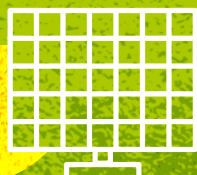




# CLIMATE FINANCE FOR STARTUPS IN INDIA

KEY CHALLENGES, OPPORTUNITIES AND RECOMMENDATIONS TO  
FOSTER A VIBRANT CLIMATE-TECH ENVIRONMENT IN THE COUNTRY

JULY 2022



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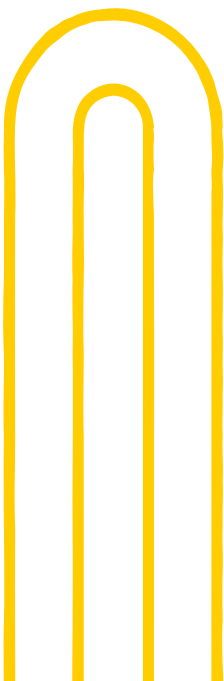
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Any shortcomings or weaknesses in our report are our own.

**Design:** Pallavi Baasri



"The Indian Climatetech ecosystem is ripe for opportunity, with a young, highly-educated workforce brimming with ideas and a penchant for entrepreneurship. However, start-ups still struggle to raise funds in the "missing middle", which is of particular importance in high-capex industries like renewable power, water, waste and electric vehicles. Long lead times for government contracts makes patience and business model innovation essential in this space. This report lays out key recommendations on how governments and other stakeholders can help start-ups overcome these barriers and solve climate challenges, not just for India, but for the world."

— Alexander Hogeveen Rutter, Climate Tech Investor

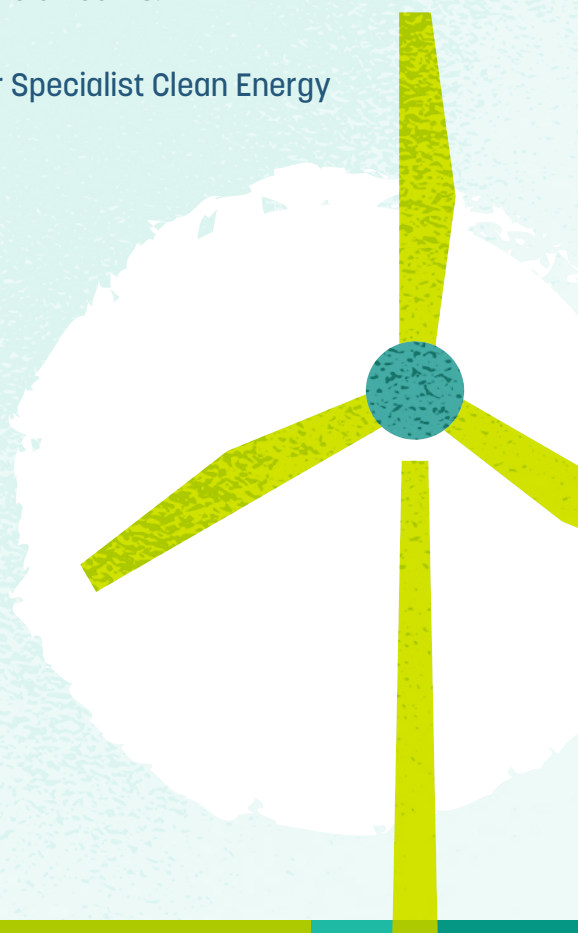


"With rising uncertainty, the global priorities on climate action are changing. Inflation is hitting the energy sector hard, and the role of climate finance would be taking centre stage along with innovation in technologies. A unique idea to make a brilliant product, the start-up of unicorns for the climate sector is a need of an hour. This report would help us understand the startup ecosystem connected with the climate sector and hopes to push the clean and green entrepreneurs' journey in future unicorns."

— Nisheeth Srivastava, Sector Specialist Clean Energy

"India needs to transition away from the current energy model but also adapt simultaneously in an extremely narrow time frame compared to the global North. India should play to its strengths and build on the startup ecosystem by putting its weight behind a corpus to encourage clean-tech startups and a supportive ecosystem to ensure innovation helps buttress India's grand energy transition plans towards Net Zero. The report helps us understand the pain points and models we can look at to make this possible."

— Aarti Khosla, Director, Climate Trends





# LIST OF ABBREVIATIONS

<b>ADB</b>	Asian Development Bank
<b>AF</b>	Adaptation Fund
<b>AIF</b>	Alternate Investment Funds
<b>AIM</b>	Atal Innovation Mission
<b>ASPIRE</b>	A Scheme for Promotion of Innovation, Rural Industries and Entrepreneurship
<b>CIF</b>	Climate Investment Fund
<b>CSR</b>	Corporate Social Responsibility
<b>COP</b>	Conference of the Parties
<b>DPIIT</b>	Department for Promotion of Industry and Internal Trade
<b>EFC</b>	Economic Framework Conditions
<b>EIT InnoEnergy</b>	European Institute of Technology (Innovation Energy)
<b>ESG</b>	Environmental, Social, and Governance
<b>EU</b>	European Union
<b>EBA</b>	European Battery Alliance
<b>Fintech</b>	Financial Technology
<b>FFF</b>	Friends, Family, Fools
<b>FFS</b>	Fund of Funds Scheme
<b>GCF</b>	Green Climate Fund
<b>GEF</b>	Global Environmental Facility
<b>GEM</b>	Global Entrepreneurship Monitor
<b>GHG</b>	Greenhouse Gas
<b>IEA</b>	International Energy Agency
<b>IFC</b>	International Finance Corporation
<b>IIC</b>	Innovation and Incubation Centre
<b>INDC</b>	Intended Nationally Determined Contributions
<b>IPO</b>	Initial Public Offering
<b>IREDA</b>	Indian Renewable Energy Development Agency
<b>IRIX</b>	India Renewable Idea Exchange
<b>KfW</b>	Kreditanstalt für Wiederaufbau
<b>LBI</b>	Livelihood Business Incubators
<b>MDB</b>	Multilateral Development Banks
<b>MFI</b>	Microfinance Institutions
<b>MNC</b>	Multinational Companies
<b>MNRE</b>	Ministry of New and Renewable Energy
<b>MMSME</b>	Ministry of Micro, Small & Medium Enterprise
<b>MSME</b>	Micro, Small & Medium Enterprises
<b>MVP</b>	Minimum Viable Product
<b>NBFC</b>	Non Banking Financial Companies
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>PDEU</b>	Pandit Deendayal Energy University
<b>PE</b>	Private Equity
<b>RE</b>	Renewable Energy
<b>SEBI</b>	Securities and Exchange Board of India
<b>SIDBI</b>	Small Industries Development Bank of India
<b>UNEP</b>	United Nations Environment Programme
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>VC</b>	Venture Capital

