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SINGAPORE AND SUSTAINABLE FINANCE: SUCCESSFUL MODELS IN POLICY IMPLEMENTATION AND BEST PRACTICES, COMPARE WITH INDONESIA

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ABSTRACT

Singapore stands out among ASEAN countries for its notable accomplishments in sustainable finance. Singapore is the sole ASEAN country featured in the top 15 rankings of the thirteenth edition of the Global Green Finance Index. Therefore This study aims to find the determining factors for Singapore's success in the implementation of sustainable finance. This research uses qualitative methods and literature review approaches. Upon examining the reports and official websites from the Financial Services Authority (OJK) (Indonesia) and the Monetary Authority of Singapore (MAS) (Singapore), it is evident that Singapore has implemented similar initiatives as Indonesia in addressing its three key issues; lack of knowledge and involvement in the financial sector, standardization of green categorization, and support and collaboration for business opportunities. Both countries have implemented national campaigns, published green taxonomies, and fostered public-private partnership to address these issues. In this study, a new finding was revealed in terms of culture financial understanding. Singapore lacks particular rules pertaining to the promotion of financial literacy. However, Singapore boasts a far greater financial literacy rate compared to other ASEAN countries. The high level of financial literacy certainly has positive influences on the implementation of sustainable finance

Keywords: sustainable finance; Indonesia; Singapore

ABSTRAK

Singapura menjadi negara ASEAN terbaik karena prestasinya dalam hal keuangan berkelanjutan. Singapura adalah satu-satunya negara ASEAN yang masuk ke dalam peringkat 15 besar berdasarkan Global Green Finance Index edisi ketiga belas. Penelitian ini bertujuan untuk menemukan faktor penentu kesuksesan Singapura dalam implementasi keuangan berkelanjutan. Penelitian ini menggunakan metode kualitatif dan pendekatan literatur rview. Berdasarkan laporan dan situs web resmi dari Otoritas Jasa Keuangan (OJK) (Indonesia) dan Otoritas Moneter Singapura (MAS) (Singapura) terbukti bahwa Singapura telah menerapkan strategi serupa seperti Indonesia dalam mengatasi tiga masalah utamanya; kurangnya pengetahuan dan keterlibatan di sektor keuangan, standardisasi kategori hijau, serta dukungan dan kolaborasi untuk peluang bisnis. Kedua negara tersebut telah menerapkan kampanye nasional, menerbitkan taksonomi hijau, dan membina kemitraan publik-swasta untuk mengatasi masalah ini. Dalam penelitian ini, sebuah temuan baru terungkap dalam hal budaya terkait pemahaman keuangan. Singapura tidak memiliki aturan khusus yang berkaitan dengan promosi literasi keuangan. Namun, Singapura memiliki tingkat literasi keuangan yang

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jauh lebih besar dibandingkan dengan negara ASEAN lainnya. Tingginya tingkat literasi keuangan tentunya memberikan pengaruh positif terhadap penerapan keuangan berkelanjutan

Kata kunci: Keuangan Berkelanjutan; Indonesia; Singapura

1. INTRODUCTION

Sustainable finance has become particular concern for the Association of Southeast Asian Nations (ASEAN) countries. The promotion of sustainable finance initiatives and the development of financial infrastructure in Southeast Asia have advanced significantly in recentyears, both regionally and among the ASEAN members (Ariyapruchya & Volz, 2023). The ASEAN members are among those most susceptible to the tangible effects of climate change,which could seriously jeopardize macroeconomic and financial stability (Beirne et al., 2021).

Indonesia is one of the ASEAN countries that is struggling to implement sustainable finance. Indonesia faces some problems regarding sustainable finance. Low levels of understanding and participation in the financial industry are still a problem in Indonesia (OJK,2021). The financial sector continues to believe that adopting sustainable business practices will result in higher expenses. In addition, most business actors continue to prioritize short-term financial gain.

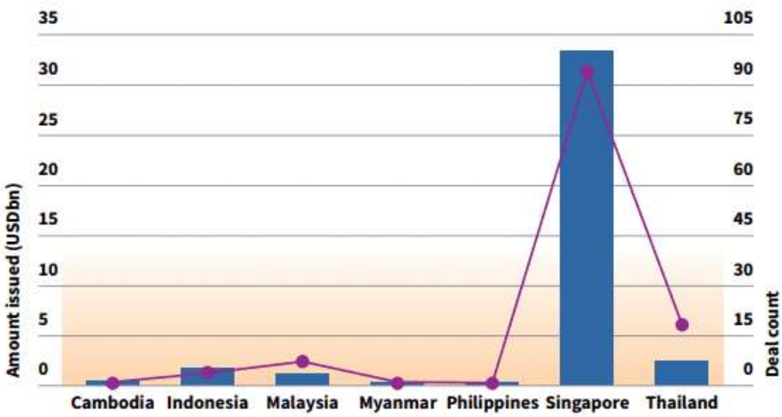
Indonesia does not currently possess an official green category standardization, which is necessary for evaluating the execution of environmental, social, and governance aspects. (OJK, 2021). All Indonesian institutions continue to operate under their own sustainable business standards as of right now. Due to this circumstance, it is challenging for businesses to obtain funding and for investors to decide which projects to pursue. Thus, in order to support sustainable business and investment, national standardization of green categories and taxonomies is required. The taxonomy will also make it easier for businesses to improve theirrisk management practices.

