Climate Tech Landscape Research Briefs

Country Snapshots 2021

Bangladesh I Pakistan I Indonesia I Philippines I Vietnam

CLIMATE TECH INVESTMENT NETWORK

Climate Tech Investment Network (CTIN) provides investment syndication support services to local angel investment networks through a deal-flow centric platform to catalyze early-stage capital into climate techstartups in South and Southeast Asia.

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I Executive Summary

Globally, Climate Tech venture capital investments have grown significantly over the past decade, from $418 million in 2013 to $17 billion in 2020. This year has already seen an equivalent amount in just the first 6 months, i.e. more than $16 billion globally. In a similar vein, the Emerging South & Southeast Asia ecosystem is seeing an increasing number of new climate tech startups, and greater interest among stakeholders.

To better understand the trends in climate tech investing, Climate Tech Investment Network (CTIN) undertook research on five countries in the two regions, i.e. Bangladesh and Pakistan in Emerging South Asia, and Indonesia, Philippines, and Vietnam in Southeast Asia. This resulting report presents insights on what stages and sectors within climate tech are seeing investments, who the follow-on investors are, and how CAN can address the investment barriers faced by local angels.

What came out from these studies is that the climate tech sector is still in nascent stages across these countries, with a few deals happening in the space. However, even as the sector is growing and interest is increasing, local angels are not familiar with the sector and perceive challenges in sourcing and evaluating deals, in addition to having less clarity on exits.

SECTORS AND STAGES OF INVESTMENT[i]

The definition of Climate Tech

We have defined Climate Tech to include:

1. Clean Energy (renewable energy generation for both power and non-power)
2. Energy Optimization (smart grids, energy efficiency & conservation, energy storage & management)
3. Future Mobility (electric vehicles, fleet management, connected/shared vehicles, charging and battery management system)
4. Energy Access (rural and off-grid mini & micro grids)
5. Carbontech (carbon capture/storage/use, trading & offsets, afforestation)
6. Waste-to-Resources (including waste management and upcycling for plastics and non-plastics)
7. Natural Resources (agriculture and food, biodiversity, air and water management)
8. Clean Industry (advanced materials and processes)

Inclusions and Exclusions

We have included investments into early-stage startups that are innovating either via new technology development, business models, or products/process development. As such, we have excluded infrastructure investments (e.g. investments in solar and wind power plants).

Trends - Emerging South Asia

Stages of Investment

In the region as a whole, in the last decade, the majority of startup investments (across sectors) in Pakistan (~78%) and Bangladesh (~77.6%) were in early-stages[ii].

- In the case of Pakistan, between 2015 - mid 2021, the number of deals in the seed stage funding rounds was ~3 times the number of deals in the pre-seed funding rounds.
- While in the case of Bangladesh, between 2010 - 2020, both the pre-seed and seed stages witnessed a similar number of deals. However, the quantum of pre-seed stage investment comprised just 2.9% of the total venture capital amount invested in this period, while the quantum of seed stage investment comprised 23.7%.

Implications: Both countries face the classic challenge of nascent ecosystems around attracting new entrepreneurs and more early-stage investors to the climate tech space. Given this chicken-and-egg problem, there is a need for

[i] *Its pertinent to note that none of the countries had granular climate tech focused investment data and hence either impact investments (both social and environmental) and/or startup investments (from all sectors in the entire startup ecosystem) have been considered to gather insights.*

[ii] *This includes grants, angel, pre-seed, seed, and pre-series A investments*

interventions that support investor education, flow of specialized cross-border capital as well as strong signals to angels around exit pathways – all supplemented by business support for startups.

Sectoral interest

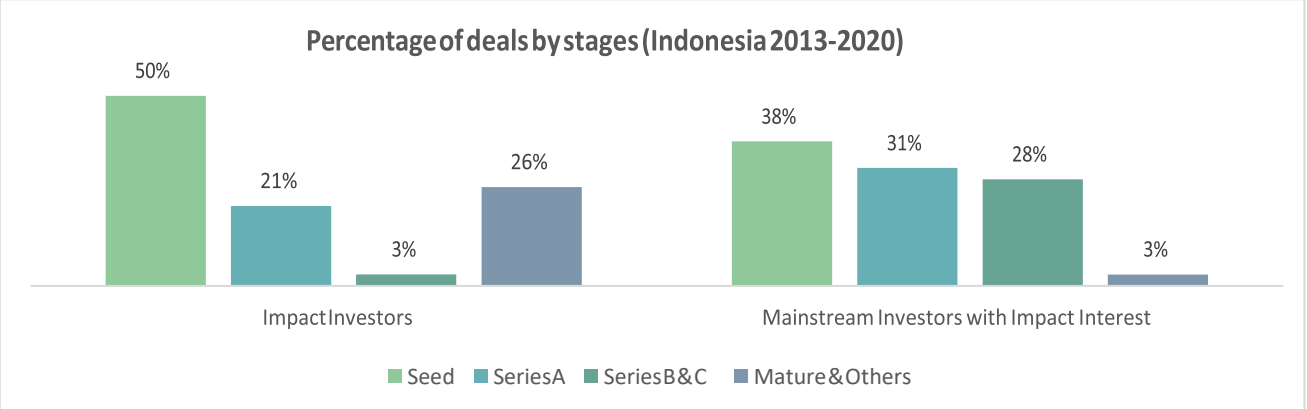
- In the case of Pakistan, only 5 investments (~2.4%), of the 206 total investments across all sectors between 2015 – July 2021 were in Clean Tech (Energy and Built Environment).
    - While the Transportation & Mobility sector saw 12 deals (~5.8%), none of the startups supported were in E-Mobility but focused on mass transportation / shared mobility solutions.
    - Additionally, a climate-adjacent domain like Agriculture & Food saw just 2.4% of the total investments
    - The data does not present any insight on broadening of investor interest beyond traditional sectors such as Energy or Agriculture & Food.
- In Bangladesh, of the 152 total startup investments between 2010 - 2020, just 0.95% were in Energy and 0.2% in Agriculture & Food. While Logistics & Mobility saw about 20.57% share of deals, there is no granular data on the kinds of startups supported.
    - There are indications that investor interest is broadening here, with 2 of the 3 recent deals being in Waste-Management and Water sub-sectors.

Implications: Given significant economic contributions from Energy and Agriculture & Food, these sectors are the major areas of interest in both Pakistan and Bangladesh, and will continue to be so going forward. At the same time, both countries need a broader range of innovations across various climate tech sub-sectors to support sustainable development pathways. Given the cross-cutting nature of climate tech combined with the fact that climate tech startups have specific needs (e.g., dealing with regulations, government clients, technology validation etc.), there is a need for greater specialized support for early-stage entrepreneurs. On the investor side, there is a need for domain- expertise for investor education and technical due-diligence so that these early pipelines can be supported by growth capital.

Trends - Southeast Asia

Stages of Investment

The countries examined are at very different stages of development of their climate tech ecosystems. From the available data, the broad trends that emerge are:

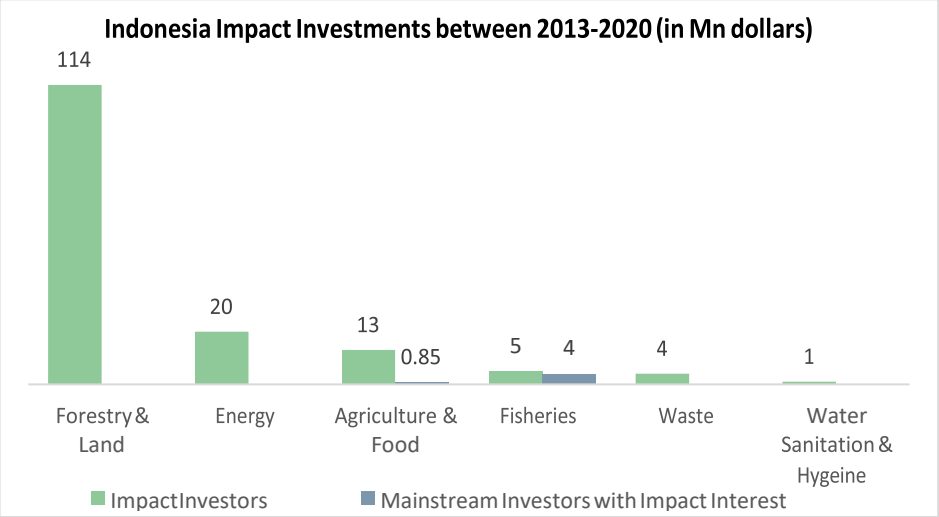


- In Indonesia, between 2013 - 2020, there were significant investments beyond seed stage – this is an outcome of it being a more mature startup ecosystem with a more industrialized economy compared to the other countries. In terms of deal activity, impact investors are active primarily in the seed and series A stages, whereas mainstream investors that have an impact interest are active all the way through series C rounds as well – thereby both playing a complementary role for each other in filling investment gaps.
- In the Philippines, between 2018 to mid-2020, 71% of the impact investment deals were in pre-seed, seed and pre-series A stages.
- In Vietnam, between 2013 to 2020, 65% of the deals across all startup sectors were in the pre-seed and seed- stages

Implications: While Indonesia has greater climate tech investment activity compared to Philippines and Vietnam, there is still a need to attract more investors to the climate tech space across the region. This is because most investors who

have an impact focus do not necessarily look at climate tech specifically as a priority. Philippines and Vietnam, being more nascent markets, are seeing significant activity in the early-stage investment category (although very few of these investments are in the climate tech space). This indicates a clear need for investor education as well as the need to build engagement among local and cross border angels (who can bring in sector experience as well as co-investment capital) to spur local investments into this sector.

Sectoral interest



- In Indonesia, impact investors put in a total of $157mn between 2013-2020 across several sectors, with a significant majority in startups with solutions in Forestry & Land. This is an outcome of an economy dominated by plantation and resource-extractive companies. The need for energy transition and energy access are also driving investor interest.
    - There is a preference for tech-enabled impact solutions among mainstream investors whose portfolios are dominated by such companies (up to 90% of their composition), whereas impact investors have a lower share of tech-enabled impact startups (at just 22%).
- In the Philippines, between 2007 - 2017, the Energy sub-sector saw a 11.1% share, while Agriculture saw a 13% share in the number of impact investment deals.
- In the case of Vietnam, there was no focused data to identify trends, but of the 4 recent deals, 2 were in the Waste-to-Value space, and of the remaining 2 deals - each was in E-Mobility and Agriculture & Food sub- sectors.

Implications: As in Emerging South Asia, investors in Southeast Asia lean more towards traditional and economically significant sectors such as Forestry & Land, Energy and Agriculture. Other sectors of investor interest include Fintech and Edtech, which leads to entrepreneurial talent gravitating towards these sectors. Across all three countries, there is a need for interventions such as domain focused startup support to help build a pipeline of investable climate tech startups and a way to make this deal flow accessible to investors.

FOLLOW-ON INVESTORS AND PATHS TO EXIT

Emerging South Asia

In Bangladesh, 92% of startup investments was from foreign sources of capital over the last 5 years. In 2021 for example, local investments only made up 7.2% of the total pie. Of the 11 investment firms we identified in Bangladesh who have an interest in climate tech, just 2 are domestic while the remaining 9 are foreign firms with a local presence. Some of these investors also have an impact focus. At this time, none of the top entrepreneur support organizations (ESOs) have a climate tech focus and/or domain expertise. As interest in this sector grows, there will be a need for

domain focused ESOs to support the development of early-stage climate tech pipelines, with investors to support the growth of such startups.

In Pakistan, there are a growing number of investors, both foreign and local (particularly angels, syndicates, family offices, and corporates etc.) looking to invest into startups. Some of these have an impact focus – however, none have a dedicated climate tech focus. Further, only one corporate is focused on Energy but more so from a strategic perspective. As in Bangladesh, there is a need in Pakistan for capacity building for entrepreneurs and investor education to help local investors develop their climate tech investment theses.

Southeast Asia

In the Philippines and Indonesia, among the investors identified with a climate tech interest, all look at both impact & non-impact startups across all sectors. However, in Vietnam, four investors who have a climate tech focus were identified, of which two are government-backed institutions (which may also have significant interests in project/ infrastructure level investments).