# TABLE OF CONTENTS

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- 1 Executive Summary
- 2 Background
- 3 Working Definitions
- 4 The Startup Environment in India
- 5 The Status of Climate Finance in India
- 6 Mechanisms of International Climate Finance
- 7 Key Drivers, Gaps and Barriers
- 8 Importance of the Startup Ecosystem and Role of the Government
- 9 Case Studies
- 10 Recommendations, Conclusion and Key Messages

# EXECUTIVE SUMMARY


**COMPLEX PROBLEM TO SOLVE: MOST STARTUP FINANCING SEEMS TO BE CENTRED AROUND MUMBAI, DELHI-NCR, AND BANGALORE, AND A FEW UNIVERSITIES; THERE IS A NEED TO ENSURE THAT STARTUPS ARE DISTRIBUTED ACROSS INDIA**

This study specifically looks at the status of the climate tech startup finance ecosystem in India. The goal is to highlight the opportunities and challenges and to present potential solutions to accelerate climate tech finance in the country. The report is aimed at policy makers who want to accelerate climate technology innovation in India; incubators and accelerator programmes who wish to carve out climate specific programmes; impact investors that are looking at investing in the climate tech space; and finally, entrepreneurs who want to address problems in the climate and energy space.

The report shows that, in general, policy support for very early stage startups in India has improved considerably over the last year. In particular, the Startup India Scheme has provided a much needed boost to startups. However, most of the startup activity in terms of financing seems to be centred around the urban centres in Delhi-NCR, Mumbai and Bangalore and a few universities. There is a need to ensure that startups are geographically distributed across India, which is a complex problem to solve.

Funding for the climate tech sector has largely been limited to renewable energy and electric vehicles, and that too not specifically for startups. But this is likely to change with a greater national push to address climate change and the greater availability of climate specific funds. However, Startup India does not yet have a climate specific funding programme or scheme, which may be necessary to accelerate climate innovation in India.





There is a broad consensus that the financial system in India is fairly well developed, yet leans towards funding larger companies with big balance sheets. Startups consistently state the lack of finance as a major hurdle to scale up their operations. We observe that funding is available for very early stage ideas mainly as grants and for startups that have broken through to establish their business model. The “missing middle” is largely for startups going from the seed stage to scaling up their operations in the market. There is an urgent need to support startups to scale from their initial prototype to being ready to enter the market. This support can be in the form of grants, equity at favourable terms, but also low cost debt without recourse.

The definition of climate finance, climate tech and startup are somewhat ambiguous. A startup can be classified as a Micro, Small & Medium Enterprises (MSME), based on its investment size and turnover. However, for an MSME to be a startup, innovation is an important criteria. Lessons can be taken from the United Nations Framework Convention on Climate Change (UNFCCC) which defines climate financing as ‘local, national or transnational financing—drawn from public, private and alternative sources of financing—that seeks to support mitigation and adaptation actions that will address climate change’. Adapting these definitions to the Indian context are necessary to carve out a specific space for climate tech startups.

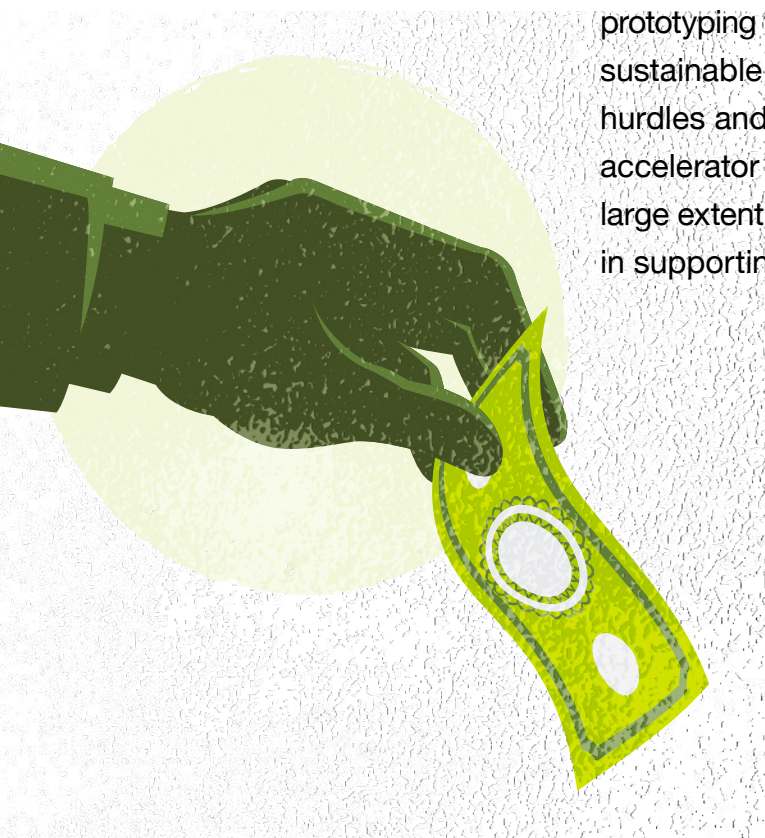
Risk perception and investor expectations for climate tech startups are significantly different compared to IT or fintech startups. Usually climate tech startups have longer gestation periods, require higher capital investments and have to include government regulations as an important factor in tailoring the business model. The government can play an important role to improve risk perceptions by providing specific support to climate tech entrepreneurs.