Other problem is regarding the support to business opportunity. Business actors are able to get benefit from the growing demand and awareness for ESG implementation. But in addition to regulators, this business opportunity also needs the cooperation and support of industry players and relevant ministries/institutions, as well as an adequate infrastructure. (OJK, 2021). This cooperation is in line with the spirit that the International Development Bank(IDB), the World Economic Forum (WEF), and the IMF, who are all members of theMultilateral Development Banks (MDBs), started and promoted. This partnership will undoubtedly develop into a common framework that all stakeholders use to carry out sustainable finance projects in Indonesia.

Among ASEAN countries, Singapore is a country that has achievements in terms of implementing sustainable finance. Singapore is the only ASEAN country included in the top 15 in the thirteenth edition of the

Global Green Finance Index (GGFI 13). The GGFI ascertains the green finance performance of international financial centres by asking practitioners to rate them on two dimensions. First, the depth to which green finance has penetrated the business of the financial centre, i.e. the prevalence of green financial services and products within the financial centre in question. Second, the quality of the green finance products and services on offer (GGFI, 2024).

Figure 1. ASEAN SLB Issuance in Both Volume and Number



Based on the graph above, it can be seen that Singapore was the largest source of ASEAN SLLs and SLBs at the end of 2021, with 94 out of a total of 129 deals with a cumulative volume of USD33.6bn, accounting for 84.5% of the market.

Singapore is the country with the largest and most diverse thematic debt market in ASEAN, with USD 81 billion issued by 127 issuers (the latter is one of the issuers with the highest figure in the world) (Almeida & Wong, 2023). Green debt and sustainability-linked loans (SLLs) dominate, representing a combined 96% of total issuance. As an important financial center with a number of large financial institutions ready to provide loans for sustainable projects, loans are more popular than bonds.

Singapore is considered a green financial center in the ASEAN, and this is reflected in the many market-based initiatives and policies that have been introduced particularly by the Monetary Authority of Singapore (MAS) (Almeida & Wong, 2023). Some of them focus on the important topic of openness and aim to improve the availability, quality, consistency and accessibility of reporting, for example through, ESG Impact Hub, ESGenome and the promising Project Greenprint.

Besides, the development of Singapore's Green Finance Industry Taskforce (GFIT) taxonomy for green and transition activities will further support credible market growth acrossmultiple segments both in Singapore and

ASEAN more broadly, helping to consistently define eligible projects for financial institutions (Almeida & Wong, 2023).

Singapore shows good performance in implementing sustainable finance. Therefore, infacing the problem of implementing sustainable finance, Indonesia might be able to see how sustainable finance is implemented in Singapore and how that country overcomes problems related to sustainable finance.

This research is conducted on the financial sector in Singapore. Research on a similar topic has been conducted previously. Based on the literature review, there is no research that discusses the successful implementation of sustainable finance in Singapore and tries to analyze determining factors for Singapore's success in the implementation of sustainable finance , as the best ASEAN country in implementing sustainable finance.

2. LITERATURE REVIEW

2.1 *SUSTAINABLE FINANCE*

Sustainable finance has become one of the vital concepts in the merger between the financial sector and the Sustainable Development Goals (SDGs). The European Commission describes sustainable financing as The process of developing financial sector considerations for environmental impacts (environment), social, and governance or ESG.

Sustainable finance does not only discuss financial developments as an instrument to achieve sustainability, but can be a vital benchmark to decision-making for companies and entrepreneurs who prioritizing socio-economic responsibility to the environment in addition to seeking business profits.

Figure 2. A Policy-driven Classification of Sustainable Finance and Its Main Components

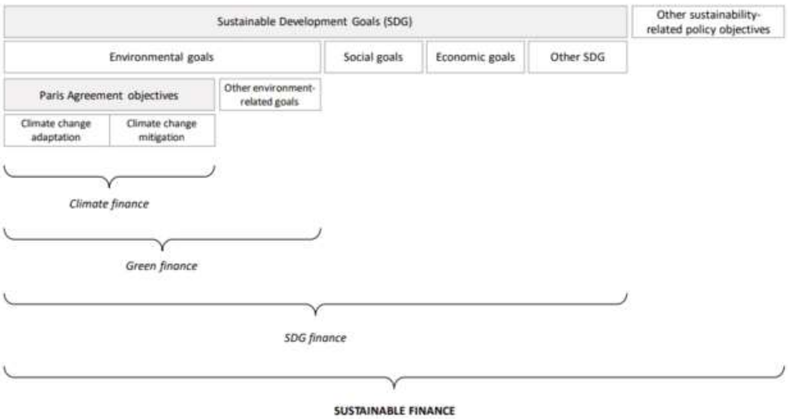
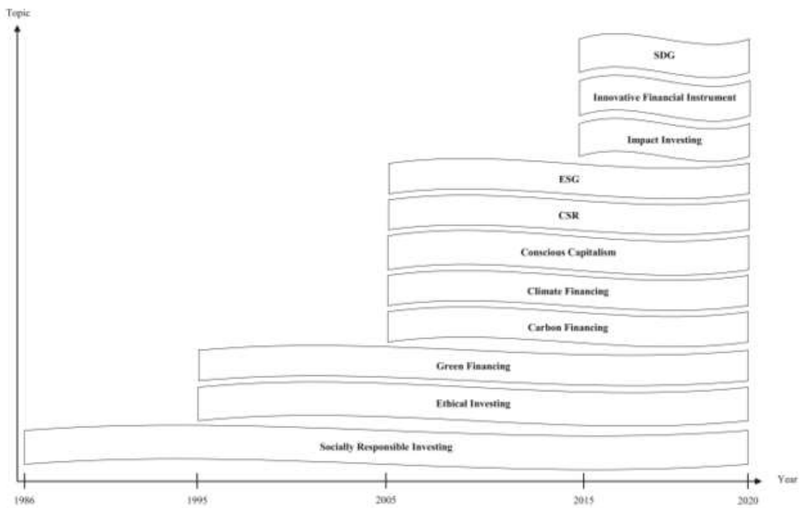


Figure 2 provides an overview of the components of sustainable finance from the existing classification. In practice, sustainable finance includes a very broad range of components such as SDG financing, green finance and the Paris Agreement. More than that, it can even develop even more widely so that it becomes a fairly large and stable component. In this regard, sustainable finance may in particular also encompass government spending programmes (eventually financed by unlabelled debt), when financing sustainability-related objectives (Migliorelli M 2021).

