fair • Good • Excellent
D3.	What most needs to be improved from the financial aspect (**access to finance & incentives**) in the green entrepreneurial ecosystem? (select one)	• Access to funding options from financial institutions for youth entrepreneurs • Incentives for investors and funders to support youth-led businesses • Financial literacy of business actors • Availability of low-interest rate loans
D4.	How would you rate the policy aspects **(policy and regulatory framework)** in the ecosystem to support green entrepreneurs in Indonesia?	• Very poor • Poor • Fair • Good • Excellent
D5.	What is the most important thing that needs to be improved from the policy aspect (**policy and regulatory framework**) in the green	• R&D environment & institutions • Taxation • Venture-friendly legislation and processes • Foreign business friendliness • Industry policy, support and incentives

	entrepreneurial ecosystem? (select one)	• Supportive policies and regulatory framework for youth entrepreneurship • Bureaucratic and legal structures and processes related to business origination and development are youth-friendly
D6.	How do you rate the **innovation and technology** aspect in the ecosystem to support green entrepreneurs in Indonesia?	• Very poor • Poor • Fair • Good • Excellent
D7.	What is the most important thing that needs to be improved from the **innovation and technology** aspect in the green entrepreneurial ecosystem? (select one)	• Innovation and technology support available and accessible to young entrepreneurs, • The use of digital solutions and technology for business development, • Efforts to support young (aspiring) entrepreneurs to innovate and use technology in business operations • Innovation, technology, and other supporting elements that may further advance the development of youth entrepreneurship • Development of innovation and technology-based enterprises
D8.	How do you rate the human resources aspect **(human capital and entrepreneurship culture)** in the ecosystem to support green entrepreneurs in Indonesia?	• Very poor • Poor • Fair • Good • Excellent
D9.	What is the most important thing that needs to be improved (if possible) from the human resources aspect **(human capital)** in the green entrepreneurial ecosystem? (select one)	• Skilled workforce • Management quality • High-quality mentorship • Availability of management training • Entrepreneurship education in the formal education system and other capacity-building programs • Programs and facilities supporting the development of human capital and entrepreneurship culture, • Ease of finding talent in the entrepreneurship sector

D10.	What is the most important thing that needs to be improved (if possible) from the human resources aspect **(entrepreneurship culture)** in the green entrepreneurial ecosystem? (select one)	• Business/start-up activity • Risk tolerance • Persistence • Confidence • Role models • Systematic planning • Efficiency orientation • Persuasion • See and act on opportunities
D11.	How do you rate the **business development support and infrastructure** aspect in the ecosystem to support green entrepreneurs in Indonesia? (select one)	• Very poor • Poor • Fair • Good • Excellent
D12.	What is the most important thing that needs to improve (if possible) from the **business development support and infrastructure** aspect in the green entrepreneurial ecosystem? (select one)	• Business networks • Accessibility to business incubators/accelerators • Accessibility to business development services • Cluster initiatives/supply chain development • Accessibility to physical infrastructure (roads, electricity, clean water, internet, etc.)
D13.	RECOMMENDATIONS ON IMPROVING GREEN ENTREPRENEURSHIP ECOSYSTEM	Please write down _____

Annex 4: List of Respondents from KII

Day/Date	Organisation	Representative
6 April 2022	Plug and Play	1. Nadzifa Alifia - Sustainability Program Lead 2. Mercy Setiawan - Program Director
	Indigo Space Bandung	Cynthia Dewiranti - Community Lead
7 April 2022	Directorate of Manpower Ministry of National Development Planning/Bappenas	Ir. Muhammad Iqbal Abbas, MBA - Ultimate Expert Planner
	Ministry of Cooperatives and SMEs	1. Abdul Malik - Head of SME Regional Development 2. Budhi Suhastian - Regional Development Expert 3. Bastian Hendro Wibowo - Institutional Expert
12 April 2022	BPD HIPMI West Java	Christian Harazaki Mendrofa - Head of Research Compartment
18 April 2022	Bappenas	Leonardo A. A. Teguh Sambodo - Director of Industry, Tourism and Creative Economy
	Indonesian National Commission for UNESCO	Itje Chodidjah - Daily Chief
19 April 2022	Ministry of Tourism and Creative Economy of Republic Indonesia	Muhammad Neil El Himam - Deputy for Digital Economy and Creative Products
	Kitong Bisa Foundation	Johan Andes Serhalawan - Senior Project Manager
22 April 2022	Directorate of Courses and Training, Directorate General of Vocational, Ministry of Education and Culture	1. Dr. Kastum - PKW Development Working Group Coordinator 2. Akbar Anas - Staff 3. Zareza - Pokja PKW Staff
	Directorate General of Vocational, Ministry of Education and Culture	Achmad Hilmi Zulkarnaen - PKW Course and Training Field
	Investree	Arif Mediadianto - Head of Shariah Business

Annex 5: List of Respondents from FGD

Day/Date	Region	Organisation	Representative
5 April 2022	Western Indonesia Stakeholders (Youth Entrepreneurs and Local Government)	Department of Youth and Sport	Mauluddin AB - Head of Sub-Coordinator for Youth Development
		Department of Industry, Trade, Cooperatives and SMEs of Riau Province	Eka Putra - PLUT Riau HR Consultant
		Department of Cooperatives and SMEs Pekanbaru City	Daryanis Febrihani - Head of Institutional Division
		Greenie	Ika Juliana - CEO
		SIAB Indonesia	Wahyu Puji Pamungkas - CMO
		EcoPlast ID	Gabriel Sebastian Butarbutar - CEO
		Ekang Tourism Village	I Wayan Santika - Founder
		Gerai Prabumi	Afifah Putri Adita - Founder
14 April 2022	Central Indonesia Stakeholders (Youth Entrepreneurs and Local Government)	Department of Youth and Sport NTB	1. Ni Made Datrini - Youth Competitiveness Development Staff 2. Heny Diliana - Policy Analyst of NTB Youth Dispora Expert 3. Adhex - Field of Department and Use
		Department of Cooperatives and SMEs NTB	Dr. Lalu Basuki Rahman - Head of SME Development
		Department of Youth and Sport Central Lombok	H Muhammad Fauzi - Youth Policy Analysis
		Department of Cooperatives and SMEs Central Lombok	Baiq Mentari - Young Expert Policy Analysis

		Plastic Waste Management Centre (PPSP)	Hananto Darmawan - Founder
		Rinjani Geopark	Roaetun Nabiya - Secretariat Staff (Promotion and Social Media)
		Yant Sorghum	Nur Rahmi Yanti - Owner
22 April 2022	Eastern Indonesia Stakeholders (Youth Entrepreneurs and Local Government)	Green Trade Initiative Foundation (YIDH)	Saz Kodri - Landscape Manager
		Mani Ambiyan Raja Ampat Foundation (MARA)	Nurdana Rizki Pratiwi - Manager

Resilience Development Initiative

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