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1. Bridging India's Innovation Funding Gap, Climate Finance Initiative, April 2021, <https://bit.ly/3LA7DZH>
  2. Introduction to Climate Finance, UNFCCC, <https://bit.ly/3xnaUaw>

**CLIMATE TECH STARTUPS  
HAVE LONGER GESTATION  
PERIODS, REQUIRE HIGHER  
CAPITAL INVESTMENTS  
IN MANUFACTURING  
AND HAVE TO INCLUDE  
GOVERNMENT  
REGULATIONS AS AN  
IMPORTANT FACTOR IN  
THE BUSINESS MODEL**

India can explore a model akin to the European Union's (EU) European Institute of Technology (EIT InnoEnergy) model. This fund was initially supported by the European Commission to specifically accelerate climate tech startups, but now operates and finances itself independently. India can adopt, and tailor this model to integrate it with Startup India. Such a specific climate fund can accelerate contributions through bilateral, multilateral agencies, donors and foundations who are looking to enable climate finance as a part towards commitments, and yet require official government support. The specifics and structure of the fund is outlined in this report.

Finally, the success of startups goes beyond finance. There is a need for non-financial support services at an early stage such as access to recruiting agencies, rapid prototyping facilities, marketing support, coaching in building sustainable business models, dealing with regulatory hurdles and access to mentors. While the incubators and accelerator programmes in India are providing this to a large extent, a climate specific thrust would go a long way in supporting climate tech startups.





# BACKGROUND

India accounts for 7% of global greenhouse gas (GHG) emissions and besides a dip due to COVID-19 in 2020 emissions have been steadily growing over the last years. There is little doubt that India needs to play a dominant role in mitigating climate change, if the world intends to keep the 1.5 degree commitment. While India has taken great strides in implementing policies and programmes in mitigating the impacts of climate change, especially in the clean energy sector, significantly more needs to be done. This is specially so because nearly 75% of the emissions come from the energy sector, with electricity production totalling to nearly 40%. The country, meanwhile, still relies heavily on coal-based power production to meet the needs of its growing population and growing per capita consumption of primary energy.

Given the urgency of an accelerated energy transition, the country needs to ramp up its energy transition and indeed embark on a deep decarbonisation of the entire economy. The country has often stressed the importance of equity in the international climate negotiations. Indeed, the country's Intended Nationally Determined Contribution

(INDCs) explicitly state that the goals are contingent on the availability of low-cost finance and technology transfer. Following that paradigm, the Indian government was very vocal again with its call for a hike in climate finance to \$1 trillion at the 26<sup>th</sup> international climate conference in Glasgow.

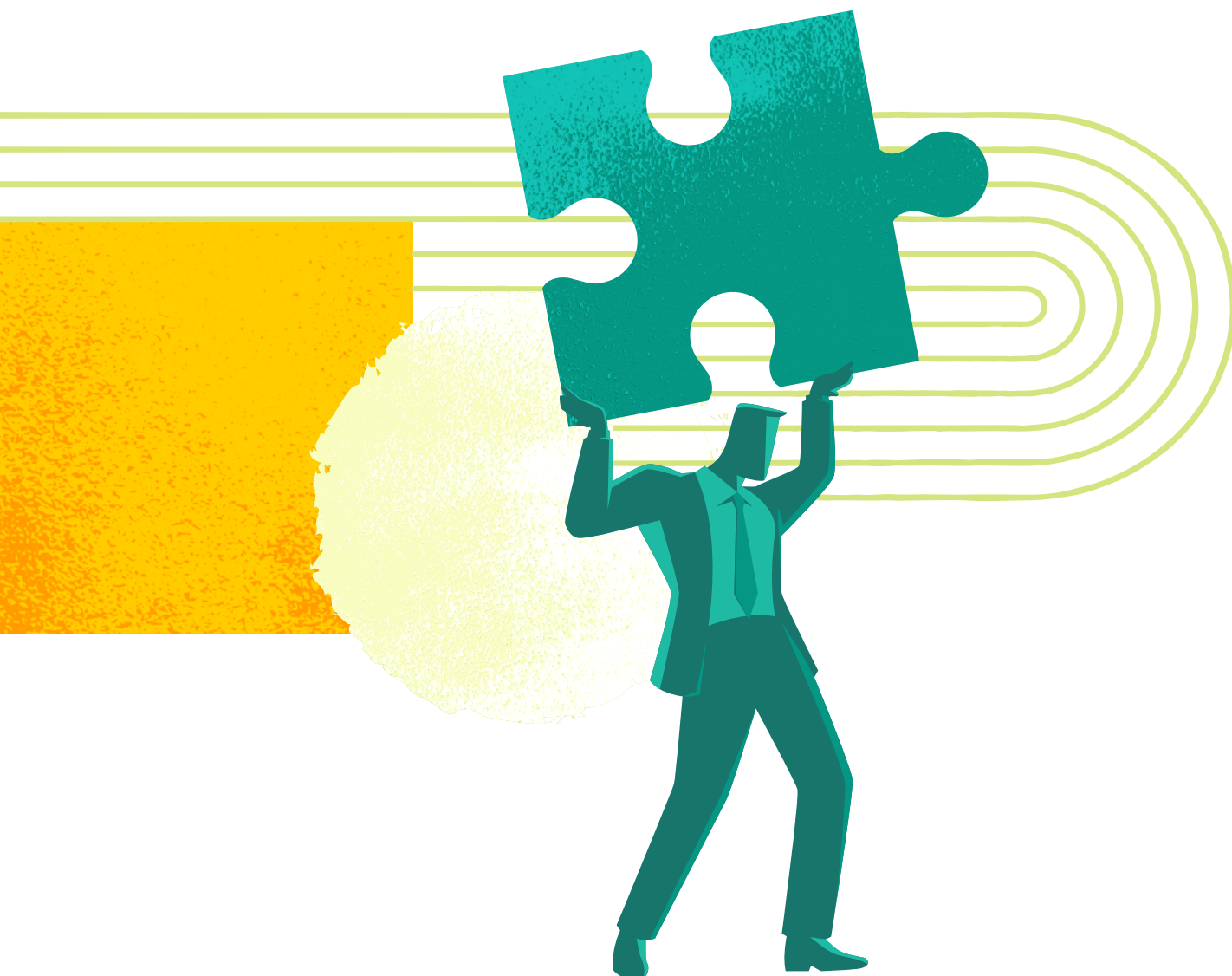
INDIA HAS SO FAR RELIED ON DOMESTIC SOURCES OF FINANCING ESPECIALLY FOR ITS RENEWABLE ENERGY PROJECTS, A SIGNIFICANT FUND FLOW INTO THE COUNTRY WILL BE REQUIRED IN ORDER TO DECARBONISE ITS ECONOMY. FINANCIAL CAPITAL IN ALL THREE FORMS — EQUITY, DEBT AND GRANTS WILL BE CRUCIAL TO MAKE THE TRANSITION.