Figure 3. Evolution of sustainable finance research. CSR Corporate social responsibility. ESG Environmental, social, and governance. SDG Sustainable development goals



Based on figure 3, it can be seen that research on sustainable finance began in 1986. Given the burgeoning research on sustainable finance,past researchers have also attempted to review the extant literature in the field. However,in most instances, such reviews were limited to a specific aspect of sustainable finance, and not sustainable finance as a whole. Further research is increasingly developing and broadly covering various aspects in the social and environmental context.

Kumar et al. (2022) reveals insights into seven major themes of sustainable finance research, namely socially responsible investing, climate financing, green financing, impact investing, carbon financing, energy financing, and governance of sustainable financing and investing.

The most research on sustainable finance so far is dominated by the country developed such as the United States, United Kingdom, Germany, China, Australia and Canada, while for Asian countries, including India, Japan, South Korea and Malaysia Southeast Asia region.

Sustainable finance in Singapore is focused on three major areas: increasing R&D in ESG products, expanding the range of green finance products available, and growing the region's asset class. The third area is greater integration of environmental, social, and governance (ESG) issues into Singapore's financial institutions (Tan, 2017).

The Singapore government is pushing for ESG integration in the financial sector (Tay& Sim, 2017). Beginning in 2018, the Singapore Exchange (SGX) requires all listed companiesto strictly adhere to ESG principles (Tao & Jindal, 2018).

2.2 ASSOCIATION OF SOUTHEAST ASIAN NATIONS (ASEAN)

Southeast Asian nations formed the Association of Southeast Asian Nations (ASEAN), a geopolitical and economic alliance. The founding fathers of ASEAN—Indonesia, Malaysia, the Philippines, Singapore, and Thailand—signed the ASEAN Declaration (Bangkok Declaration) on August 8, 1967, in Bangkok, Thailand, officially founding ASEAN. On January 7, 1984, Brunei Darussalam became a member of ASEAN. Viet Nam joined on July 28, 1995; Lao PDR and Myanmar on July 23, 1997; Cambodia joined on April 30, 1999; and Timor Leste joined on November 11, 2022.

ASEAN has carried out various initiatives in dealing with sustainable financial issues. The ASEAN Taxonomy for Sustainable Finance has been released by the ASEAN TaxonomyBoard (ATB). It is a guide designed to enable a transition towards the adoption of sustainable finance by ASEAN member countries. The ASEAN Taxonomy for Sustainable Finance version 1 was released by ATB in November 2021. It is a multi-tier taxonomy conceptual framework with two major components: The Plus Standards, which include additional criteriaor technical screening criteria (TSC), and the Foundation Framework, which is made up of general principles used to assess the sustainability of an economic activity. As a continuation of version 1, ATB published ASEAN Taxonomy for Sustainable Finance version 2 (ATSF v2)in March 2023, with highlights including the completion of the Foundation Framework and Plus Standard, as well as the development of TSC for the first focus sector, the energy sector (OJK, 2023).

In March 2024, ATB released ASEAN Taxonomy version 3. Following the release ofthe TSC for the Energy sector in ASEAN Taxonomy Version 2, TSC is now available for two new focus sectors: T&S (transportation and storage) and C&RE (construction and real estate).These two sectors encompass activities such as construction and building renovation, demolition and site preparation, building acquisition and ownership, urban transportation and freight, and land, water, and air transportation infrastructure (OJK, 2024).

2.3 PREVIOUS RESEARCH

The research conducted by Hendratno et al. (2022) to examine the adoption of sustainable banking practices in Indonesia and Singapore. The objective was to create a sustainable banking framework that more comprehensive by merging multiple frameworks, including the GRI G4 Financial Sector Supplement (FSS), Sustainable Banking Assessment (SUSBA), United Nations Environment Program Finance Initiative (UNEP FI), and Sustainability Accounting Standards Board (SASB). Additionally, the framework was added to the pillars of stakeholder engagement and digital transformation. The study concludes that disclosure of the pillars of digital transformation and stakeholder engagement is necessary for sustainable banking to continue utilizing artificial intelligence in bank operations and to sustainpositive relationships with stakeholders.

Aulia et al. (2023) examined the impact of ESG disclosure trends on the performance of green finance on exchanges in Singapore, Malaysia, and Indonesia. The outcome demonstrated the impact of Price Earnings Ratio (PER) and Return on Asset (ROA) on Firm Value. The impact of Firm Value, ROE, and PER on ESG Disclosures was also discovered bythis study.

The research conducted by Nathania & Sumani (2023) to compare the volatility and liquidity of the Singaporean and Indonesian stock markets during the COVID-19 era of mobility restrictions. The study's findings demonstrated the variations in stock index liquidityand return volatility before and after community mobility restrictions. Prior to the communitymobility restrictions, the Straits Times Index (STI) and Indeks Harga Saham Indonesia (IHSG)had greater return volatility than they did afterwards. Prior to Pembatasan Sosial Berskala Besar II (PSBB II) and following Pembatasan Sosial Berskala Besar I (PSBB I), IHSG experiences liquidity. The analysis concludes that while liquidity in Indonesia did not improvewith the implementation of PSBB I, it did so with PSBB II. In the meantime, STI has more liquidity in the time following the installation of circuit breakers. These findings suggest that the Circuit Breaker policy, when put into effect, reduces volatility, which enhances the performance of the Singapore stock index. The Singapore stock index's liquidity is also decreased by the policy.