Both the Philippines and Indonesia have just one ESO with a climate tech focus, while Vietnam has three.

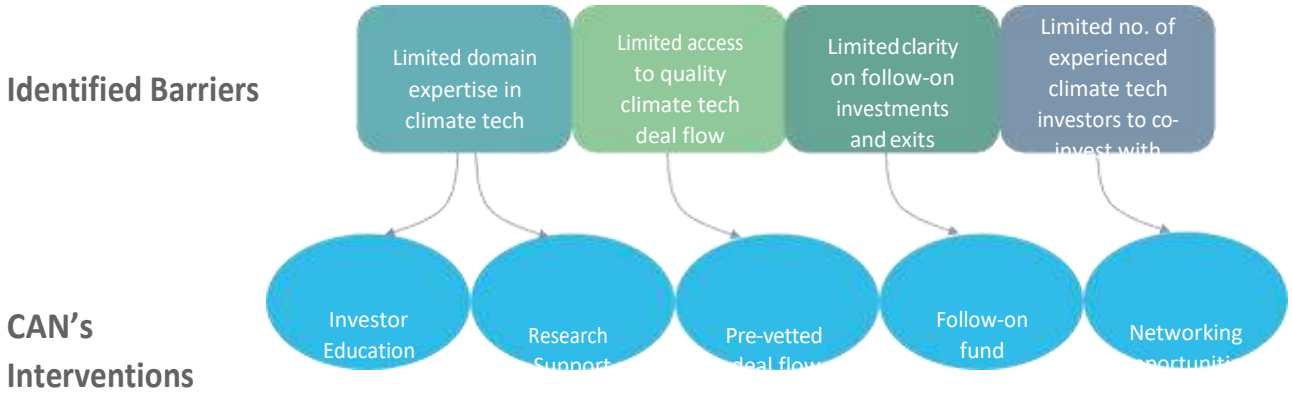
Quite positively, all three countries have a handful of corporations with interests in supporting climate tech innovations as a strategic interest or via commercial VC arms.

Implications: In summary, the SSEA regions need more early-stage investments, particularly from local as well as foreign (cross-border) angels and investors to create a growing community of climate tech startups for potential follow-on investors. Further, based on the above findings, these countries and regions will also benefit from more dedicated climate tech domain expertise in the entrepreneur support ecosystem. Both of these barriers are being addressed by CAN.

ADDRESSING BARRIERS THAT ANGELS FACE

Identified barriers to Climate Tech investments in the target regions

Based on our FLA scoping exercise and subsequent research, we found that there are a number of issues that local angels face when investing in climate tech. These include:



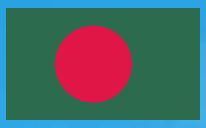
The above barriers make it hard for angels to justify the "cost" of dedicating time and resources to the climate tech sector today.

CAN's solution

CAN has been designed to solve these issues and lower the above-mentioned barriers by supporting local angel groups in catalyzing their first few investments in climate tech startups. We will deliver this value by creating pre-vetted climate tech deal flow and showcasing the same during biannual investment summits, monthly convenings (centered around pitch days), investor education workshops, research briefs, online startup database etc.

Bangladesh

Climate Tech Landscape Research Brief
Country Snapshot



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1 | COUNTRY OVERVIEW

High Level Economic Stats

GDP:

$324.239 Bn (2020)
(Source: World Bank)

GDP per Capita:

$1968.792 (2020)
(Source: World Bank)

Inflation, consumer prices:

5.691% (2020) **(Source: World Bank)**

Sovereign Risk:

BB (Source: S&P)
Ba3 (Source: Moody's)

FDI Inflows (BoP, current in US$):

0.631% (2019) **(Source: World Bank)**

Foreign Exchange Resilience (against US$):

1.37% CAGR over 10 years

Capital Controls:

- Bilateral Investment and Taxation treaties: With **30 out of 190 countries** (Source: US Department of State)
- World Bank Ease of Doing Business Ranking: **168 out of 190 countries**
- Bangladesh is targeting to bring the World Ease of Doing Business ranking to double digits by 2025[i] . The country is constantly looking to bring in foreign investment. The sectors with active foreign investment include agribusiness, garment, leather, light manufacturing, electronics, energy and power, communications technology, plastic, healthcare, medical equipment, pharmaceutical, infrastructure, etc[ii].
- To promote local and foreign investment, there are 4 government bodies including The Bangladesh Investment Development Authority (BIDA) supervises and promotes all private investments in the country. The remaining 3 organizations are Investment Promotion Agencies BEPZA, BEZA, BHTPA. These agencies are tasked with promotion of investment through setting up of Export Processing Zones, Economic Zones and High-Tech Parks in Bangladesh. To facilitate foreign investment, the four government investment bodies have been mandated since 2018 to provide single-window services to local and foreign investors under the

Geographic and Demographic Stats

Population:

164 million

(Source: CIA World Factbook)

Youth% (15-24 years):

18.56%

(Source: CIA World Factbook)

Major Cities/Hubs:

Dhaka (Capital), Chittagong, Khulna, Rajshahi, Sylhet, Bogra

(Source: CIA World Factbook)

Youth Unemployment (15-24 years):

12.8%, Ranking, 107 out of 190

(Source: CIA World Factbook)

Languages Spoken:

Bangla (Majority)

(Source: CIA World Factbook)

Population completed tertiary education (25+ years):

10.138 million (2019)

(Source: World Bank)

2 | Overview of Climate Change in Bangladesh

Introduction

Bangladesh has historically been one of the most vulnerable countries to the effects of Climate Change. Given its location and topography, the country has in the past been exposed to extreme weather, especially flooding (80% of the country's surface forming a giant floodplain), storm surges, cyclones etc. Compounding this further is the country's high socio-economic vulnerability which increases the climate risk due to a high population density, and a higher-than-average dependence on agriculture.

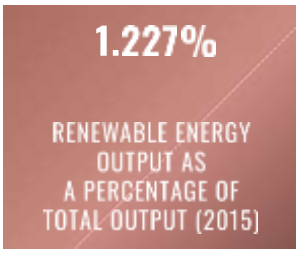
The country has made combating climate change an important part of its planning, being heavily featured in its five-year future planning initiatives. Bangladesh has also ratified the Paris agreement in 2016 and has submitted its Nationally Determined Contributions (NDCs) where the country looks to reduce GHG emission by 15% from power, transport and industrial sectors on a conditional basis. A total of $40 billion would need to be invested between 2015 and 2030 to fulfil its NDCs and SDGs.

High Level Climate Change Stats

Source: German Watch

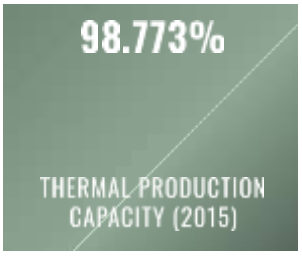
Source: German Watch

Source: German Watch

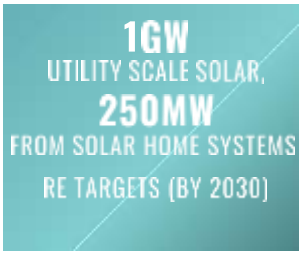


Source: World Bank

Source: Climate Watch



Source: World Bank



Source: Climate Watch

3 Climate change and startup policy overview

Key Climate Change, Startups and Investment related Policies & Regulations[ii] [iii]

Climate Change Policies & Government Initiatives

2012	2013	2015	2017	2021
Vision 2021, strategic plan to achieve the government's development vision in time for Bangladesh's 50th independence anniversary	National Sustainable Development Strategy	Seventh Five -year plan	Bangladesh Delta Plan 2100; Bangladesh Environment, Forestry and Climate Change Country Investment Plan	Perspective Plan for 2041; Eighth Five-year plan

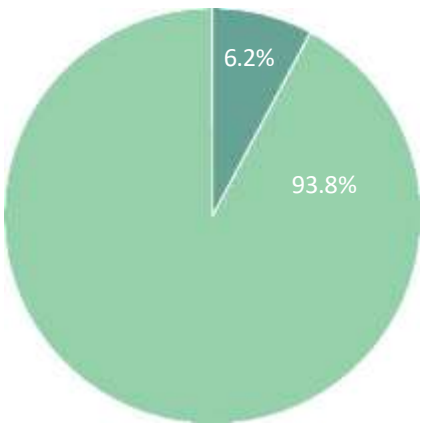
Startup/ Investment Policies & Government Initiatives

2017	2018	2019	2020	2021
Idea Project Launched	Bangabandhu satellite launched	State-owned VC launched – Startup Bangladesh Limited; Tier-4 data center launched	BDT 500Cr. Seed Investment Fund launched by Startup Bangladesh	2650 unions set up under broadband internet connectivity

4 Startup I nvestment Overview

Note: Due to lack of granular information focused on Climate Tech innovations, the deal focused information in this section contains data for the entire Startup Ecosystem in Bangladesh.

Investment by Source (2015-2021)[i]



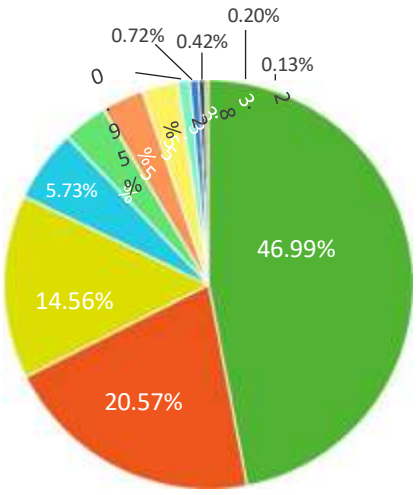
Local

Foreign

Total Investment for startups in 5 years

347 Million

Investment by Sector (by number of deals) (2010-2020)[v]



Fintech

Logistics & Mobility

Ecommerce/Retail

Consumer Services

Softeare & Technology

Healthcare

Sports & Entertainment

Energy

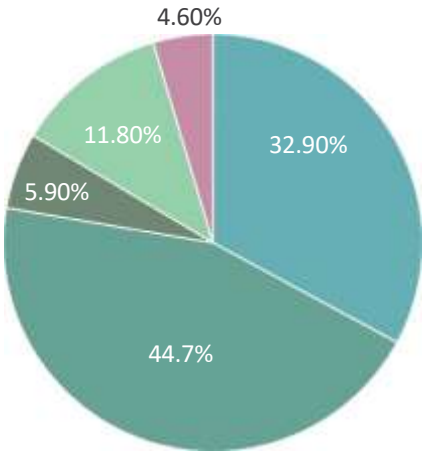
Travel & Toursim

Education

Food & Agriculture

Reak Estate & Property

Investment by Stage (by number of deals) (2010-2020)[v]



Pre-Seed

Seed

Bridge

Series A

Series B+

5 | Key Climate Stakeholder Profiles

Key Investors in Climate Change[iv]

Names/Logos	Classification	Investment Sector
Green Climate Fund	Government	Gender equality, environment, education, financial inclusion
BD Ventures	VC	Clean Energy, Healthcare,IT solutions
responsAbility	Venture Debt	Climate finance, financial inclusion, sustainable food
Impact Investment Exchange	VC	Climate change, Gender Equality, Base-of-Pyramid
B-Briddhi	VC	Future Mobility, Energy Access, Women focused businesses, Healthcare etc.
SEAF	VC	Clean Energy, Telecom, Gender equality
Truvalu	VC	Agriculture, Food
Incluvest	VC	Agriculture, Food, Affordable Housing
Bangladesh Angels	VC	Sector Agnostic
TheSteps.org	VC	Impact in general
Aavishkaar Capital	VC	Impact in general

Key ESOs in Climate Change[iv]

Name/Logos	Classification	Focus
LightCastle Partners	Accelerator	Sector Agnostic
YY Ventures	Hybrid	Impact in general
BYLC Ventures	Hybrid	Impact in general
Toru Institute	Hybrid	Impact in general
Urban Innovation Challenge	Accelerator	Impact in general
YY Goshthi	Accelerator	Impact in general
YGap	Accelerator	Impact in general
Brac	Hybrid	Impact in general

Key Corporates in Climate Change[iv]

Name	Type/ Classification
Omidyar Network	Through its subsidiary, Flourish Ventures, Omidyar Network supports fintech solutions, focused on providing a fair and also green financial ecosystem
Syngenta	Being a big player in the agricultural sector, Syngenta, through its foundation has been supporting agritech startups that not only focuses on the overall impact on farmers but also on the efficient use of resources like water in the agricultural sector.