The importance of climate finance especially for a country like India, therefore cannot be overstated. While India has so far relied on domestic sources of financing especially for its renewable energy projects, a significant fund flow into the country will be required in order to decarbonise its

3. Hannah Ritchie and Max Roser (2020)—CO<sub>2</sub> and Greenhouse Gas Emissions. Published online at [OurWorldInData.org](https://ourworldindata.org). Retrieved from: <https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions>
4. MOEFCC. Biannual update report (BUR) to UNFCCC. <https://bitly.co/C7fi>
5. BBC. <https://bitly.co/C7fm>

economy. Capital in all three forms—equity, debt and grants will be crucial to make the transition. Startups in particular play a vital role in catalysing change. Moreover, innovations that are specific to the Indian market, geography and consumer

affordability are critical to enable the transition to low carbon pathways. India has taken significant initiatives in recent years to provide an impetus to all startups through various schemes.



# WORKING DEFINITIONS

As a part of the Copenhagen Accord, developed nations agreed to mobilise \$100 billion annually to developing nations for their mitigation and adaptation activities. However, even after a decade, developed nations struggle to fulfil this promise. In addition, there is a lack of clarity as to what can be considered climate finance and how it should be reported.

## DEFINING CLIMATE FINANCE AND CLIMATE TECHNOLOGY

Defining 'climate finance' is crucial in order to determine the quality and type of financial flows towards a country. Terms like sustainable finance, green finance or low carbon finance at times are used interchangeably. This ambiguity creates the possibility of countries developing their own definition based on their respective criteria and context which reduces the quality of finance flows to a developing nation. Quality finance would mean increasing the amount of grant finance rather than other financial instruments. The United Nations Environment Programme (UNEP) explains the difference between these terms through a simple schema (Figure 1). As per this schema, all finance under the mitigation and adaptation activities can be considered climate finance. In a similar way, the definition of 'Green Finance' varies country-wise and also at

times, depends on the financial segments.

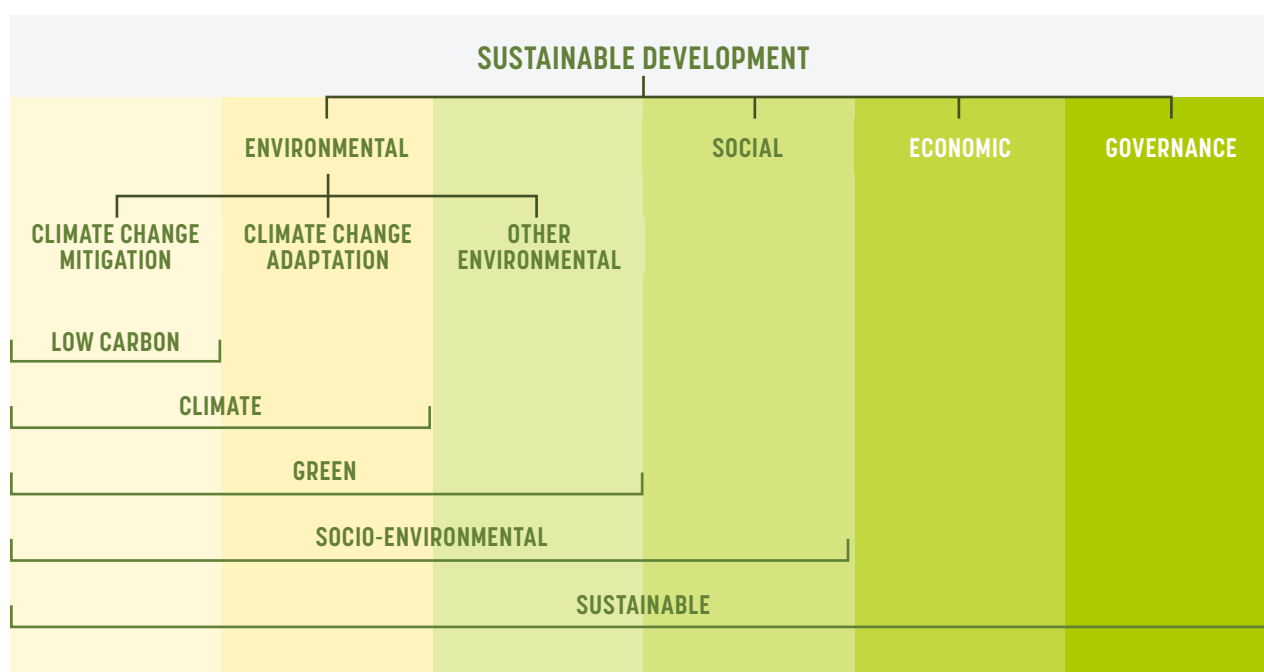
**THE UNEP DEFINITION IS AS FOLLOWS:**  
'CLIMATE FINANCE' TENDS TO BE PARTICULARLY ASSOCIATED WITH THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC), WHICH DEFINES IT AS "LOCAL, NATIONAL OR TRANSNATIONAL FINANCING, WHICH MAY BE DRAWN FROM PUBLIC, PRIVATE AND ALTERNATIVE SOURCES OF FINANCING. CLIMATE FINANCE IS CRITICAL TO BOTH REDUCE EMISSIONS AND TO ALLOW COUNTRIES TO ADAPT TO THE ADVERSE EFFECTS AND REDUCE THE IMPACTS OF CLIMATE CHANGE".

'Green finance' is generally used to convey something broader than climate finance, in that it addresses other environmental objectives and risks. It tends to be understood with a greater focus on greening broad flows of private investment rather than mainly concerning public and public-leveraged financial flows. An umbrella term for all climate related as well as environmental activities would be included in 'Sustainable Finance'. Throughout this report, we retain this definition of climate finance.

6. Delivering on the \$100 billion climate finance commitment and transforming climate finance, Independent Expert Group on Climate Finance, UN, <https://bit.ly/3KJhvPg>



**Figure 1** A simplified schema for various green financing



## WHAT IS A STARTUP?

Similarly, there are multiple interpretations of ‘startups’. What makes a company a startup? Does the size of the startup matter? Are all new companies startups? In India’s context, what is the difference between MSMEs and startups?