Additionally, the research also undertaken by Jonathan et al. (2023) to discuss a comparative legal analysis of the Monetary Authority of Singapore (MAS) and the Financial Services Authority of Indonesia (OJK) with regard to their respective jurisdictions over the enforcement of laws against insider trading. The study discovered that the regulatory and supervisory bodies that oversee and regulate the capital markets in Singapore and Indonesia have a lot in common. Both have integrated approaches to capital market regulation and supervision, as well as the necessary power to carry out their mandates. In Indonesia, the function of Badan Pengawas Pasar Modal dan Lembaga Keuangan (Bapepam-LK) in enforcing the Capital Market Law as an autonomous entity has been replaced since 2012 by OJK. OJK is in charge of regulating the industry and carrying out other oversight duties.

Different from previous research, this research will focus on how Indonesia and Singapore practice sustainable finance, analyzing problems and solutions that have been implemented. Besides, when the research was conducted, there was not much literature discussing the implementation of sustainable finance in Singapore so this paper also attempts to fill this gap.

3. METHOD

This research uses qualitative methods and descriptive approaches. In this research, data was obtained through reports related to the implementation of sustainable finance that Green Finance Action Plan, Green Finance Industry taskfore, and Finance for Net Zero Action Plan in Singapore, the official website of Monetary Authority of Singapore (Singapore), as well as literature, news and other related reports and websites that can be accounted for.

To analyze the first research problem, according to Miles and Huberman (1992), data analysis involves data reduction, data display, and conclusion drawing/verification as an interconnected process before, during, and after data collection in a parallel form to build general insights known as analysis. The research is specifically focused on a successfull implementation of sustainable finance in Singapore. After describing current developments, problems faced, and policies issued that occurred in Singapore,in terms of sustainable finance, this research attempts . Furthermore, this research tries to analyze and draw conclusions the determining factors for Singapore's success in the implementation of sustainable finance and then can be obtained and implemented in other countries.

4. DISCUSSION

4.1 SUSTAINABLE FINANCE INITIATIVES OF SINGAPORE

Singapore is considered a green financial center in the ASEAN. To promote the sustainable finance, Singapore has developed various initiatives and platforms that provide a framework to mobilize public and private sector efforts in achieving a sustainable and climate-resilient Singapore.

The Monetary Authority of Singapore (MAS) declared in 2019 that it was creating a new, all-encompassing long-term strategy with the goal of integrating sustainable finance intoSingapore's position as a global financial hub. The Green Finance Action Plan, which is basedon the three fundamental pillars of leveraging technology, expanding markets, and constructing resilience, will be implemented through initiatives in six domains (Green Finance Platform,2019):

a. Environmental Risk Management Guidelines across the banking, insurance, and assetmanagement sectors

b. Grant schemes to support mainstreaming of green and sustainability linked loans

c. A US$2 billion Green Investments Programs

d. Expansion plans of external reviewers and rating agencies

e. Anchor Centres of Excellent with world-class research institutions and leading universities to contribute Asia-focused climate research and training programs

f. Green Finance as a key theme in the 2020 fintech Hackcelerator

In order to establish Singapore as a global hub for green finance, MAS also considers market regulations, research, and the education sector. The Singapore Green Finance Center (SGFC), which is jointly run by the Lee Kong Chian School of Business at Singapore Management University and Imperial College Business School, was introduced by MAS in theeducation sector in October 2020. In addition, the National University of Singapore's Sustainable and Green Finance Institute (SGFIN) was established by MAS. Under the directionof MAS, the Singapore Exchange (SGX) also arranges workshops, seminars, and educational initiatives to raise market participants' knowledge and comprehension of green finance. Additionally, SGX mandates that businesses apply reveal their gender diversity and carbon footprint.
Singapore's efforts to develop a sustainable ecosystem are not yet finish. In February 2021, Singapore government launched The Singapore Green Plan 2030. The Green Plan is spearheaded by five ministries of Singapore, namely the Ministry of Sustainability andEnvironment (UMK), Trade and Industry (MTI), Transport (Ministry), National Development(MND), and Education (MOE). In addition, The Green Plan is supported by the entire Government in mapping out ambitious and concrete targets for the remainder of this decade (Green Plan, 2024).

Singapore is still working on developing a sustainable ecosystem. The Singapore government introduced the Singapore Green Plan 2030 in February 2021. Singapore's Green Plan is led by five ministries: The Ministry of Sustainability and Environment (UMK), Trade and Industry (MTI), Transport (Ministry), National Development (MND), and Education (MOE). Furthermore, the entire government supports the Green Plan, which establishes specific, challenging goals for the remainder of the decade (Green Plan, 2024).