Startup Profiles

Company	Year Set-Up	Sector	Sub-Sector	Sub-segment
	2018	Circular Economy	Natural Resources	Water

Hydroquo+

Hydroquo+ utilises a unique product suite to improve water quality and reduce losses

Business Model: DaaS enables users to only pay for the final analytics they wish to receive instead of purchasing and maintaining the equipment themselves. This allows the company's clients to outsource KPI's for data collection, delivery and verification further making it easier to forecast budget expenses, plan ahead, and over time, offset the cost of the device.

Innovation: As Bangladesh's first Hydro-Informatics startup, it develops, designs and executes specialist consultancy projects in the field of water quality monitoring and hydrological modelling to mitigate water-related challenges and their potential implications on infrastructure, lives and livelihoods in real-time.

Last Funding Round: Currently raising $250,000 in a convertible note

Investors: Bootstrapped

Company	Year Set-Up	Sector	Sub-Sector	Sub-segment
	2014	Circluar Economy	Waste to Resources	Waste Management (non-plastics)

Reverse Resources

Reverse Resources is a SaaS platform to map, match and trace waste from textile factories to recycling and help fashion brands achieve full circularity by 2030 .

Business Model: One or multiple revenues streams from each tonne of waste registered on RR platform:

- Factory: 0.01 USD/kg of waste traced to circulation
- Waste handlers: 5-10% transaction fee
- Recyclers: 0.01 USD/kg of waste verified from source
- Brands, supplier HQs, buying houses: 50-100 USD/facility of waste generation monitored

Innovation: RR platform is a central platform for brands, recyclers, waste handlers and textile manufacturers offering win-win business incentives around improved waste circulation.

Last Funding Round: $1.2 million convertible note with $5.9 million valuation cap.

Investors: Fashion For Good

Recent Deals

Start-up	Sub Segment	Detail	Funding Round	Year	Investor
Me-SOL-share	Energy Access	SOLshare has created a revolutionary new approach to bring affordable solar electricity to everyone. In addition to a battery-leasing model for electric rickshaws.	Undisclosed	2020	Innogy New Ventures, IIX Impact Partners, EDP Ventures
Reverse Resources	Clean Industry	Reverse Resources is a tracking and trading platform for textile waste, providing 360 degree transparency of the waste flows.	Convertible Note	2020	Fashion For Good

Local Angel Investor Quotes

Ahmed Jawad Yusuf

Bangladesh Angels

"Historically, the majority of clean tech investors in Bangladesh have been international/foreign funds. The key to unlocking the true potential of blended financing schemes, impact linked investments, and mezzanine capital in Bangladesh is the combination of both local & foreign climate conscious investors. This means leveraging local angel groups, local government funds, local institutions and family offices with Bangladeshi origins/roots to consider consistent deal flows in the sector. To successfully & materially catalyze investments in the space, these investors need to also keep first loss provisions and long-term capital allocation in mind for successful early-stage investment deployments to even follow-on funding rounds."

Nazat Chowdhury

Head of IT - Save the Children BD (Angel Investor)

"I am a firm believer in Peter Drucker's maxim "Every single social and global issue of our day is a business opportunity in disguise." Climate crisis is the largest global challenge of our time and decades to come. I am investing in CleanTech startups who are tackling climate issues head on with scale able, cost-effective solutions, with founders having deep knowledge, experience and network in the sectors they are targeting. I am confident climate conscious investing is not only the right thing to do, it is good business."

6 Key Takeaways

1 Positive policy measures on improving ease of doing business and foreign investments

Bangladesh is actively looking to encourage foreign investment and bring its ease of doing business ranking to double digits by 2025. To encourage foreign investment, the government has set up one-stop services to facilitate transactions within Export Processing Zones, Special Economic Zones, High-tech parks etc.

2 High climate change risks and vulnerabilities warrant more climate tech solutions

Bangladesh features in the top 10 on the Climate Risk Index and is significantly higher than its neighbouring countries. This is due to the increased flooding risk where 80% of the country's surface is considered a flood plain. Other factors include the country's high population density (10th most densely populated country in the world) as well as its above average dependence on the agricultural sector.

3 Focused climate policy and action in the climate change space, especially in solar power

As a result of high climate risk, Bangladesh has made sure to incorporate climate action in its planning strategy and budgeting. The main focus is on reducing GHG emissions and increasing solar power capacity. Climate change initiatives have been incorporated within its short term (5-year strategy) as well as its long-term strategy through NDCs and beyond. The country looks to focus on conditionally reducing GHG emissions by 15% by 2030, as part of its NDC commitments. There is a strong push to develop its solar power capacity and improve the renewable energy production (currently at ~1% of the total energy mix)

4 Strong government interest in creating infrasturcture and ecosystem for startups to thrive

Bangladesh has focused on supporting the local startup ecosystem extensively within the last 5 years by setting a strong supporting foundation for startups to thrive. The government has majorly been focused on providing the infrastructure that will help the startup ecosystem including the launch of the Bangladesh Startup Fund. The Bangabandhu satellite and data centers have given startups access to high quality data and connectivity.

5 Opportunity for more local investors to support startups, especially in the climate tech sector

Startup investments in Bangladesh majorly come from foreign sources and there has been no change in this trend over the last 5 years. 92% of investment has been coming from foreign sources over the last 5 years and local investment for startups in 2021 only makes up 7.2% of the total investments made this year. This could be due to the still nascent startup ecosystem which showcases the opportunity for the ecosystem to grow. Coupled with the need for climate focused investment as a result of Bangladesh's high climate risk, investment is needed to encourage more innovation to battle climate change in Bangladesh

Endnotes

(All data as accessed on 10th September 2021)

i. https://www.lightcastlebd.com/insights/2021/06bangladesh-startup-ecosystem-report-2021

ii. https://www.state.gov/reports/2021-investment-climate-statements/bangladesh/

iii. https://www.government.nl/binaries/government/documents/publications/2019/02/05/climate-change-profiles/Bangladesh.pdf

iv. https://www.lightcastlebd.com/insights/2021/08/apprehending-the-impact-investment-landscape-of-bangladesh

v. https://www.lightcastlebd.com/startup-dashboard

Indonesia

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Country Snapshot

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1 COUNTRY OVERVIEW

High Level Economic Stats

GDP:

$1.058 Tr
(2020)
(Source: World Bank)

GDP per Capita:

$3869.588
(2020)
(Source: World Bank)

Inflation, consumer prices:

1.921% (2020) (Source: World Bank)

Sovereign Risk:

Baa2 (Source: Moody's)
BBB (Source: S&P)

FDI Inflows (BoP, current in US$):

2.233% of GDP (2019) (Source: World Bank)

Foreign Exchange Resilience (against US$)

5.39% CAGR over 10 years

Capital Controls:

- Bilateral Investment and Taxation treaties: With **28 out of 190 countries** (in-force) (Source: US Department of State)
- World Bank Ease of Doing Business Ranking: **73 out of 190 countries**
- Indonesia is a top 20 economy in the world. Today there is growing ease of doing business and better regulations for foreign investors. The Indonesian government has announced a draft presidential regulation, under which foreign investment in local tech start-ups within special economic zones (SEZs) does not have to meet the minimum capital requirement of Rp10 billion ($710,111)[i] , a minimum standard applied to other types of foreign investment. Further, there are more opportunities for foreign investors to co-invest with local investors, who can help navigate through the myriad regulations[ii] .
- In 2019, Indonesia ranked the second-biggest digital economy in Southeast Asia following Singapore, and is predicted to reach USD 124 billion in 2025, that will catapult it into the top-spot in the region.[iii] There is no detailed/ specific policy to date, though, to support angel investing in the country yet.

Geographic and Demographic Stats

Population:
275 million
(Source: CIA World Factbook)

Youth% (15-24 years):
16.76%
(Source: CIA World Factbook)

Major Cities/Hubs:
Jakarta (capital), Bekasi, Surabaya, Bandung, Tangerang, Medan
(Source: CIA World Factbook)

Youth Unemployment (15-24 years):
13.5%, Ranking, 105 out of 190
(Source: CIA World Factbook)

Languages Spoken:
Bahasa Indonesia (official, modified Malay), English, Dutch, local dialects (majority Javanese)
(Source: CIA World Factbook)

Population completed tertiary education (25+ years):
9.994% (2019)
(Source: World Bank)

2 Overview of Climate Change in Indonesia

Introduction

While the ND-GAIN Country Index, suggests a reduction in overall national-level climate vulnerability in Indonesia, there is high variation in the potential impacts of climate change at the regional and local levels. Climate change is likely to have impacts on agricultural production, food security, water availability, disaster risk management, urban development (particularly in the coastal zones), and health and nutrition, with implications for poverty and inequality. Without well planned adaptation and disaster risk reduction efforts at these levels, the poorest and most marginalized communities are likely to experience significant loss and damage as a result of climate change impacts.[iv]

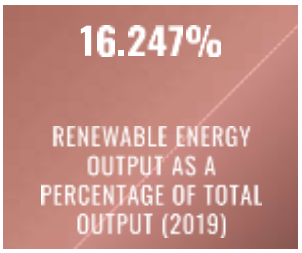
Indonesia has targets for 29% (unconditional) and 41%(conditional) reduction in GHG emissions against a 'business-as-usual' (BAU) scenario with land restoration of 2 million ha and degraded land rehabilitation of 12 million ha by 2030.[v]

High Level Climate Change Stats

(Source: GermanWatch)

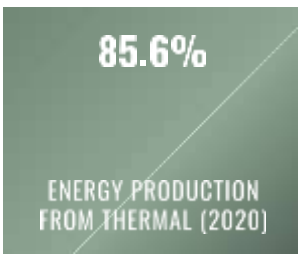
(Source: GermanWatch)

(Source: GermanWatch)



(Source: World Bank)

(Source: Climate Watch)



(Source: World Bank)

(Source: Climate Watch)

(Source: Climate Watch)

3 | Climate change and startup policy overview

Key Climate Change, Startups and Investment related Policies & Regulations

Climate Change Policies & Government Initiatives

2007	2011	2014	2016	2017	2018
First National Strategy on Climate Change by Ministry of Environment	National Action Plan on GHG Emissions Reduction and GHG Inventory	National Energy Policy	Ratified Paris Agreement; Nationally Determined Communication	Third National Communication on NDCs; National Energy Plan	Second Biennial Update Report on NDCs

Startup/ Investment Policies & Government Initiatives

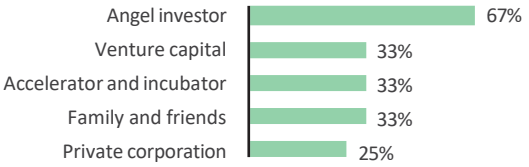
2017	2019	2020	2021
1,000 Start-up Movement launched to fund (through private sector investments) 1,000 startups with USD 10 billion by 2020. Within, 3.5 years 525 digital startups funded.	"1001 Digital Start-up Movement with greater emphasis on incubation support	"Omnibus law," a sweeping legislation that made changes to 70+ labor, tax and other key laws, and opened up nearly all of Indonesia's industries to foreign investment	Draft presidential regulation that sets the minimum investment at 10 billion rupiah ($710,000) for foreign investors. However, the minimum investment rules will not apply to foreign money pumped into tech-startups in Indonesian Special Economic Zones

4 | Startup Investment Overview

Note: Due to lack of granular data focused on Climate-tech innovations alone, the deal information in this section is focused on Impact (that includes Social and Environmental innovations and investments)