**WHAT DISTINGUISHES A STARTUP FROM A REGULAR COMPANY IS INNOVATION, FOLLOWING A NEW TEMPLATE TO PROVIDE SOLUTIONS RATHER THAN PURSUING THE EXISTING PARADIGM.**

Broadly speaking, a startup is like any other company that provides an answer to a market problem through a product or

service. **However, what distinguishes a startup from a regular company is innovation**, following a new template to provide solutions rather than pursuing the existing paradigm. Further, the focus is on rapid growth, revenue generation and potential for employment. These are the characteristics of a startup.

A startup goes through various stages (see section below) depending on which it requires respective appropriate funding. These funds are raised through sources such as venture capitalists, angel investors, incubators, public grants and so on. While the success of a startup is based on various factors like the originality of the idea, market size, expertise etc., it is observed that timely funding and a

7. Design of a sustainable Financial System, UNEP, 2016, <https://bit.ly/3Ocozas>

favourable startup ecosystem plays an important role in the overall lifecycle. The case is no different for startups in India.

### Startups in India

India has a supportive ecosystem for startups with many policies and initiatives in place. The **Startup India Scheme** is one such flagship programme. The Startup India Scheme recognises a company as a startup if it meets the following criteria:

1. **Company Age:** Period of existence and operations should not have exceeded 10 years from the Date of Incorporation.
2. **Company Type:** Incorporated as a Private Limited Company, a Registered Partnership Firm or a Limited Liability Partnership.
3. **Annual Turnover:** Should have an annual turnover not exceeding Rs.100

crore (USD 13 million) for any of the financial years since its incorporation.

4. **Original Entity:** Entity should not have been formed by splitting up or reconstructing an already existing business.
5. **Innovative and Scalability:** Should work towards development or improvement of a product, process or service and/or have a scalable business model with high potential for creation of wealth and employment.

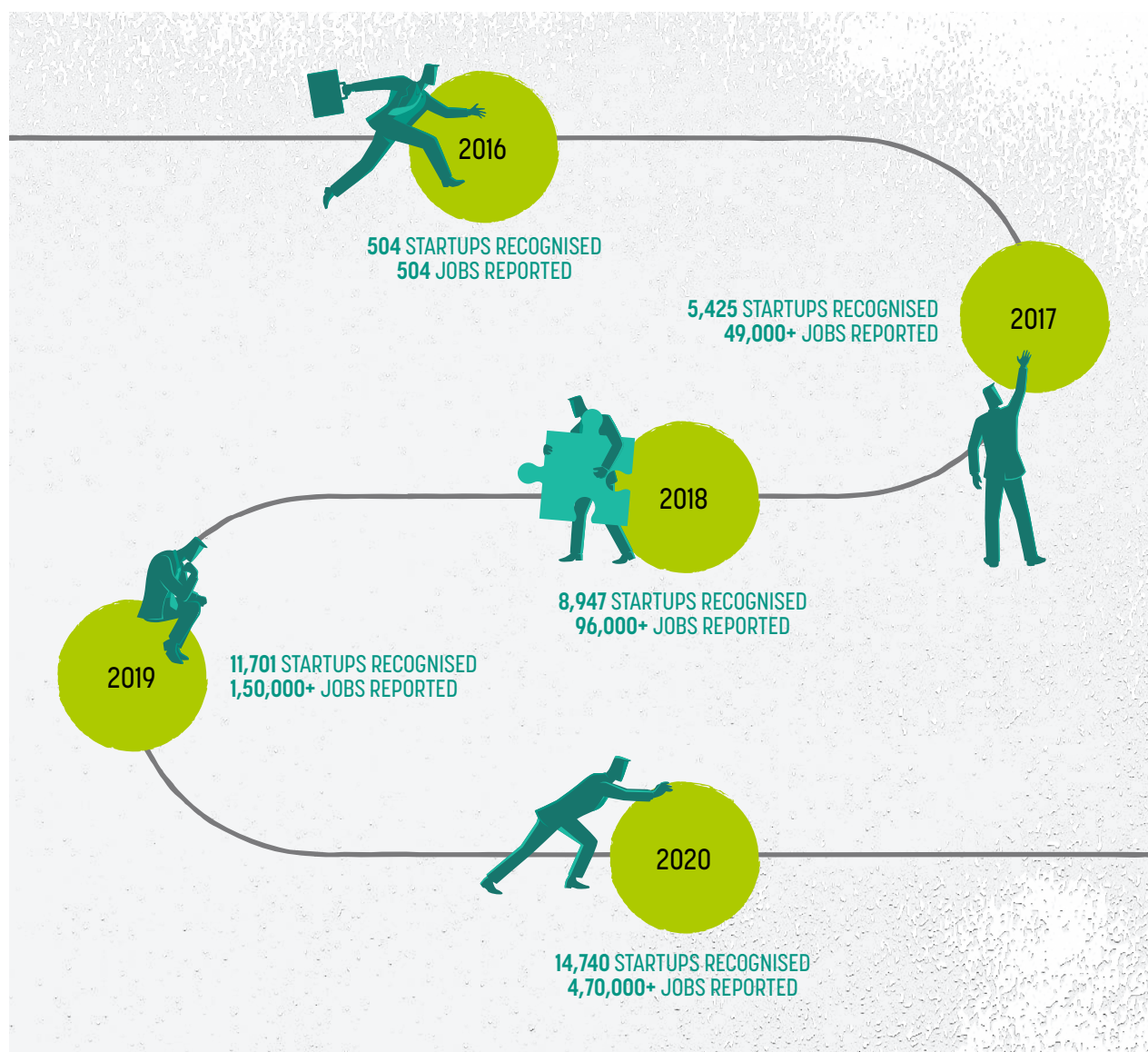
### KEY HIGHLIGHTS AND ACHIEVEMENTS OF THE STARTUP INDIA SCHEME<sup>10</sup>

The Startup India Scheme has made headway for the startup ecosystem in the country. With the launch of the scheme, the increase is reported not just in the number of startups but also jobs reported (Figure 2).