<u>Pillar 1: City in Nature</u>
2026 targets:
- Develop over 130 ha of new parks, and enhance around 170 ha of existing parks with more lush vegetation and natural landscapes

2030 targets:
- Double our annual tree planting rate between 2020 and 20230, to plant 1 million more trees across Singapore
- Increase nature parks land area by over 50% from 2020 baseline
- Every household will be within a 10-minutes walk from a park

2035 targets:
- Add 1000 ha of green space

<u>Pillar 2: Sustainable Living</u>
A green Citizenry that Consumes and Wastes Less
2026 targets:
- Reduce the amount of waste to landfill per capita per day by 20%

2030 target:
- Reduce household water consumption to 130 litres per capita per day
- Reduce the amount of waste to landfill per capita per day by 30%

Green Commutes
2030 targets:
- Achieve 75% mass public transport (i.e. rail and bus) peak-period modal share
- Electric buses to make up half of the public bus fleet by 2030. Existing diesel buses will be replaced with cleaner energy buses by 2040
- Expand rail network to 360 km by early 2030s
- Expand cycling path networks to around 1,300 km

2040 targets:
- Achieve more than 80% mass public transport (i.e. rail and bus) peak-period modal share
- Public, active and share transport modes to account for 9 in 10 of all peak-period journeys

Strenghthen Green Effort in Schools
2030 targets:
- Achieve a two-thirds reduction of net carbon emissions from the school sector
- At least 20% of schools to be carbon neutral

Pillar 3: Energy Reset

Green Energy
Play active and important roles in contributing towards two international goals
- The International Civil Aviation Organization's long-term global aspirational goal (LTAG) for international aviation to reach net zero carbon emissions by 2050
- The International Maritime Organization's target to reduce greenhouse gas (GHG) emission from international shipping by at least 50% by 2050 compared to 2008 levels, and to phase out such GHG emissions in this century

2025 targets:
- 1.5 gigawatt-peak (GWp) of solar energy deployment, which can meet around 2% of our 2025 projected electricity demand, and generate enough electricity to meet the annual electricity needs around 260.000 households
- Deploy 200 megawatt-hour of Energy Storage Systems to enhanced grid resilience and support clean energy transition [Achieved in December 2022]

2030 targets:
- Increase solar energy deployment to at least 2 GWp, which can meet around 3% of our 2030 projected electricity demand and generate enough electricity to meet the annual electricity needs around 350,000 households
- Best-in-class power generation technology that meets emission standards and reduce carbon emissions

Greener Infrastructure and Buildings
2025 targets:
- Reduce energy consumption of desalination process from current 3.5 kWh/m^3 to less than $2kWh/m^3$
- Singapore first integrated waste and used water treatment facility to be 100% energy self-sufficient (Tuas Nexus)

2030 targets:
- Green 80% of Singapore buildings (by Gross Floor Area) by 2030
- 80% of new buildings (by Gross Floor Area) to be Super Low Energy buildings from 2030
- Best-in-class green buildings to see an 805 improvement in energy efficiency (over 2005 levels) by 2030

Sustainable Town and Districts
2030 targets:
- Reduce energy consumption in existing HDB towns by 15%

Cleaner-energy Vehicles
2025 targets:
- New registration of diesel cars and taxis to cease from 2025
- All HDB towns to be Electric Vehicle (EV) ready with chargers at all HDB carparks by 2025

2030 targets:
- All new car and taxi registrations to be of cleaner-energy models from 2030
- Deploy 60.000 EV charging points nationwide by 2030

2040 targets:
- All vehicles to run on cleaner energy by 2040

Sustainable Aviation
2025 targets:
- All new airside light vehicles, forklifts and tractors at Changi Airport to be electric from 2025

2040 targets:
- All airside vehicles at Changi Airport to run on cleaner energy by 2040

Sustainable Maritime
2030 targets:
- All new harbor craft operating in our port waters to be fully electric, be capable of using B100 biofuels, or be compatible with net zero fuels from 2030

<u>Pillar 4: Green Economy</u>
New Investment to be Among the Best-in-Class
Seek new investments to be Among the Best-in-Class in energy/carbon efficiency
Sustainability as a New Engine for Jobs and Growth
2030 targets:
- Jurong Island to be a sustainable energy and chemicals park
- Singapore as a sustainable tourism destination

- Singapore as a leading centre for green finance and services to facilitate Asia’s transition to a low-carbon and sustainable future
- Singapore as a carbon services hub in Asia
- Singapore as a leading regional centre for developing new sustainability solutions
- Groom a strong pool of local enterprises to capture sustainability opportunities

Pillar 5: Resilient Future

Adapt to Sea-level Rise and Enhance Flood Resilience

2030 targets:

- Complete formulation of coastal protection plans for City-East Coast, North-West Coast (Lim Chu Kang and Sungei Kadut) and Jurong Island

Grow Local

2030 targets:

- Build the capability and capacity of our agri-food industry to produce 30% of Singapore’s nutritional needs locally and sustainability

To broaden the scope, MAS released the Finance for Net Zero Action Plan in 2019 along side the Green Finance Action Plan. Lawrence Wong, Deputy Prime Minister, Minister for Finance, and Deputy Chairman of the Monetary Authority of Singapore (MAS), announced the launch of MAS' Finance for Net Zero (FiNZ) Action Plan at the National University of Singapore's Sustainable and Green Finance Institute in April 2024.

The FiNZ Action Plan aims to achieve the following four strategic outcomes (MAS,2023):

a. Data, Definitions & Disclosures. In order to protect against the dangers of greenwashing and to assist financial market participants in making decisions, MAS will continue to support consistent, comparable, and trustworthy climate data and disclosures.

b. Climate Resilient Financial Sector. To identify financial risks associated with climate change, MAS will keep working with FIs to promote good environmental riskmanagement practices and to further climate scenario analysis and stress testing. When supervising the transition planning of financial institutions, MAS will take into account the latest global best practices.

c. Credible Transition Plans. MAS will work with international partners like the International Energy Agency to support the creation of believable regional sectoral decarbonization pathways in order to assist FIs in adopting science-based transition plans. FIs can use these pathways as a guide when establishing goals for reducing emissions and interacting with clients on decarbonization projects.

d. Green & Transition Solutions & Markets. In order to assist decarbonization initiatives and the reduction of climate risk, MAS will advance creative and reliable green and transition financing solutions and markets.