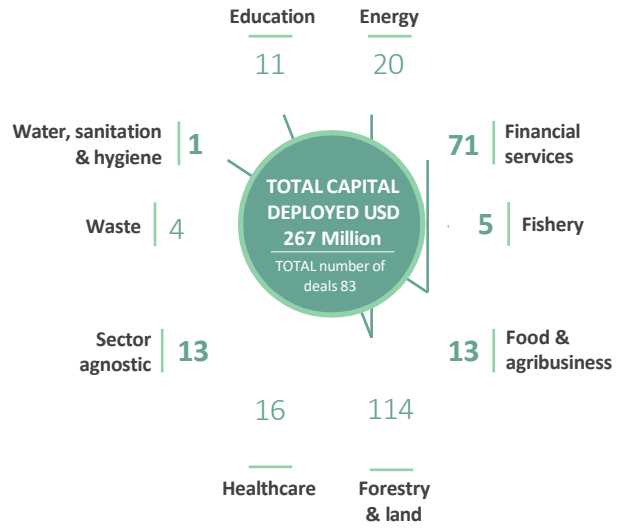
SOURCE OF INVESTMENT

Note: Here, we have showcased proportion of startups (37) that have raised funding from different sources within 2 years of graduating from a program with an Entrepreneur Support/ Startup Assistance Organization



INVESTMENT BY SECTOR

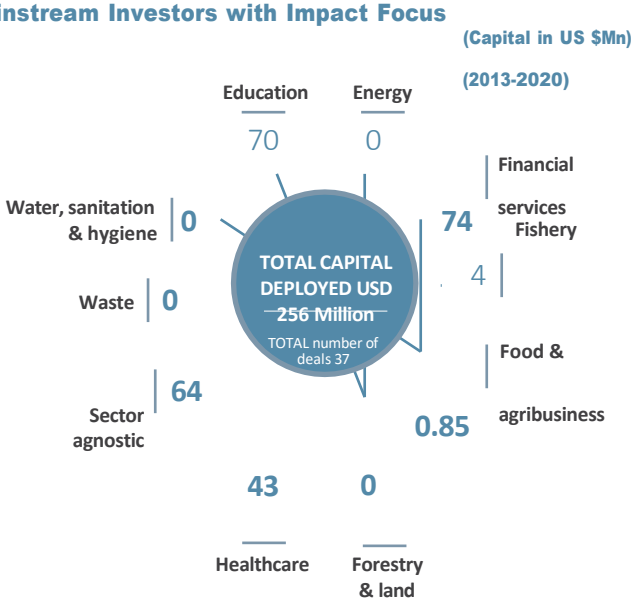
Impact Investors (Capital in US $Mn) (2013-2020)



Tech Based Startups – 22%. Women led startups – 19%

Mainstream Investors with Impact Focus

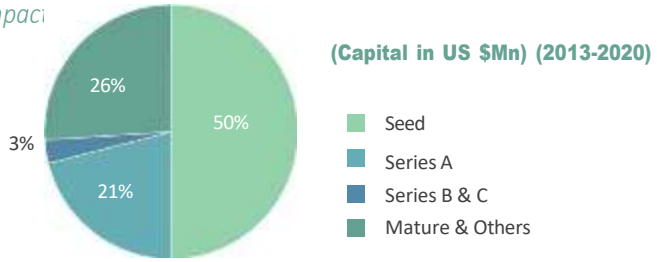
(Capital in US $Mn) (2013-2020)

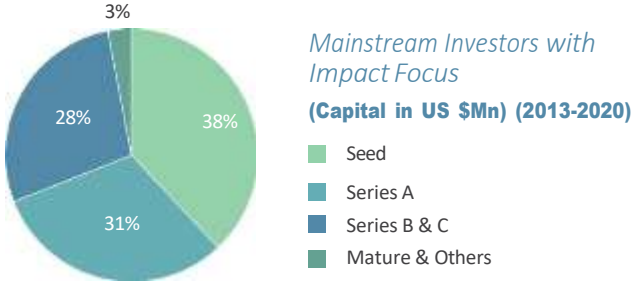


Tech Based Startups – 89%. Women led startups – 21%

INVESTMENT BY STAGE

Impact Investors





5 Key Climate Stakeholders

Note: This section contains information on key Impact (Social and Environmental) focused stakeholders in Indonesia

Key Investors

Investor	Classification	Sectoral Focus
Garden Impact	Impact Investor	Agriculture, Clean Energy and Environment, Consumer Services & Products, Education Technology, Health Care, Water and Sanitation.
Patamar Capital	Impact Investor	Impact
C4D Partners	Impact Investor	Agnostic
Aavishkaar	Impact Investor	Food & Agriculture, Financial Inclusion, Financial Services
Root Capital	Impact Investor	Agriculture & Food
East Ventures	VC	Agnostic
Alpha JWC Ventures	VC	Technology with special focus on financial technology and consumer
AC Ventures	VC	Technology
Skystar Ventures	VC	Agnostic
500 Startups	VC	Agnostic
Sovereign's Capital	VC	Healthcare, human performance (e.g. wearables), education, technology
AGNIN	Angel Network	Agnostic

Key ESOs with an Impact interest

Name	Type/ Classification
Ashoka	Hybrid
Endeavor	Hybrid (with Investing)
Instellar	Hybrid
Kinara Indonesia	Hybrid (with Investing)
Social Innovation Acceleration Program (SIAP)	Incubator
Digitaraya	Accelerator
New Energy Nexus	Hybrid (with Investing)
Greenhouse	Co-Working Space
Impact Hub Jakarta	Co-Working Space
BLOCK71 Jakarta	Co-Working Space
COCOWORK (EV Hive)	Co-Working Space

Key Corporates with an Impact/ Entrepreneurship interest

Name	Details
DBS	Through its foundation, early player DBS Bank provides various forms of support for social entrepreneurship; from co-organizing and supporting several initiatives (e.g., DBS-NUS Social Venture Challenge), to distributing grants, to publishing social enterprise handbook.
Principal	Principal just launched Principal Philanthropy Social Impact Bond Fund, the first ever philanthropy mutual fund in Indonesia in mid-2019. This financial product can be accessed by the public, to invest in a mutual fund while donating to selected not-for-profit organizations.
Astra	Its holding company, foundation, and corporate VC have been supporting SMEs and entrepreneurs. It provides strategic investment, holds competitions (e.g. Astra Startup Challenge supported by Ministry of Cooperatives and SMEs), and provides in-kind support via its foundation.
Salim Group (Indofood)	Although it is not specifically focusing on social enterprises, Salim Group has been supporting startups through its initiative of Innovation Factory in partnership with NUS Singapore to manage Block71 (an ecosystem builder and co-working space) and established SKALA (an accelerator)
Telkom	Whatever it did it through its VC arms (e.g., Indigo), its subsidiary (Telkomsel) or events (Next Dev), Telkom has allocated efforts in supporting social enterprises in Indonesia.
Telkomsel	Since 2015, the leading cellular operator has been organizing several annual startup competitions. The NextDev 2018 is the latest. In the 2018 batch, the company scouted for local tech startups that were addressing social issues in Indonesia.

Startup Profiles

Company	Year Set-Up	Sector	Sub-Sector	Sub-segment
	2018	Climate Change	Clean Energy	Renewable Energy Generation (Electricity)

Xurya is an Indonesian renewable energy start-up, pioneering the zero upfront cost method of switching to solar.

Business Model: A pioneer in the solar lease business that gives Indonesian businesses and households a chance to contribute positively towards climate change while saving money.

Innovation: To roof owners, Xurya provides services that include feasibility studies, granting access to cheap green financing to switch to solar power, to equipment/vendor sourcing, construction/permit management as well as maintenance. To EPC contractors, Xurya is a long-term partner, providing a pipeline of projects and helping shorten their sales cycle through zero upfront costs, thereby giving immediate savings to this customer class.

Last Funding Round: Seed Round (Undisclosed), in July, 2021

Investors: Schneider Electric and New Energy Nexus

Company	Year Set-Up	Sector	Sub-Sector	Sub-segment
	2014	Circluar Economy	Waste to Value	Waste Management (Plastics & Non-Plastics)

Waste4change is shifting the waste management ecosystem towards a more responsible, collaborative, and technology-based waste management system that supports the implementation of circular economy.

Business Model: Waste4Change provides waste management services to both Companies and Individuals to manage and recycle waste. For companies, the services also include - Waste Collection Services, Extended Producer Responsibility, Research, Community Development and Training.

Innovation: Waste4Change's fundamental approach is from a Circular Economy perspective and it looks to manage and recycle both organic waste and dry waste streams. It helps clients segregate waste at source, collects the waste, as well as provides custom composting tools and waste bins. Its products also include Black Soldier Fly (that consumes organic matter) products that can be used as feed for pets/ farm animals. For dry waste, the company provides in house recycling options, including services like waste credits, digital EPR etc.

Last Funding Round: Undisclosed in Dec, 2019

Investors: Agaeti Ventures, East Ventures and others.

Recent Deals

Start-up	Sub Segment	Detail	Funding Round	Year	Investor
Daur	Waste Management (Plastics)	DAUR is a waste collection initiative that is implementing technologies and IoT solutions to facilitate realizing a clean and sustainable environment.	Seed	2020	Gayo Capital
Jala Tech	Food, Agriculture, Forestry and Land Use	JALA provides solutions to help shrimp farmers to understand the farm condition better in real-time so as to take preventive actions if needed. With IoT and machine learning technology, JALA helps farmers maximize farm efficiency.	Seed	2020	500 Startups, Conservation International Ventures
Eden Farms	Food, Agriculture, Forestry and Land Use	Eden Farm works with local producers across Indonesia to provide all kind of food ingredients needed for culinary businesses. The company gives farmers more income and demand forecast to maintain production consistency	Seed	2021	Investible, Corin Capital, Clark Landry(Angel), AC Ventures

Local Angel Investor Quotes

David Soukhasing
Managing Director of Angel Investor Network Indonesia (ANGIN)

"The challenges of impact businesses are quite varied and not an apple-to-apple comparison with other types of businesses. For example, the green energy sector has its own characteristics and stakeholder profiles that cannot be compared with other types of startups. Therefore, we'd say we can't measure green energy startups using the same success metrics we usually have for a typical startup. This will bring another context to the problems faced by green energy startups, including finding the right investors and support systems who understand their sector well"

6 | Key Takeaways

1 Growing ease of doing business and government support for investments in local tech startups

Indonesia is expected to be the 5th largest economy by 2024 and today there is growing ease of doing business and better regulations for foreign investors to support tech-startups. The Indonesian government has announced a draft presidential regulation, under which foreign investment in local tech start-ups within special economic zones (SEZs) does not have to meet the minimum capital requirement of Rp10 billion ($710,111)[vi], a minimum standard applied to other types of foreign investment

2 Loss due to climate change is high, therefore warranting more climate focused innovations and solutions

The country has an overall Climate Risk Index that's significantly lower than other South East Asia countries like Philippines and Vietnam. However, this Index is skewed due to the significantly high GDP of the country and this reflects in the Ranking on "Loss in million dollars" for the country being significantly high and comparable to other SEA economies of interest here. A clear need exists to support and scale mitigation and adaptation innovations and solutions.

3 Strong climate focused policies need to be backed up by innovations that can clean up a broader range of sectors

Government support and vision towards climate change response and climate action is visible through focused targets on Renewable Energy, GHG emissions reductions and Forest Cover area expansion. However, with the country's new coal capacity plans, support and scale-up of innovations that can decarbonize more sectors will be critical to meet climate goals.

4 Keen intent from the government to build a more robust ecosystem to create more successful startups

Recent regulations and policies to support startups and investments, indicate the intent Indonesia has in creating an even better ecosystem to create successful startups and unicorns, despite the country having the highest number of unicorns after Singapore in the SEA region. The recent changes to 70+ labor, tax and other key laws, and opening up of nearly all of Indonesia's industries to foreign investment, including benefits for foreign investors are welcome steps

5 The growing impact focused ecosystem can be leveraged for dedicated early-stage climate tech support and investment

A large and growing Impact focused community in Indonesia with both local and foreign ecosystem players is a positive indicator on the interest in this sector. More Climate-tech focused early-stage investors, entrepreneur support/ startup assistance organizations are needed though to support and scale innovations that can clean-up a broader range of sectors.