8. We conducted several interviews with incubators as well as startups to understand the challenges of the startup ecosystem in India. Timely finance was a ubiquitous concern.  
9. Startup India Initiative, <https://bit.ly/3jBx7tq>  
10. Evolution of Startup India <https://bit.ly/3PPu27H>

**Figure 2** Growth of startups and related jobs (2016–2020)

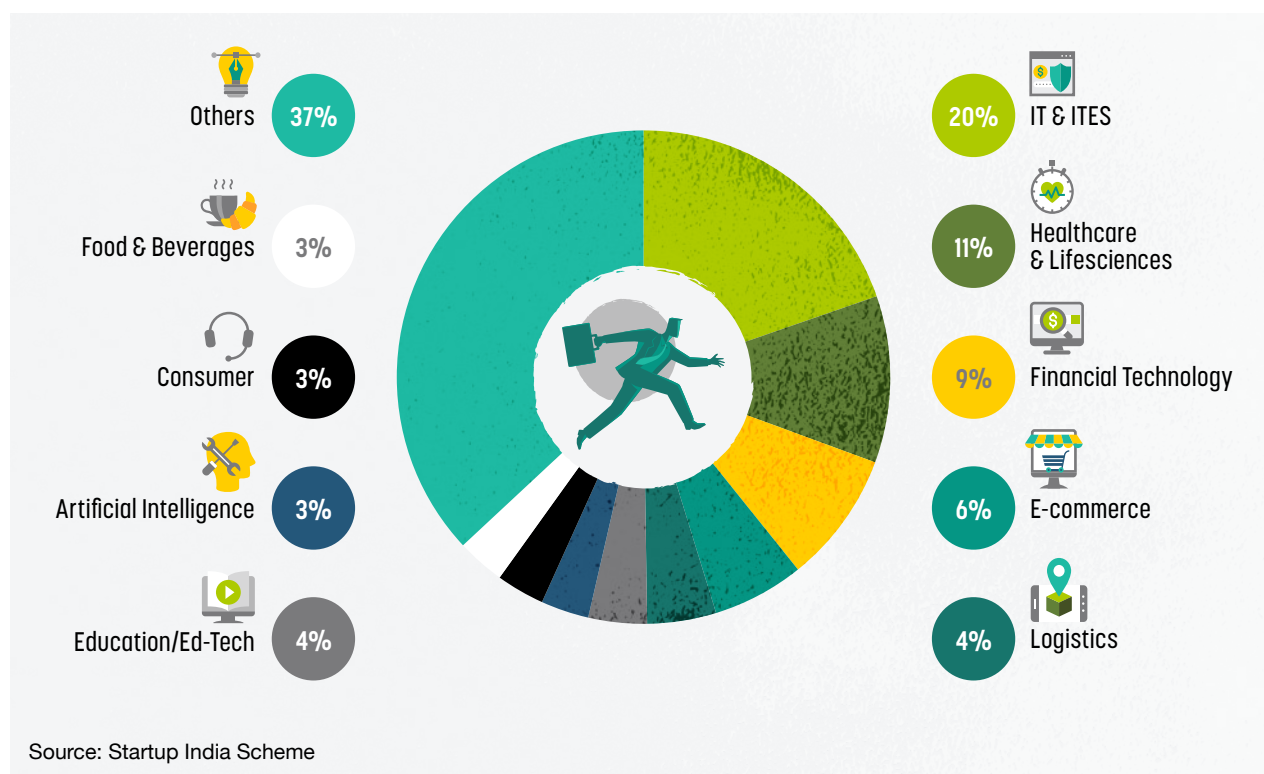


With an addition of 14,000 new startups in 2020, the total number of startups has reached 41,317 as of December 2020. By way of this scheme, the startups get access to the Fund of Funds Scheme (FFS) through which a total of Rs.4,509 crore (USD 0.58 billion) of investments has been made in 384 startups. The FFS has been established to provide financial support to startups in order to address a key challenge — access

to risk capital. Due to the high risk nature of startups, their investment attractiveness reduces. The FFS, therefore, is structured in a way that the investments are made, not directly, but via Securities and Exchange Board of India (SEBI) registered Category 1 and 2 Alternate Investment Funds (AIFs). This fund was initially set up with a corpus of Rs.10,000 crores (USD 1.3 billion).



**Figure 3** Sectoral Breakup of Startups in India



The Ministry of Micro, Small and Medium Enterprises (MMSME), on the other hand, specifies a set of criteria for the classification of MSMEs, which is based on the amount of investment and turnover. However, there is no mandate for these companies to have an innovative component, which distinguishes MSMEs from startups.

**Table 1** Overview of the MSME definitions in India

ENTERPRISE	INVESTMENT	TURNOVER (INR)
<b>Micro</b>	< 10 million INR or 0.13 million USD*	< 50 million INR or 0.65 million USD
<b>Small</b>	< 100 million INR or 1.3 million USD	< 500 million INR or 6.5 million USD
<b>Medium</b>	< 500 million INR or 6.5 million USD	< 2.5 billion INR or 32.65 million USD

\*For the purpose of this study, we focused on innovative startups in the field of climate-tech. We specifically do not study MSMEs.

11. Ministry of Micro, Small and Medium Enterprises Notification, June 2020, <https://bit.ly/3KPwusc>  
 12. Exchange rates as on 28th April, 2022 for equivalent dollar terms.

## STAGES OF A STARTUP

Startups typically go through distinct phases before they either succeed or fail. There are several models that describe the lifecycle of a startup, each with its own nomenclature. However, they appear to be broadly six important phases.

### Phase 1: Pre-Seed Stage

In this phase, an idea is conceptualised by understanding a specific problem that needs to be solved. The solution can be in the form of a product or a service and serves to add distinct value to consumers. Subsequently, a team is put together and the core vision, mission and values of the organisation are formally or informally elaborated.

### Phase 2: Seed Stage

In this phase, the team members form commitments through agreements and a shared vision. The potential solution from Phase 1 is put to the test by making it go through repeated cycles of ideation and testing.

### Phase 3: Early Stage

This is the stage where a Minimum Viable Product (MVP) is developed based on constant iteration of market and consumer needs. This is also when the first demonstrations are made and the first customers are acquired.