To achieve the a fore mentioned goals, MAS will continue to develop and scale Green FinTech solutions. The MAS will also continue to invest in the skills and capabilities of Singapore's workforce.

Furthermore, the Monetary Authority of Singapore (MAS) convened the Green Finance Industry Taskforce (GFIT) between November 2019 and April 2023. The GFIT advanced the three objectives through four key initiatives: a) developing a taxonomy, b) improving disclosures, c) promoting green finance solutions, and d) improving financial institutions' environmental risk management practices (MAS, 2024).

The Monetary Authority of Singapore (MAS) introduced the Singapore-Asia Taxonomy in December 2023. This innovative taxonomy aims to provide precise standards and guidelines for characterizing environmentally friendly actions and shifts across multiple industries. It covers a wide range of industries, including energy, real estate, transportation, agriculture, forestry, land use, waste management, industrial processes, and product use (Tsui,2023).

According to Tsui (2023), the Singapore-Asia Taxonomy is the first globally to provide a comprehensive definition of "transition activities" encompassing a wide variety of industries.It is anticipated that this initiative will have a major impact on capital flows toward sustainableinitiatives and endeavors, assisting the world's shift to a low-carbon economy.

In the fight for sustainable development and the mitigation of climate change, the introduction of this taxonomy represents a critical turning point for both Singapore and the entireworld. It demonstrates Singapore's resolve to set the standard for sustainable finance and to promote an environmentally friendly future.

4.2 SUCCES SUSTAINABLE FINANCE IN SINGAPORE

Various schemes to develop sustainable finance have been carried out by Singapore. This includes developing financial products. Product innovations launched to support the implementation of sustainable finance are Green Bonds, Green Loans, Green Sukuk, SLB (sustainability-linked bonds), and SLL (sustainability-linked loans). According to Antonio, M.S. (2023) financial engineering and innovation are very important in facing an increasingly sophisticated and competitive financial market and rapid changes in the market environment.

Meanwhile, based on figure 4, it can be seen that the total accumulated green debt in 2021 reached a high of 40 USD billion. Meanwhile, in 2017 the number was the lowest. The increase in the amount of green debt also occurred every year from 2017 to 2021. In addition, there was a drastic increase from 2020 to 2021. Furthermore, in 2022 there was a drastic decline as well. In general, the number of green debt issuance has also increased from 2017 to 2021.

Figure 4. Green Debt and Number of Issues in Singapore

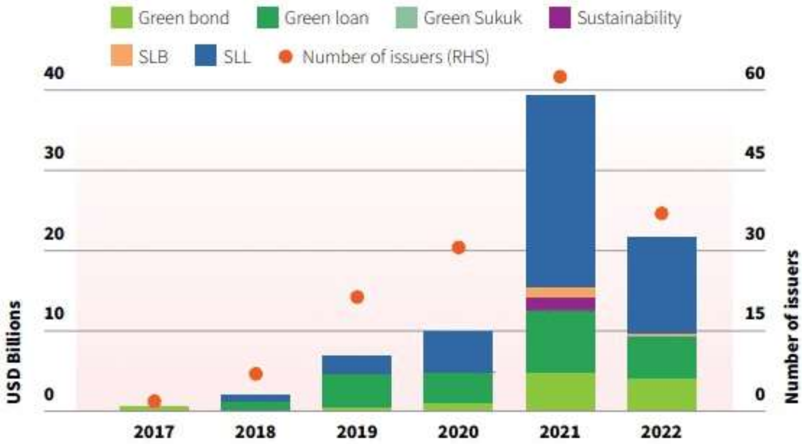


Table 1. Largest Issuers in each theme, ranked by cumulative amount issued in Singapore

Theme / Segment	Issuer	Total amount issued (USDm)	2022 amount issued (USDm)	Format
Green	Fraser Property Limited	2,723	131	Loan
	Perennial Shenton Property Pte Ltd	2,091	2,091	Loan
	Singapore Government	1,753	1,753	Bond
	Singapore Housing & Development Board	1,638	1,638	Bond
	Asia Square Tower 1 Pte Ltd	1,548	-	Loan
S&S	United Overseas Bank Ltd	1,500	-	Bond
	FLCT Treasury Pte Ltd	81	-	Bond
	WLB Asset Pte Ltd*	46	-	Bond
SLB	Sembcorp Financial Services Pte Ltd	497	-	Bond
	Nanyang Tech University	481	-	Bond
	Ascott REIT MTN Pte Ltd	259	259	Bond
SLL	Olam International Ltd	9,925	4,875	Loan
	Trafigura Pte Ltd	7,905	-	Loan
	Flex Ltd (Flextronics International)	2,000	-	Loan

Based on table 1 it can be seen that Multinational agribusiness company Olam International ranked top in 2022 with USD4.875bn over two large SLLs (USD2.9bn and USD1.975bn) through its Olam Agri Holdings financing arm. The only other issuer with a deal over USD2bn was Perennial Shenton Property with an inaugural green loan worth SGD3bn (USD2.09bn). In a highly anticipated transaction, Singapore's Government also became a first-time issuer with a 50-year SGD2.4bn (USD1.75bn) green bond that will finance a vast array of projects with environmental benefits.