Endnotes

(All data as accessed as 13th September 2021)

i. https://www.pinsentmasons.com/out-law/news/indonesia-to-loosen-foreign-investment-rules-for-local-start-ups

ii. https://blog.mekar.id/en/investing-in-indonesia-10-benefits-and-challenges-with-a-spotlight-on-impact-investing/

iii. https://gggi.org/toward-the-future-of-climate-technology-and-entrepreneurship-in-indonesia/

iv. https://www.adb.org/sites/default/files/publication/700411/climate-risk-country-profile-indonesia.pdf

v. https://www.climatewatchdata.org/countries/IDN

vi. https://www.pinsentmasons.com/out-law/news/indonesia-to-loosen-foreign-investment-rules-for-local-start-ups

Pakistan

Climate Tech Landscape Research Brief
Country Snapshot

Climate Tech Investment Network (CTIN) provides investment syndication support services to local angel investment networks through a deal- flow centric platform to catalyze early-stage capital into climate tech startups in South and Southeast Asia.

This Research brief was made in collaboration with

Our Ecosystem Partners

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1 COUNTRY OVERVIEW

High Level Economic Stats

GDP:

263.687 Bn
(2020)
(Source: World Bank)

GDP per Capita:

$1193.733
(2020)
(Source: World Bank)

Inflation, consumer prices:

9.74% (2020) **(Source: World Bank)**

Sovereign Risk:

B3 (Source: Moody's)
B- (Source: S&P)

FDI Inflows (BoP, current in US$):

0.803% (2019) **(Source: World Bank)**

Foreign Exchange Resilience (against US$)

6.71% CAGR over 10 years

Capital Controls:

- Bilateral Investment and Taxation treaties: **49 out of 190 countries** (Source: US Department of State)
- World Bank Ease of Doing Business Ranking: **108 out of 190 countries**
- The removal of minimum capital requirement for outside investors is a positive development, but the process to invest in and repatriate profits from Pakistan is still opaque and hard to navigate. An individual investor can hold shares in a company that has been legally incorporated in Pakistan (don't have to be an accredited investor). However, any foreign investor or investment firm, requires approval from Pakistan's Ministry of Interior prior to becoming a shareholder or director in a company registered in Pakistan.
- Also, for investors, the State Bank of Pakistan marks the investment capital as repatriable or non-repatriable, and monitors whether returns can leave or stay in the country. Foreign investors may wait for Ministry of Interior approval (which takes on an average 6 months) prior to applying for a Proceeds Realization Certificate (PRC) or at least prior to remitting capital into Pakistan
- There is room for more quality angel investors at the pre-seed and seed-level stages in order to address increasing demand from startups and for there to be a smooth capital curve[i ii]

Geographic and Demographic Stats

Population:

238.18 million

(Source: CIA World Factbook)

Youth% (15-24 years):

19.3%

(Source: CIA World Factbook)

Major Cities/Hubs:

Karachi, Lahore, Faisalabad, Rawalpindi, Gujranwala, Islamabad (capital)

(Source: CIA World Factbook)

Youth Unemployment (15-24 years):

7.8%, Ranking, 149 out of 190

(Source: CIA World Factbook)

Languages Spoken:

Punjabi, Sindhi, Saraiki (a Punjabi variant) 10%, Pashto (alternate name, Pashtu) 8%, Urdu (official) 8%, Balochi 3%, English (official)

(Source: CIA World Factbook)

Population completed tertiary education (25+ years):

8.65% (2017)

(Source: World Bank)

2 Overview of Climate Change in Pakistan

Introduction [iii] [iv]

Climate change will influence food production in Pakistan via direct (alterations to carbon dioxide availability, precipitation and temperatures) and indirect effects (impacts on water resources, soil changes and erosion, pest-related diseases and invasive species and a decline in arable area). Agriculture employs 38.57% of the Pakistan's workforce and contributes 22% to gross domestic product (GDP), making potential climate impacts and adaptation needs in the sector a high priority.

The requirement for cooling and energy-needs across sectors is expected to increase and simultaneously put a strain on the nation's infrastructure. The energy system is vulnerable to the effects of extreme climate events, which are expected to intensify under climate change. Smart, intelligent and climate friendly innovations are therefore much needed across sectors.

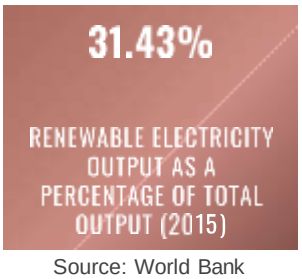
Pakistan targets a 20% (conditional) reduction in GHG emissions against projected emissions by 2030 and an increase in forest cover to 10 percent by the year 2030.

High Level Climate Change Stats

Source: German Watch

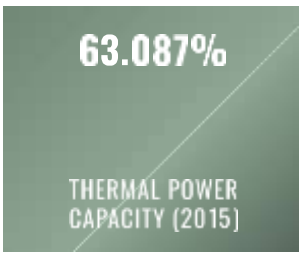
Source: German Watch

Source: German Watch

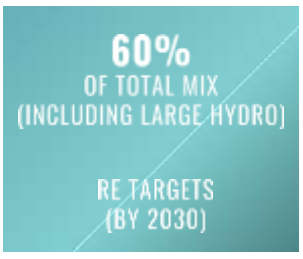


Source: World Bank

Source: Climate Watch



Source: World Bank



Source: Climate Watch

3 Climate Change and Startup Policy Overview

Key Climate Change, Startups and Investment related Policies & Regulations

Climate Change Policies & Government Initiatives

2002	2005	2009	2010	2012	2016	2019
National Resettlement Policy	National Environmental Policy	National Drinking Water Policy	National Rangeland Policy	National Climate Change Policy 2012; National Sanitation Policy	National Forest Policy	Established Ministry of Climate Change and issued its Second National Communication on Climate Change

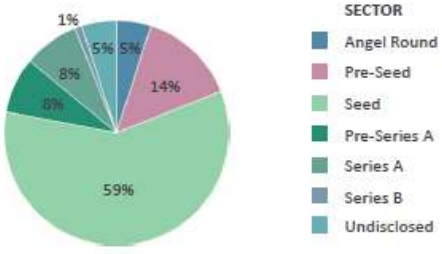
Startup/ Investment Policies & Government Initiatives

2005	2012	2015	2016	2017	2019	2020	2021
Securities Exchange Commission of Pakistan (SECP) introduced the first PE/ VC regulations	PE/ VC funds exempt from tax on profits and gains until 2024	SECP introduced Private Fund Regulations to replace 2008 PE/VC regulation	SECP approved the license for Pakistan's first PE & VC funds (Ijara Capital and Lakson Investments); Federal government launched five National Incubation Centers (NICs) across the country, which are public-private partnerships, and these have collectively graduated 234 startups from their programs.	Finance Act (amendments to Income Tax Ordinance) to include concept of Startup; Exemption on tax on profits for 3 years; Exemption from levy of minimum Tax	Startup Pakistan Program with aim to create 10000 Startups by 2023; SECP proposed changes to "Company Act" to broaden the definition of a "Startup" (sector and industry agnostic now). Additional changes include Stock Options, Fundraising, Compliance etc	SECP introduced amendments through wide consultations on the 2015 regulations; Prime Minister Youth Entrepreneurship Scheme Phase II	Ehsaas Program:Draft Policy to promote Startups (under development)

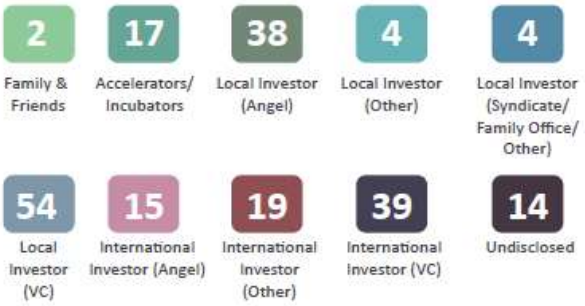
4 Startup Investment Overview

Note: Due to lack of granular information focused on Climate Tech innovations, the deal focused information contains data for the entire Startup Ecosystem in Pakistan.

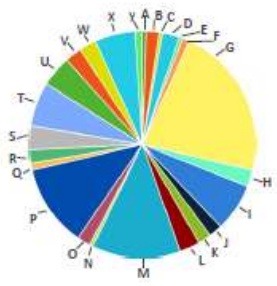
Investment by Stage[vii] (Number of Deals, 2015 - Jul 2021)



Source of Investment [vi] (Number of Deals, 2015 - Jul 2021)



Investment by Sector [vii] (Number of Deals, 2015 - Jul 2021)



SECTOR	
0.5%	A. Advertising
1.9%	B. Agriculture/ AgTech
0.5%	C.Artificial Intelligence
2.4%	D. Automotive
0.5%	E.CleanTech
1.0%	F. Content
21.8%	G. Ecommerce
2.4%	H. E-Tourism/ Tourism/ Travel/ Hospitality
6.8%	I. EdTech/ Education
1.9%	J. Energy
1.9%	K. Entertainment
2.9%	L. Fashion/ Lifestyle/ Fitness
12.6%	M. Fintech/ Finance

SECTOR	
0.5%	N. Food/ FoodTech
1.9%	O. Gaming
11.7%	P. Health/ HealthTech
1.0%	Q. Housing/ Construction/ Co-Working Spaces
1.9%	R. IOT
3.4%	S. MarTech/ Marketing
6.3%	T. On-Demand
4.4%	U. Other
2.4%	V. SAAS/ Cloud Computing
2.4%	W. Social Media / Web-based Apps
5.8%	X. Transportation/ Mobility
1.0%	Y. Undisclosed

5 | Key Stakeholders

Note: This section contains data on key stakeholders in the entire Pakistan Startup ecosystem

Key Investors [ii]

Investor	Classification	Investment Sector
Wavemaker	Venture Capitalists	Agnostic with a preference for enterprise companies.
Brinc MENA	Hybrid	Agnostic
500 Startups	Venture Capitalists	Agnostic
Acumen	Impact Investor	Impact
47 Ventures	Venture Capitalists	Technology Startups
DotZero Ventures	Angel	Fashion/Retail, E-commerce/Internet and Technology.
i2i Ventures	Venture Capitalists	Agnostic
Ignite Fund	Donor	Fourth Industrial Technology
Planet N	Angel	E-Commerce, fintech, edutech, superfood agriculture, retail and renewables sectors.
Sarmayacar	Venture Capitalists	Technology Startups

Key Impact/ Agnostic ESOs

Name	Type/ Classification
Bahria Incubator	Incubator
Founder Institute	Accelerator
Innovation District 92	Incubator
Invest2Innovate	Accelerator
NUST Technology Incubation Center	Incubator
SEED Ventures	Hybrid
InnoVentures	Incubator
Plan9	Incubator
WeCreate Center	Hybrid
Takhleeq	Incubator

Corporates with active interests in Startups and Entrepreneurship

Name	Type/ Classification
BBOXX	Bboxx a leading utility has been partnering with EcoEnergy, a leading affordable solar energy provider in Pakistan since 2017 to provide clean, reliable and affordable electricity to households in Pakistan.
NETSOL Technologies	NSpire is a tech incubator launched by NETSOL Technologies that provides startups with infrastructure, training, mentorship, networking opportunities and investment opportunities.
Telenor	Telenor has established Telenor Velocity a corporate startup accelerator which focuses on helping startups go to market, over a period of 4 months. The recent focus is on agriculture innovations
P@SHA	NestI/O is a technology incubator and community hub launched by P@SHA with global partners Google for Entrepreneurs and Samsung. It provides budding entrepreneurs with space, infrastructure and facilities as well as network of mentors and potential investors.
World Bank	WomenX is a global initiative funded by the World Bank, geared towards supporting female-owned businesses by providing them with educational, networking and mentorship opportunities.
Fatima Group	Fatima Ventures, a venture arm of the Fatima Group in Lahore began first as an angel investor, and recently launched a $20 million venture fund in partnership with Gobi Partners, a regional VC fund based out of China and SEA with AUM of USD $1.2 billion.
Crescent Group	Crescent Group has established, CresVentures an angel capital firm based in Lahore. CresVentures includes partnerships with The Indus Entrepreneurs (TiE) Lahore and Islamabad.
TPL Corp	TPL E-Ventures is the Venture Capital arm of TPL Corp, Pakistan's tech giant, which aims to invest in startups at the pre-seed and seed level.
VentureDive	Is a technology company, founded in 2012, investing in "products and solutions that simplify and improve the lives of people worldwide. VentureDive is looking to invest in tech focus startups.
Artistic Corp	Artistic Ventures is a family office/fund that provides seed funding to tech startups. They work closely with their startups, providing mentorship, facilitating introductions with other investors, and helping develop sustainable, scalable business strategies. Focus sectors are: Textiles, Real estate, Renewable energy, and Tech.