### Phase 4: Growth Stage

Having developed a solution that is ready for the market, the startup defines key indicators for success, which could be number of products sold, or consumers

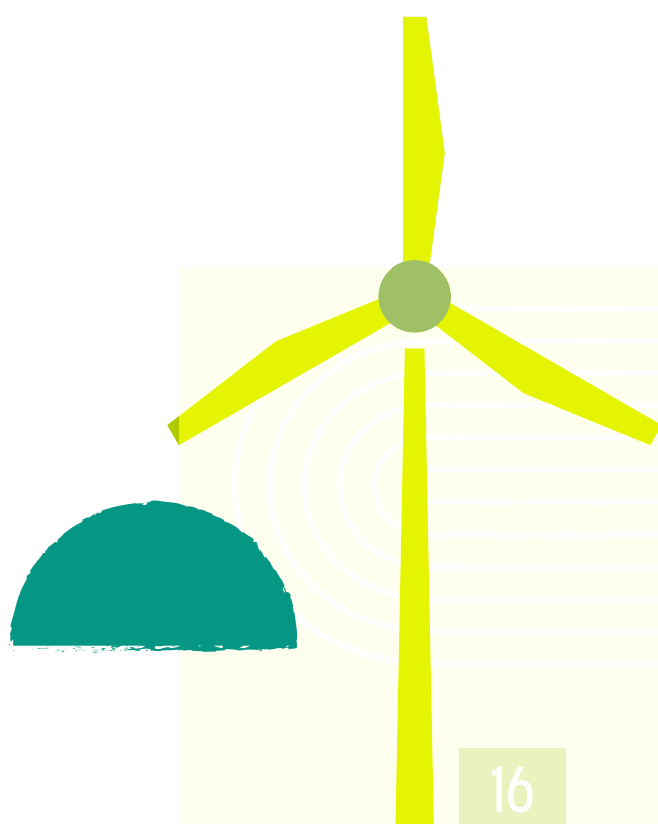
acquired, or impact created. This is typically the time when Venture Capital (VC) funding is acquired to hire talent, make investments into product and development processes, consumer acquisition and so on. Finally, the startup reports strong growth in sales and revenue and can easily attract capital for sustained growth.

### Phase 5: Expansion Stage

In this phase the startup begins to grow by expanding its customer base and geographical spread. Alternate options of the product or service are also developed to suit customer specific needs. Here, growth both in terms of revenue and employees is seen.

### Phase 6: Exit Stage

This is the stage where the founders sell their stake in the company, the company is merged or acquired by a larger company. Not all startups necessarily go through the sale. There are several instances where startups evolve and go onto become mature companies.



**Table 2** Stages of a Startup

ACTIVITY	FUNDERS	AMOUNT
<b>Pre-Seed Stage</b> <ul style="list-style-type: none"> <li>» Create a product</li> <li>» Address a specific problem</li> <li>» Evaluate the cost of an opportunity</li> </ul>	<b>Pre-Seed Stage</b> <ul style="list-style-type: none"> <li>» None, self-funded</li> </ul>	<b>Pre-Seed Stage</b> <ul style="list-style-type: none"> <li>» Negligible</li> </ul>
<b>Seed Stage</b> <ul style="list-style-type: none"> <li>» Build a business model</li> <li>» Develop a prototype</li> <li>» Validate the solution</li> </ul>	<b>Seed Stage</b> <ul style="list-style-type: none"> <li>» Friends, family, fools (FFF)</li> <li>» Angels, seed funds</li> <li>» Incubators, government grants</li> </ul>	<b>Seed Stage</b> <ul style="list-style-type: none"> <li>» Up to INR 30 lakh (USD 39,163)</li> </ul>
<b>Early Stage</b> <ul style="list-style-type: none"> <li>» Minimum Viable Product (MVP)</li> </ul>	<b>Early Stage</b> <ul style="list-style-type: none"> <li>» Series A VC</li> <li>» Crowdfunding</li> </ul>	<b>Early Stage</b> <ul style="list-style-type: none"> <li>» Up to INR 5 crore (USD 0.65 million)</li> </ul>
<b>Growth Stage</b> <ul style="list-style-type: none"> <li>» Customer acquisition</li> <li>» Finetune product or service</li> <li>» Profitability focus</li> </ul>	<b>Growth Stage</b> <ul style="list-style-type: none"> <li>» Corporate VC, Series B</li> </ul>	<b>Growth Stage</b> <ul style="list-style-type: none"> <li>» Up to INR 5 crore (USD 0.65 million)</li> </ul>
<b>Expansion Stage</b> <ul style="list-style-type: none"> <li>» Demonstrate proved business model</li> <li>» Internal and external expansion</li> </ul>	<b>Expansion Stage</b> <ul style="list-style-type: none"> <li>» Series C, Private Equity (PE), Investment banks, Non-Banking Financial Companies (NBFCs)</li> </ul>	<b>Expansion Stage</b> <ul style="list-style-type: none"> <li>» Tens of crores</li> </ul>
<b>Exit Stage</b> <ul style="list-style-type: none"> <li>» Not mandatory</li> <li>» IPO, sale, merger, and acquisition</li> </ul>	<b>Exit Stage</b> <ul style="list-style-type: none"> <li>» Stake sale, Initial Public Offering (IPO), mergers and acquisition</li> </ul>	<b>Exit Stage</b> <ul style="list-style-type: none"> <li>» Hundreds of crores</li> </ul>





# THE STARTUP ENVIRONMENT IN INDIA

As per the Economic Survey of 2021–22, more than 61,000 startups have been recognised and registered as of January 2022. This includes 14,000 new startups registered in 2021, which is a steep rise from a mere 733 startups in 2016–17. This indicates a remarkable growth in the recent past in the startup environment in India. Globally, India ranks third after the US and China in terms of the size of the startup ecosystem and is expected to witness an annual growth of 12–15% in the coming years.

## SUPPORTIVE SCHEMES, INITIATIVES AND POLICIES

A significant credit for this growth goes to the initiatives brought about by the Government of India. Today, there are several schemes and policies that support the startup environment in India, the Startup India Scheme being the chief one. The Startup India is a flagship initiative of India designed to support and nurture a robust startup ecosystem in the country. The fundamental aim is to drive sustainable economic growth and create large-scale employment opportunities. However, the focus is not restricted to climate-related

innovation but is generic. Under this initiative, 26 states have developed their own startup policies. Currently, 30 out of 36 states and Union Territories have a dedicated startup policy and at least one Department for Promotion of Industry and Internal Trade (DPIIT) recognised startup in each state. Evidently, this initiative has positively impacted the ecosystem (Figure 2).

AS PER THE ECONOMIC SURVEY OF 2021–22<sup>13</sup>, MORE THAN 61,000 STARTUPS HAVE BEEN RECOGNISED AND REGISTERED AS OF JANUARY 2022. THIS INCLUDES 14,000 NEW STARTUPS REGISTERED IN 2021 WHICH IS A STEEP RISE FROM A MERE 733 STARTUPS IN 2016–17.