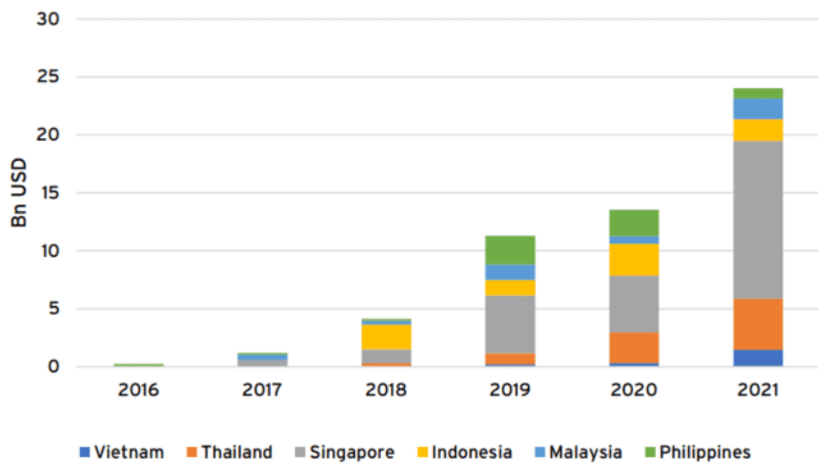
Table 2. Market Analysis Summary:SLLs, Green, and Sustainability

Market analysis summary: SLLs, green and sustainability segments dominate

	Green*		Social		Sustainability		SLB		SLL**	
	2022	Cumulative	2022	Cumulative	2022	Cumulative	2022	Cumulative	2022	Cumulative
Amount issued (USDbn)	12.8	50.6	0.3	0.9	7.8	22.6	0.3	2.7	14.9	52.0
Number of issuers	24	117	1	7	11	29	2	10	27	77
Average amount per issuer (USDm)	535	432	295	129	705	780	136	265	552	675
Number of currencies	8	13	1	2	5	7	3	5	4	8
Number of countries	5	6	1	2	3	6	2	4	5	8
Largest country (by amount issued)	**2022**: Singapore **Cumulative**: Singapore		**2022**: Thailand **Cumulative**: Thailand		**2022**: Philippines **Cumulative**: Thailand		**2022**: Singapore **Cumulative**: Singapore		**2022**: Singapore **Cumulative**: Singapore	

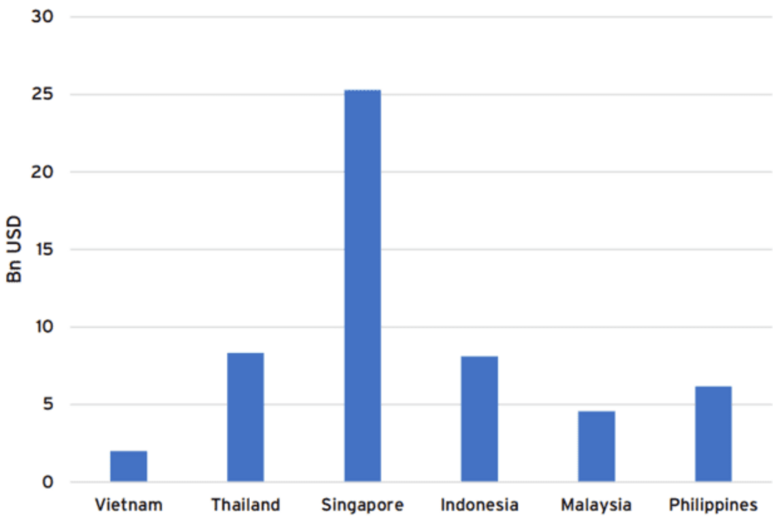
Based on the table 2, it can be seen that in 2022 Singapore is the largest country that issues Green bonds and loans, SLB (sustainability-linked bonds), and SLL (sustainability-linked loans). Amount issued Green 12,8 USDbn, SLB 0,3 USDbn, and SLL 14,9 USDbn.

Figure 5. ASEAN-6 annual GSS issuances, 2016-2021



While there is generally little information regarding green or sustainable bank lending across ASEAN, information is available in the capital markets through the tracking of labelled GSS bonds. ASEAN issuance of GSS bonds as well as labelled GSS loans has grown each year to new record highs, with USD 24 billion of bonds and loans issued in 2021 (Figures 5) and an additional USD 27.5 billion of sustainability-linked bonds and loans (Manuamorn et al. 2022).

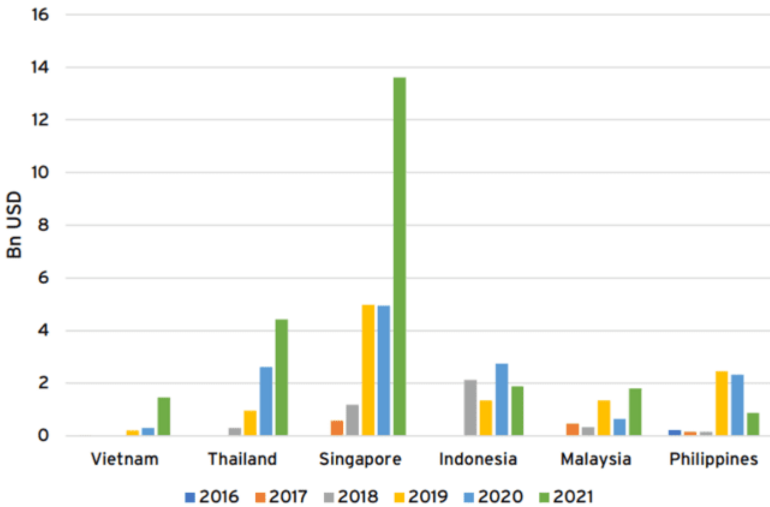
Figure 6. Cumulative ASEAN GSS issuances by country by end-2021



Based on figure 6, it can be seen that cumulatively Singapore is the country with the largest GSS issuance reaching 25 Bn USD at the end of 2021. The value of the GSS issuance is relatively the highest compared to other ASEAN countries, reaching more than 2 times compared to Thailand and Indonesia. Lebih jauh lagi, jika dilihat secara tahunan dalam 6 tahun terakhir (2016-2021) Singapura juga menjadi negara yang terbanyak dalam penerbitan GSS (figure 7).