Startup Profiles

Company	Year Set-Up	Sector	Sub-Sector	Sub-segment
	2010	Climate Change	Energy-Access	Energy-Access

EcoEnergy is a pay-as-you-go solar company distributing electricity to off-grid rural areas in Pakistan

Business Model: EcoEnergy goes to the doorsteps of off-grid businesses and households to sell and service high-quality solar solutions.

Innovation: Using pay-as-you-go technology to make electricity affordable to its customers by breaking upfront costs down into monthly instalments and letting the customers pay for only what they use.

Last Funding Round: Seed Round totalling USD 800K in 2018

Investors: TRINE (€500K) and other Unnamed Angels

Company	Year Set-Up	Sector	Sub-Sector	Sub-segment
	2014	Circluar Economy	Clean Industry	Built Environment

ModulusTech builds self-sustaining housing communities for the most underserved segments of society, providing not just homes but better health, stability, and economic opportunities

Business Model: Has invented a new design of low-cost, energy-efficient houses. The houses can be assembled in as little as three hours and can be easily transported, making it possible to build large, cost-effective colonies within a month. The products/ services include Affordable Housing, Backyard Housing, Eco-Tourism spaces and B2B solutions.

Innovation: Their proprietary #IntermeshSystem enables them to build living spaces cost effectively in a short span of time, with 90% reductions in embodied carbon. The system allows houses to be prefabricated, flat-packed, shipped to site, assembled using simple hand tools with a DIY methodology, and comes integrated with a plug & play mechanism. The inhabitants are also provided access to renewable sources of energy and clean water – forming a neutral carbon footprint.

Last Funding Round: Pre-Seed, Undisclosed Amount, in 2018

Investors: Magnus Communications

Recent Deals

Start-up	Sub Segment	Detail	Funding Round	Year	Investor
Radical Growth Solutions	Food, Agriculture, Forestry and Land Use	Radical Growth Solutions is an irrigation automation system start-up powered by Artificial Intelligence	Pre-Seed	2021	Brinc
JF Labs	Food, Agriculture, Forestry and Land Use	Jf lab is providing services beneficial to agriculture sector by introducing AGROBEE, a customized heavy-duty drone, incorporated with crop monitoring techniques and pesticides spraying. The graphs and reports generated by the software will precisely diagnose soil and crops in order to determine apt solutions	Pre-Seed	2018	Angel Investor (Shahida Saleem)

6 Key Takeaways

1 Positive steps taken on ease of doing business and capi- tal controls, with room to improve

The recent removal of minimum capital requirement for outside investors is a positive development. Any foreign investor or investment firm can also take approval from Pakistan's Ministry of Interior prior to becoming a shareholder or director in a company registered in Pakistan. The process to invest in and repatriate profits from Pakistan is still opaque and hard to navigate though.

2 High climate change risks and vulnerabilities warrant more climate tech solutions

Climate change in Pakistan has the potential to impact a majority of Pakistan's workforce in Agriculture. Further, the requirement for cooling and energy-needs across sectors is expected to increase and simultaneously put a strain on the nation's infrastructure making potential climate impact mitigation and adaptation needs in the sector a high priority.

3 Focused climate action, particularly towards expanding renewable energy capacity

Pakistan's overall climate risk index rank is very high and the country's intent on creating more focused climate action is reflected with its' ambitious target to raise renewable energy in the total mix to 60% by 2030 (which will include hydropower as well).

4 Strong government interest in creating a culture of innovation and supporting the startup ecosystem

The country's creation of a dedicated Ministry of Climate Change, government support to startups through funding, incubator/ accelerator programs as well as recent regulations and amendments in favour of startups and investors alike is a positive sign on the interest being given to creating an innovation culture and ecosystem in Pakistan.

5 Growing investor interest across sectors with an opportunity for more pre-seed/seed stage funding in climate tech

There are a growing number of investors both foreign and local (particularly angels/ syndicates/ family offices/ corporates etc.) looking to invest into Pakistan across sectors. Climate-tech is a core focus among only a handful of investors, with majority either having a wider interest across sectors or looking at tech-startups. There is room therefore for more quality angel investors at the pre-seed and seed-level in Climate tech in order to address increasing demand from startups.

Endnotes

(All data as accessed on 10th September 2021)

i. https://invest2innovate.com/wp-content/uploads/2020/12/i2iInvestorToolkit.pdf

ii. https://invest2innovate.com/wp-content/uploads/2020/12/i2i-Pakistan-Startup-Ecosystem-Report-2019.pdf

iii. https://www.adb.org/sites/default/files/publication/700916/climate-risk-country-profile-pakistan.pdf

iv. https://www.climatewatchdata.org/countries/PAK?sector=lulucf

v. http://mocc.gov.pk/Policies

vi. https://airtable.com/shrsy589UNNLpKHXD/tblFRzINDGrn78ZTd/viwOtx6u0yBwMtW9a?blocks=hide

Philippines

Climate Tech Landscape Research Brief
Country Snapshot

CLIMATE TECH
INVESTMENT
NETWORK

Climate Tech Investment Network (CTIN) provides investment syndication support services to local angel investment networks through a deal- flow centric platform to catalyze early-stage capital into climate tech startups in South and Southeast Asia.

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1 COUNTRY OVERVIEW

High Level Economic Stats

GDP:

$361.489 Bn
(2020)
(Source: World Bank)

GDP per Capita:

$3298.83
(2020)
(Source: World Bank)

Inflation, consumer prices:

2.635% (2020) **(Source: World Bank)**

Sovereign Risk:

BBB+ Outlook : Stable **(Source: S&P)**
Baa2, Outlook: Stable **(Source: Moody's)**

FDI Inflows (BoP, current in US$):

2.301% of GDP) (2019) **(Source: World Bank)**

Foreign Exchange Resilience (against US$)

1.35% CAGR over 10 years

Capital Controls[i,ii]:

- Bilateral Investment and Taxation treaties: With **37 out of 190 countries** (Source: US Department of State)
- World Bank Ease of Doing Business Ranking: **95 out of 190 countries**
- Philippines has substantially improved its business climate in 2020: starting a business is now easier due to the abolishment of the minimum capital requirement for domestic companies; dealing with construction permits has been improved (the process for obtaining an occupancy certificate has been standardized); and minority investor protection has also been strengthened
- FDIs are incentivized in the following sectors: manufacturing (e.g. agro-processing); agriculture, fishery, and forestry; integrated circuit design, creative industries, mass housing; infrastructure and logistics (e.g. airports, seaports, and PPP projects); energy (development of energy sources, power generation plants, and ancillary services); innovation drivers (e.g. fabrication laboratories); and environment (e.g. climate change-related projects).
- Philippines is the second-largest impact investing market in

Geographic and Demographic Stats

Population:
110 million
(Source: CIA World Factbook)

Youth% (15-24 years):
19.16%
(Source: CIA World Factbook)

Major Cities/Hubs:
Manila (Capital), Davao, Cebu City, **Zamboanga, Antipolo, Cagayan de Oro City**
(Source: CIA World Factbook)

Youth Unemployment (15-24 years):
6.8%, Ranking, 156 out of 190
(Source: CIA World Factbook)

Languages Spoken:
Filipino and English (Official), Taga- log, Cebuano, Ilocano, Hiligaynon or Ilonggo, Bicol, Waray, Pampango, and Pangasinan
(Source: CIA World Factbook)

Population completed tertiary education (25+ years):
26.586% (2013)
(Source: World Bank)

2 Overview of Climate Change in Philippines

Introduction

In the Philippines, the agricultural sector is especially vulnerable to climate change impacts with the sector contributing 14% of GDP and employing a third of the population. Both increased flooding and the increased likelihood of droughts could impact agricultural land, and this could contribute towards decreased agricultural productivity. Without effective adaptation and disaster risk focused innovation and solutions, climate change is likely to exacerbate high existing levels of income and wealth inequality and therefore poverty alleviation progress will be slowed[iii].

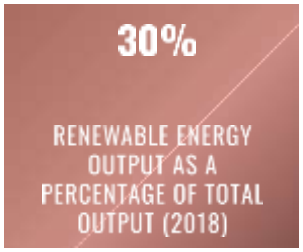
The Philippines has a target of 75% reduction in GHG Emissions out of which 2.71% is unconditional and 72.29% is conditional against a 'business-as-usual' scenario.

High Level Climate Change Stats

(Source: GermanWatch)

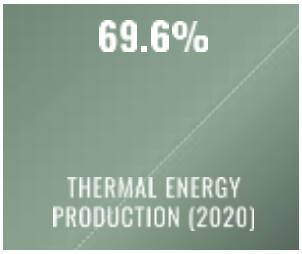
(Source: GermanWatch)

(Source: GermanWatch)



(Source: World Bank)

(Source: Climate Watch)



(Source: World Bank)

(Source: Climate Watch)

3 | Climate change and startup policy overview

Climate change, Startups and Investments related Policies and Regulations [iii, iv]

Climate Change Policies & Government Initiatives

2009	2010	2011	2012	2014	2017	2019	2021
Philippines Climate Change Act and the creation of Climate Change Commission	National Framework Strategy on Climate Change (2010-2022)	National Disaster Risk Reduction Management Framework	Climate Change Act amended and People's Survival Fund set up to support adaptation programs; National Climate Change Action Plan (2011-2028)	Second National Communication to UNFCCC; Executive Order institutionalizing Philippine Greenhouse Gas inventory management)	Ratification of Paris Agreement	Energy Efficiency and Conservation Act	Submission of Nationally Determined Contributions to UNFCCC

Startup/ Investment Policies & Government Initiatives

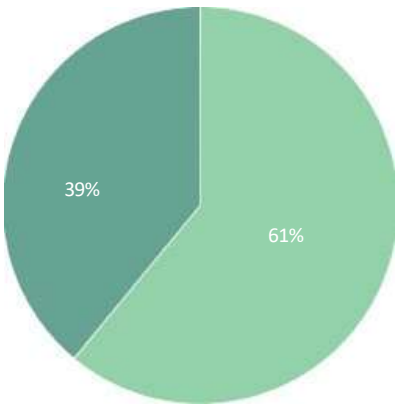
2015	2016	2017	2019	2020
Philippine roadmap for Digital Startups	Philippine E-Commerce Roadmap established by DTI in 2016 aims for e-commerce to account for 40% to 50% of the country's GDP by 2022	Startup Research Grant Program	Innovative Startup Act 2019; Revised Corporation Code; Comprehensive Tax Reform Program; Startup Assistance Program	Investment Priorities Plan

4 | Startup Investment Overview

Note: Due to lack of granular data focused on Climate-tech innovations alone, the deal information in this section is focused on Impact (that includes Social and Environmental innovations and investments)

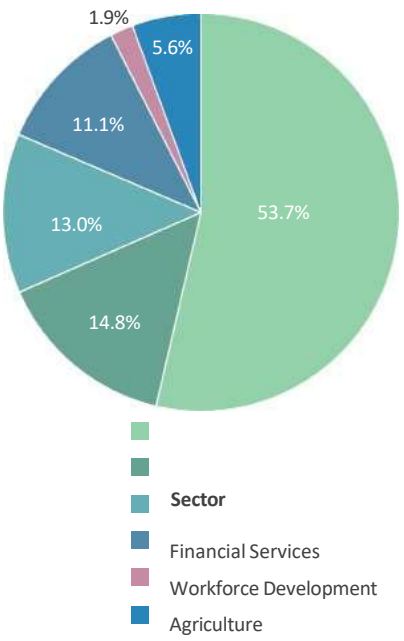
Source of Investment

Impact Investments (2007-2017)[ii]