After reviewing the initiatives undertaken by Singapore and saw successful in implement sustainable finance, Its steps related to solving three main problems as follows. The three challenges include a lack of understanding and participation in the financial industry, green category standardization, and support and collaboration for business opportunities.

Figure 7 . Annual GSS issuances in ASEAN-6 countries, 2016-2021



First, low level of understanding and participation in the financial industry.

Singapore's success in implementing sustainable finance can be seen from the policies made related to financial literacy. Singapore has no specific regulations governing financial literacy, but there are several frameworks and regulatory measures in place to indirectly promote financial literacy and protect consumers in the financialsector. For example, consider The MoneySENSE - Singapore Polytechnic (SP) Institute for Financial Literacy. The institute will provide financial education to Singaporeans, equipping them with core financial capabilities. The Institute offers free financial education to the public, covering topics such as basic money management, financial planning, and investment advice.

Financial literacy is a measure of a person's level of understanding of financial concepts and having the ability and confidence to manage personal finances through appropriate short-term decision-making and logical long-term financial planning, taking into account life stages and changing economic conditions (Mukhlisin et al. 2019). Meanwhile according to the S&P Global Financial Literacy Survey 2018, Singapore has the highest financial literacy index in Southeast Asia, at 59%, while Indonesia has a 32% index (Haura, 2023).

The application of sustainable finance is undoubtedly influenced by the degree of financial literacy. Christoper (2024) claims that financial literacy has a number of advantages for people, companies, society, and the environment when it comes to promoting sustainable finance. Individuals can use it to diversify their portfolio, lessen their environmental impact, make financial decisions that are consistent with their personal values and goals, and promote positive social change. It benefits companies in a number of ways, including increased funding availability, improved risk management, enhanced reputation, and long-term value creation. Itbenefits society by promoting social inclusion, lowering poverty and inequality, and defending democracy and human rights. It benefits the earth by reducing the effects of climate change, preserving natural resources, and safe guarding ecosystems and biodiversity. Furthermore increasing understanding of sustainable finance needs to be carried out by all related parties, both managers, risk management teams, communication teams, corporate secretaries and also leaders of banking institutions. This needs to be done to instill a mindset that the implementation of sustainable finance is the way to win global competition (Maftuchah et al 2023).

Second, Indonesia does not yet have an official green category standardization.

Indonesia does not currently possess an official green category standardization, whichis necessary for evaluating the execution of environmental, social, and governance aspects. Therefore, to support sustainable business, investment, and risk management standards, national standardization of green categories and taxonomies is required. The standard needs to be made according to the needs and refer to the international standards that have been made.

To assist financial actors and others in deciding which investments are appropriate fortheir jurisdictions to label as "green," a green taxonomy is crucial. A green taxonomy also aidsin the process of making knowledgeable decisions about investments that are beneficial to theenvironment. It promotes the pursuit of initiatives and endeavors that advance ecologically sustainable economic growth and advance particular environmental goals

Third, support and collaboration in business opportunity

Efforts that can be made are by foster partnerships between financial institutions, private sector entities, and development organizations to leverage resources, expertise, and networks for sustainable finance development projects. Explore collaborations with international financial institutions and organizations to exchange knowledge and best practices, and attract foreign investments in sustainable finance projects.

5. CONCLUSION

From the discussion can be made solution for 3 problem implementation sustainable finance in Indonesia. The initiative are have implemented national campaigns, published green taxonomies, and fostered public-private partnership to address these issues.

Succesfull Singapore in implementing sustainable finance can be seen from several aspects. From the regulatory aspect, Singapore has developed various policies that regulate all activities in sustainable finance. Furthermore, the policies that have been made have been implemented and complied with well by all stakeholders. The new findings in this study are related to the culture owned by stakeholders in Singapore. Singapore has a better culture of financial literacy than other Asian countries. According to S&P Global Financial Literacy Survey 2018, the data shows that Singapore has the highest financial literacy index in Southeast Asia, namely 59%.

The high level of financial literacy certainly has positive influences on the implementation of sustainable finance. This is in line with research conducted by Brown et al. 2017 which stated that cultural differences have a significant effect on the achievement of financial literacy. The level of financial literacy is also influenced by the level of education. This is in accordance with research conducted by Kadoya, Y., & Khan, M.S.R (2020) which concluded that the demographic factors of gender, age, and education; the socio-economic factors of income and occupation; and the psychological factor of perceptions of the future significantly affect the level of financial literacy. Furthermore, Hakim, A. L. et al (2022) found that knowledge, religiosity, and risk & return have a significant positive effect on interest in investing through Securities Crowdfunding (SCF). Based on research results, the level of financial literacy is very important to pay attention to. It is important for other countries to increase public awareness of the importance of sustainable finance issues. Therefore, innovative activities to increase the level of financial literacy that are substantive need to be launched.

The benefits of this research have two points of view, namely theoretically and practically. Theoretically, this research is expected to contribute to enriching the body of knowledge and research related to the implementation of sustainable finance. Additionally, this research can be input for academics to develop further research.

Practically, this research results hoped are expected to be able to use by regulators or government as information and consideration in formulating policies regarding the implementation of sustainable finance in Indonesia.

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