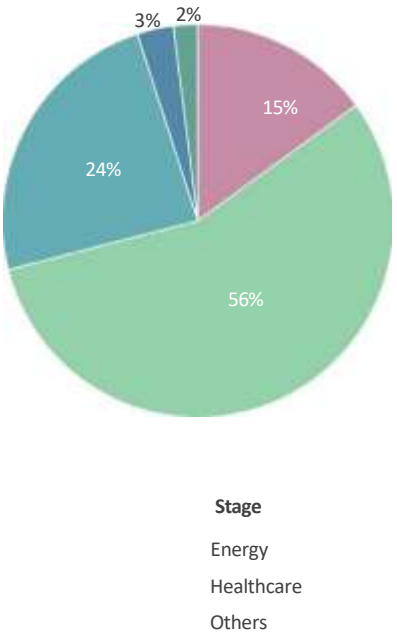
Investment by Sector

Impact Investments by Sector (Number of Deals) (2007-2017)[ii]



Investment by Stage

Investments by Stage (Number of Deals) (2018-H12020)[v]



Startup investments	Number of Deals


Pre-Seed
Seed
Series A
Series B & C
Mature &
Others

5 Key Climate Stakeholder Profiles

Key Investors

Investor	Classification	Investment Sector
Asian Development Bank	Investment Bank	Impact in general
ICCP Venture Partners	VC	Sector Agnostic
Manila Angel Investors Network	Angels	Sector Agnostic
Shatter Tech Venture Holdings	Family office	Sector Agnostic
BetterLabs Ventures	VC	Impact in General
Kickstart Ventures	VC	Sector Agnostic
Sirona Capital	VC	Sector Agnostic
First Asia Venture Capital	VC	Impact in General
GIC	Government	Sector Agnostic
Innovation Endevours	VC	Impact in General
k50	VC	Impact in General

Key ESOs

ESO	Classification	Sector/Focus area
New Energy Nexus	Accelerator	Clean Energy
PhilDev Foundation	Hybrid	Impact in General
Villgro Philippines	Hybrid	Impact in General
Ideaspace	Accelerator	Sector Agnostic
Makesense Academy	Hybrid	Impact in general
xchange	Incubator	Impact in general
AIM-Dado Banatao	Incubator	Sector Agnostic
Impact Hub Manila	Incubator	Sector Agnostic
QBo Innovation Hub	Incubator	Sector Agnostic
TIP NITRO	Incubator	Sector Agnostic
SINERGY by Silliman University	Incubator	Sector Agnostic

Key Corporates

Name	Type/ Classification
Ayala Corporation	Ayala Corporation has a dedicated sustainability division focused on integrating sustainable practices within its business operations. Kickstart Ventures, one of the earliest local VCs in the country was started by an Ayala Corp. subsidiary, Globe Telecom
JG Summit Holdings	JG Summit Holdings is present in various sectors including FMCG, airline, real estate, energy, finance industries and is committed to sustainability through various sustainability programs and national campaigns including Climate Action Plan as well as the Resource Efficiency and Circularity plan
First Pacific	First Pacific's principal businesses are in consumer food products, telecommunications, infrastructure and natural resources. First Pacific set up IdeaSpace Foundation to support innovation, tech development and entrepreneurship in the Philippines while strongly focused on sustainability within its internal operations.

Startup Profiles

Company	Year Set-Up	Sector	Sub-Sector	Sub-segment
	2018	Climate Change	Energy access	Energy Access platform

Exora Philippines (Axess), a platform where customers can find the best retail electricity supplier for their specific energy needs.

Business Model: Through Exora's partners (retail electricity suppliers and system integrators), customers can get access to the energy market to save on electricity and improve on energy efficiency.

Innovation: A platform that can be accessed by electricity consumers to help them find the best retail electricity supplier. Also offers a real-time electricity monitoring system.

Last Funding Round: Unknown, Ongoing funding

Investors: Bootstrapped

Company	Year Set-Up	Sector	Sub-Sector	Sub-segment
	2020	Circluar Economy	Waste to Value	Waste Management (Plastic & Non-Plastic)

Trash Panda is an on-demand recoverable waste collection and coaching app.

Business Model: Fees cover the cost of collection and transport of recyclable items, which are sent directly to recyclers under the Philippine Alliance for Recycling and Materials Sustainability. Trash Panda's fleet of light trucks collect and transport items that are clean, dry, and free from oil, food/beverage residue, and strong smells.

Innovation: Through the service, users can book the collection of recyclable items (like plastics, paper and cardboard, metals, and used beverage cartons), track the collector's estimated time of arrival, and earn from the sale of their items directly to recyclers. An impact tracker feature helps users view the total weight of the waste they had turned over to Trash Panda collectors for recycling and recovery.

Last Funding Round: Unknown

Investors: Unknown

Climate Tech Deals

Start-up	Sub Segment	Detail	Funding Round	Funding Amount	Year	Investor
Fortuna Cools	Waste Management (Non-plastics), Agriculture and Food	Agritech startup making sustainable coolers out of coconut fibre.	Seed	Undisclosed	2021	ADB Ventures, Katapult Ocean Fund, Pasudeco, Manila Angel Investors Network, Nardo Holdings, She1k
Hiraya Water	Water	A smart water management company that offers innovative solutions for developing countries.	Unknown	Undisclosed	2018	Ideaspace Foundation
Heat Stress Analyzer	Agriculture and Food	IoT based solutions that detect vital Agri-data weather parameters	Seed	$150,000	2015	Undisclosed

Priya Thachadi
CEO of Villgro Philippines

"Responding to the climate crisis with urgency is of utmost importance. In the Philippines, we are seeing an increasing number of market-based models to address climate change. More and more Entrepreneurs are accepting the need to apply circularity no matter what kind of business you run. We are very excited about the potential of climate tech deals we are seeing on the ground. We expect to see many of these models scale in the coming years and are taking some early bets."

6 Key Takeaways

1 Strong government push to improve ease of doing business and to encourage FDI in various sectors

Philippines has taken major strides to improve the ease of doing business environment for both domestic and international investors. This started in 2020 with the abolishment of the minimum capital requirement for domestic companies; dealing with construction permits has been improved and minority investor protection has also been strengthened. Furthermore, the country is encouraging FDI inflows in various sectors, especially in energy, innovation and environment.

2 High climate risk index ranking, warranting directed support towards more climate tech innovations

The Philippines ranks 4th on the Climate Risk Index. With a high dependence on the agricultural sector, increased flooding and the increased likelihood of droughts could impact agricultural land and this could contribute towards decreased agricultural productivity. Without effective adaptation and disaster risk reduction, climate change is likely to exacerbate high existing levels of income and wealth inequality; poverty alleviation progress will be slowed.

3 Strong government vision on climate change targets needs backing from climate tech focused investments

The climate change targets set by the Philippines are very ambitious, and this intent needs to backed up by significant climate action-focused investment. The Government has pledged a reduction of 72.3% of GHGs (conditional) by 2030 as part their published NDCs. There has already been significant progress made especially on the renewable energy side with many corporates involved in building Philippines' renewable energy capacity with only 5% additional capacity required to meet its renewable energy targets for 2030.

4 Government initiatives for tech-startups need to be supplemented by dedicated ecosystem creation for climate tech startups

The Government has taken big steps toward building the startup ecosystem in the Philippines, especially over the last 6 years. The support is focused on digital and e-commerce startups as the government has charted a road map for these specific sectors. There is further support given to startups through the launch of the startup research grant program and the startup assistance program. This provides the right platform to encourage the growth of the startup ecosystem

5 Many local corporates actively participate in startup-support initiatives, more so in the impact space

Some of the top corporations in hospitality, real estate, consumer products, aviation, energy, etc have a strong focus on sustainability and on building startups. These corporations have laid out internal programs that are focused on overall sustainability best practices and climate action. The same corporates have gone on to set up VCs and also fund and support various ESOs that are in the impact space in the Philippines.

Endnotes

(All data as accessed on 13th September 2021)

i. https://santandertrade.com/en/portal/establish-overseas/philippines/foreign-investment

ii. https://thegiin.org/assets/Philippines_GIIN_SEAL_report_webfile.pdf

iii. https://www.adb.org/sites/default/files/publication/722241/climate-risk-country-profile-philippines.pdf

iv. https://www.jumpstartmag.com/5-government-backed-startup-programs-in-the-philippines/

v. https://www.foxmontcapital.com/philippine-venture-capital-report-2020

Vietnam

Climate Tech Landscape Research Brief
Country Snapshot

Climate Tech Investment Network (CTIN) provides investment syndication support services to local angel investment networks through a deal- flow centric platform to catalyze early-stage capital into climate tech startups in South and Southeast Asia.

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1 COUNTRY OVERVIEW

High Level Economic Stats

GDP:

$271.158 Bn
(2020)
(Source: World Bank)

GDP per Capita:

$2785.724
(2020)
(Source: World Bank)

Inflation, consumer prices:

3.221% (2020) (Source: World Bank)

Sovereign Risk:

BB (Source: S&P)
Ba3 (Source: Moody's)

FDI Inflows (BoP, current in US$):

6.155% of GDP (2019) (Source: World Bank)

Foreign Exchange Resilience (against US$)

1.17% CAGR over 10 years

Capital Controls:

- Bilateral Investment and Taxation treaties: With **45 out of 190 countries** (Source: US Department of State)
- World Bank Ease of Doing Business Ranking: **70 out of 190 countries**
- Vietnam looks to encourage foreign investment where foreign businesses are allowed to operate in all areas apart from illicit drugs, wildlife trade, debt collection services etc.[i] To transfer capital into Vietnam, foreign investors must set up a foreign invested enterprise (FIE) and then open a capital bank account with a legally licensed and operating bank. A capital bank account is a special-use foreign-currency account designed to enable tracking of the movement of capital flows in and out of the country. This type of account is required in order to transfer money into current accounts so that in-country payments and other current transactions can be made.
  Investment capital contribution schedules are set out in joint venture contracts, FIE charters or articles of association, and/or business cooperation contracts, in addition to the FIE's investment license. Foreign investors are required to strictly follow the committed contribution schedule to avoid fines. To repatriate foreign funds, one must declare audited financial statements to the tax bureau. If there is no notice issued by the tax bureau within 7 days, the profits can be remitted. There is also no withholding tax if registered as a foreign invested enterprise (FIE) but individual investors are subject to tax.[ii]

Geographic and Demographic Stats

Population:
102 million
(Source: CIA World Factbook)

Youth% (15-24 years):
15.22%
(Source: CIA World Factbook)

Major Cities/Hubs:
Hanoi (Capital), Ho Chi Minh City, Can Tho, Hai Phong,Da Nang, Bien Hoa
(Source: CIA World Factbook)

Youth Unemployment (15-24 years):
7.6%, Ranking, 150 out of 190
(Source: CIA World Factbook)

Languages Spoken:
Vietnamese (Majority), English, French, Chinese, Khmer
(Source: CIA World Factbook)

Population completed tertiary education (25+ years):
6.7% (2009)
(Source: World Bank)

2 Overview of Climate Change in Vietnam

Introduction [iii]

Vietnam has an extensive coastline with a diverse but majorly warm climate that includes temperate and tropical regions. Approximately, one third of the country's population lives in the major cities including Ho Chi Minh City, Hanoi, Da Nang etc. The country's economic contribution has seen a transition from agriculture, forestry and fisheries in favour of the rapidly growing industrial and services sectors. Vietnam's agricultural sector (mainly in rice production) has provided ~15% to the country's GDP with 40% of the sector employing Vietnam's total work force.

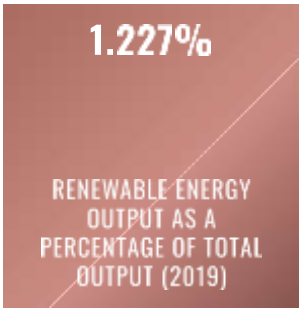
Vietnam has exhibited a need to address its fight against climate change through national policies and climate adaptation measures, including the National Climate Change Strategy policy in 2011, the National Green Growth Strategy in 2012, the Law on Natural Disaster Prevention in 2013 and a Law on Environmental protection in 2014. Vietnam has also ratified the Paris Agreement and has submitted its Nationally Determined Contribution (NDC) accordingly.

High Level Climate Change Stats

(Source: GermanWatch)

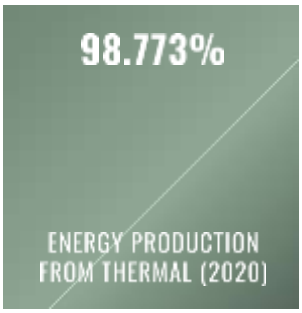
(Source: GermanWatch)

(Source: GermanWatch)

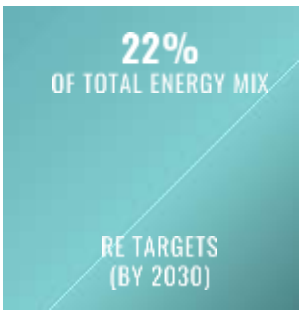


(Source: World Bank)

(Source: Climate Watch)



(Source: World Bank)



(Source: Climate Watch)

3 Climate change and startup policy overview

Key Climate Change, Startups and Investment related Policy & Regulations

Climate Change Policies & Government Initiatives

2012	2013	2014	2015	2019	2020	2021
National Action Plan on Climate Change (2012-2020)	National Strategy on Environmental Protection – Target 2020, Vision for 2030	Law passed on environmental protection	Green credit program set up by State Bank of Vietnam	Law on urban development management (focus on green growth, smart cities, adaptive cities with climate change)	Law passed to stipulate expenditures on environmental protection	National Plan to adapt climate change for 2021-2030, with a vision for 2050

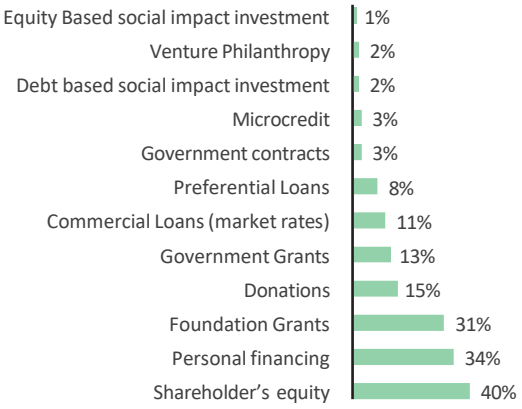
Startup/ Investment Policies & Government Initiatives

2017	2017	2019	2020	2021
SME Development Plan	Law on Supporting Small and Medium Enterprises	Law on Technology Transfer	Ministry of Education and Training coordinates startup coaching with several universities	Prime Minister's Plan for the Sustainable Development of the Business Sector

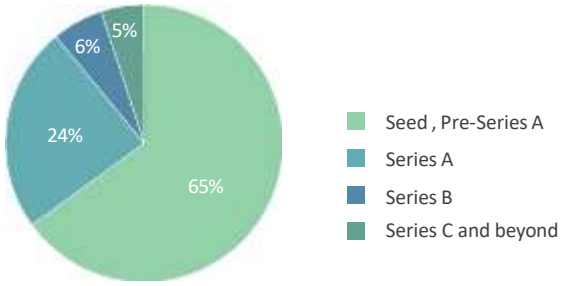
4 Startup Investment Overview

Note: Due to lack of granular data focused on Climate-tech innovations alone, the deal information in this section is focused on Impact or the startup ecosystem as a whole

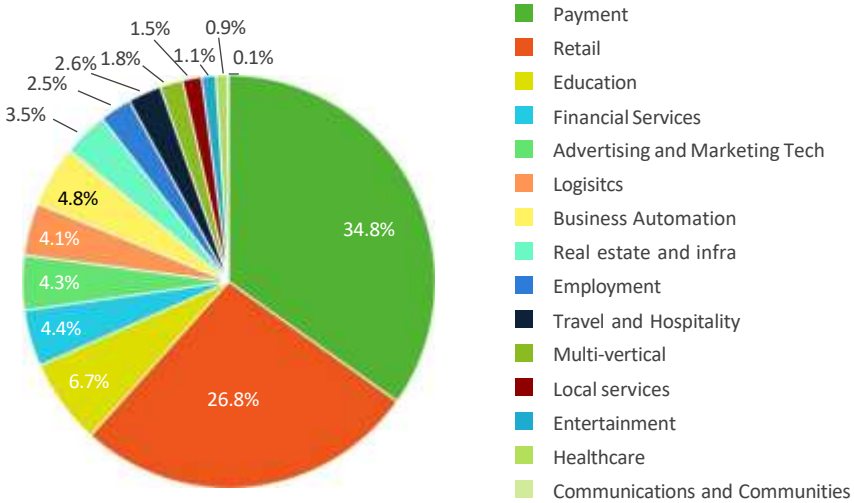
Source of Investment
(in the impact space) (2018)[iv]



Investment by Stage
(in the startup ecosystem, overall, by number of deals) (2013-2020)[v]



Investment by Sector
(in the startup ecosystem, by number of deals overall) (2013-2020)[v]



5 Key Climate Stakeholders

Key Investors

Investor	Classification	Investment Sector
Green Climate Fund	Government	Climate change and circular economy
Dutch Fund for Climate Fund for Climate and Development (DFCD)	Government	Climate resilience and adaptation programs in the Mekong Delta region
Quỹ Khởi nghiệp Xanh - Vietnam Green Startup Foundation	VC	Climate change and circular economy
Lotus Impact	Angel group	Impact in general
Planet Impact Capital	VC	Climate change and circular economy
Patamar Capital*	VC	Impact in general, gender lens investment
YellowDog	VC	Impact in general
Uberis	VC	Impact in general
Evergreen Labs	VC	Impact in general
Alley 51 Ventures	VC	Impact in general

Key ESOs

ESOs	Classification	Investment Sector
Vietnam Climate Innovation Center	Hybrid	Climate tech
Seed Planter	Incubator	Impact startups in general
DNES	Incubator	Impact startups in general
Vietnam Silicom Valley	Accelerator	Impact startups in general
CSIP	Hybrid	Impact startups in general
Chamber of Commerce and Industry of Vietnam (VCCI)	Government sponsored innovation competition	Climate tech
WISE	Startup network	Sector agnostic
Business Startup Support Center (BSSC)	Hybrid	Sector agnostic
KisImpact	Incubator	Impact startups in general
New Energy Nexus	Incubator	Climate Change

Key Corporates

Name	Details
Nestlé Vietnam	Nestlé Vietnam and La Vie announced the promotion of cooperation with partners to create a more positive impact on local water resources.
Unilever	Unilever has announced that they will invest 1 billion euros in an investment fund to invest in climate change projects and reduce to almost zero greenhouse gas emissions from its own products by 2039, before the deadline of the Paris Agreement.
Generali Group	Generali has been heavily involved in the finance and insurance space in Vietnam. Their goals to decarbonize investments include for example engaging with up to 20-carbon intensive companies within their portfolio and developing a decarbonization pathway. They are also involved in various climate fintech initiatives where they look to invest up to 9.5 billion euro in green bonds by 2025

Startup Profiles

Company	Year Set-Up	Sector	Sub-Sector	Sub-segment
	2019	Circluar Economy	Natural Resources	Organic Food Products

Nguyen Khoi Farm: the first Circular organic agriculture model in Vietnam to introduce a sustainable farming model that is farmer-friendly, produces zero waste and enhances economic efficiency.

Business Model: Livestock production according to the circular economy model which provides meat that is good for health, good for the environment and is socially responsible

Innovation: The farm adopts a circular operation model which is designed such that waste from livestock and crop production are used on-site for animal feed and fertilizer. Microbiological technology is widely used to replace mechanical and chemical methods to reduce labour work, fossil fuel and chemicals use. The farm produces a variety of high value products from this integrated system including livestock, crop husbandry and organic fertilizer.

Last Funding Round: Planned raise of $200,000 in 2021

Investors: Bootstrapped

Company	Year Set-Up	Sector	Sub-Sector	Sub-segment
	2014	Circluar Economy	Waste to Value	Waste Management (Plastics & Non-Plastics)

VIoT manufactures portable lights made from plastic waste

Business Model: Bringing light at a reasonable price, a stable and sustainable power source to remote areas of Vietnam with the price of 1 light bulb from USD5 and 1 panel used for 5 years

Innovation: VIoT manufactures portable lights made from plastic waste, and its open platform helps train people in remote areas to recycle plastic waste into lighting by providing affordable, long-lasting panels.

Last Funding Round: Planned raise of $200,000 - $500,000 in 2021

Investors: Bootstrapped

Recent Deals

Start-up	Sub Segment	Detail	Funding Round	Year	Investor
WiiBike	Future Mobility	Manufactures electric power-assisted bicycles using green energy	Seed - $100,000	2021	Sunhouse Angel Investor
iGreen	Clean Industry	Manufactures compostable biopolymer products.	Seed - $200,000	2021	Đỗ Thị Kim Liên - Angel Investor

Local Angel Investor Quotes

Danh Nguyen
Vice Director, Vietnam Green Startup Foundation

"'High risk, high return' - Even though the Vietnamese market has raised the awareness of fighting against climate change, it has not yet reached the stage where the ecosystem promises more climate tech rising stars. The market still has potential but it needs investors / investment funds to lead and create trends to attract more startups in the Climate Tech and Circular economy segments."

Minh Nguyen Dang Tuan
CEO and Founder, KisStartup

"Among the most affected countries by climate change, Vietnam is now in need of solutions to deal with climate change. Local innovation is promising, pool of talents in the field are large, however, the funding gap, especially funding for early-stage businesses is still wide. Along with other countries in ASEAN, Vietnam will be an attractive destination for climate tech investment thanks to the innovation and the huge market needs."

6 Key Takeaways

1 *Favourable policies to support foreign investments*

To promote foreign investment, Vietnam has eased restrictions on investment in conventional sectors and has eliminated withholding tax for Foreign Invested Enterprises (FIE). This is coupled with an easy pathway to repatriate funds/profits, through the Vietnam Tax Bureau after a 7-day review.

2 *Strong government backing for clean energy but clean solutions are required in other sectors as well*

The country has seen a rapid transition from predominantly an agriculture focused economy in favour of mass industrialization and commercialization over the past few years which has led to more dependence on fossil fuels as an energy source. As a result, Vietnam plans to increase its dependence on renewable energy where 22% of all energy output in the country is from renewable energy including hydroelectric power.

3 *Clear climate focuesd action and policies from the* government in specific regions of the country

Vietnam's exposure to climate change is not as high as its neighbours but has set a clear action plan to combat climate change in specific locations. This has led to various programs being organized by the government (VCCI) and other development agencies (DFCD) to focus on the effects of climate change on the Mekong Delta region specifically.

4 Early focus from the government to develop Vietnam's startup ecosystem

Over the last 10 years, the government has focused on developing Vietnam's startup ecosystem. The recent plan issued by the Prime Minister to encourage Sustainable Development for Businesses shows that the government correlates the startup ecosystem along with impact focused/climate focused growth.

5 *Fast growth in the startup ecosystem and an interest in cer- tain climate tech sub sectors that needs to be nurtured*

Vietnam's startup ecosystem has seen a meteoric rise and as a result, has attracted both foreign and local investment. With the climate space in mind, the key investors are focused on agri-tech, plastic waste innovation, viewed through a gender lens. There is a good foundation in place for the startup ecosystem in Vietnam but requires investors, VCs and Angels to be active in the space, especially for early-stage startups to ensure the ecosystem continues to grow.

Endnotes

(All data as accessed on 13th September 2021)

i. https://www.state.gov/reports/2021-investment-climate-statements/vietnam/

ii. https://www.vietnam-briefing.com/news/understanding-foreign-exchange-control-vietnam.html/

iii. https://climateknowledgeportal.worldbank.org/sites/default/files/2021-04/15077-Vietnam%20Country%20Profile-WEB.pdf

iv. https://www.vn.undp.org/content/dam/vietnam/docs/Publications/Foster%20SIB%20Sector%20in%20Vietnam_E_ebook.pdf

v. https://doventures.vc/assets/uploads/reports/download/vietnam-innovation-and-tech-investment-report-fy2020-1624893687.pdf