In addition, another initiative—Atal Innovation Mission (AIM), focusses on developing programmes and policies to support innovation and entrepreneurship and provide sufficient opportunities for all stakeholders.

13. Economic Survey, Ministry of Finance, 2021–22, <https://bit.ly/3JHxrts>

14. Startup India, <https://bit.ly/3EzZ2Ua>

15. Atal Innovation Mission, <https://bit.ly/3vDzQb4>

A similar scheme—A Scheme for Promotion of Innovation, Rural Industries and Entrepreneurship (ASPIRE)—focusses on setting up Livelihood Business Incubators (LBI) for fostering entrepreneurship and innovation especially in the agro-rural sector. The focus is on rural and underserved areas of the country. The scheme has been approved for the years 2021–22 to 2025–26 with a corpus of Rs.196.47 crores (USD 25.6 million) which will be released through Fund of Funds managed by the Small Industries Development Bank of India (SIDBI).

THERE ARE SEVERAL SCHEMES AND POLICIES THAT SUPPORT THE STARTUP ENVIRONMENT IN INDIA, THE STARTUP INDIA INITIATIVE BEING THE CHIEF ONE.

The Ministry of New and Renewable Energy (MNRE) has developed a platform—India Renewable Idea Exchange (IRIX)—to ‘exchange ideas in real time for the global RE community for ideation, innovation, and incubation in the RE sector’. This platform is for not just individuals seeking mentorship, but also for industry leaders and experts to exchange knowledge and solutions in the energy sector.

Another initiative, MUDRA Bank, focuses on non-corporate, non-farm, micro-enterprises. MUDRA is a non-banking finance institution and a subsidiary of SIDBI.

It provides refinance support to micro-enterprises, via banks, Microfinance Institutions (MFIs) and NFBCs for further lending to these small/micro enterprises thus developing the sector in the country.

Currently, the authorised capital for MUDRA is Rs.1,000 crores (USD 130.5 million) which is subscribed by SIDBI. MUDRA Loans of up to Rs.10 lakh (USD 13,054.5) are available for micro/small non-corporate business entities in the trading, service, manufacturing and allied agriculture sectors with no collateral required. However, it is necessary to point out that these loans are specifically for refinancing purposes and there is no particularisation or mention of innovation or startups as a requirement. The SIDBI on the other hand, is a financial institution that provides financial support to the MSME sector. The bank executes its order through direct funding to businesses, indirect funding via other channels like banks, MFIs and other fintech companies and through Fund of Funds for startups and entrepreneurs in the MSME sector.

Most of these programmes do not have a climate specific focus but rather a generic scope. Yet, their distinct impact on the startup ecosystem and small businesses has been no less effective. However, the most influential may have been the Startup India Scheme.

On the other hand, the time and cost of starting a business are below average. India’s

16. ASPIRE, Ministry of MSME, <https://bit.ly/3PWAwbq>.

17. IRIX, MNRE, <https://bit.ly/3rFj0HK>.

18. MUDRA Scheme, <https://bit.ly/3vFgLqm>.

efforts to render its economic environment more business friendly bears fruits in the

form of improved ranking position in the Ease of Doing Business Report.

**Table 3** Overview of India's Ease of Business Ranking

GLOBAL COMPETITIVENESS REPORT 2019	RANK*
Financial system	40/141
Financing of SMEs	23/141
Venture capital availability	22/141
Business dynamism	69/141
Cost of starting a business	95/141
Entrepreneurial culture	41/141
Growth of innovative companies	33/141
Companies embracing disruptive ideas	33/141
EASE OF DOING BUSINESS 2019	RANK*
Starting a business	137/190
Getting credit	22/190
GLOBAL ENTREPRENEURSHIP MONITOR 2021	RANK**
Entrepreneurial finance	1/12
Ease of access to entrepreneurial finance	1/12
Government policy: support and relevance	1/12
Government policy: taxes and bureaucracy	1/12
* Rank globally   **Rank among emerging countries	
Global Competitiveness Report 2019: <a href="https://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf">https://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf</a>	
Ease Of Doing Business 2019: <a href="https://www.doingbusiness.org/content/dam/doingBusiness/media/Annual-Reports/English/DB2019-report_web-version.pdf">https://www.doingbusiness.org/content/dam/doingBusiness/media/Annual-Reports/English/DB2019-report_web-version.pdf</a>	
Global Entrepreneurship Monitor 2021: <a href="https://www.gemconsortium.org/report/gem-20202021-global-report">https://www.gemconsortium.org/report/gem-20202021-global-report</a>	





The ease of doing business for large corporations does not automatically imply attractiveness for startups as these two types of companies differ so tremendously in many of their requirements to thrive. The Global Entrepreneurship Monitor (GEM) report, listing in its 2021 edition a country profile for India (GEM, 2019), sheds some light on more entrepreneurial specific aspects (see Table 3).

Overall, the GEM pictures India as a level C or low-income economy, achieving above average results in all entrepreneurial framework conditions compared to the other low-income economies. However, some details require a more nuanced view.

India scores the highest within the group of low-income countries for the two parts of the financing pillar of the economic framework conditions (EFC), i.e., “A1. Entrepreneurial Finance” and “A2. Ease of Access to Entrepreneurial Finance”. Nonetheless, the GEM regards India’s level still as not sufficient in this area.

According to the GEM, “Durable new businesses tend to be in niche markets, requiring high levels of human and financial capital, selling differentiated products for which consumers or businesses are prepared to pay a premium. Many of these businesses are in business services rather than in consumer services.” (GEM 2021 p.49). India stands out within the set of 50 analysed economies with the lowest share

of business-oriented services and a particularly high share of consumer-oriented services, a sign for obstacles in the cleantech sector, lack of opportunities or similar.

Another essential factor to bear in mind is the severe impact the COVID-19 pandemic has had on entrepreneurial activity in general. As a consequence, 86.8% of Indian survey participants in the “Total early-stage Entrepreneurial Activity” stated in the 2021 that “Starting a business is more difficult than a year ago”. This value is the second highest value at a global scale. And yet, India scores first among all economies for “Pursue new opportunities due to pandemic”. Combined with an attractively high score for “Ease of Entry: Market Dynamics” India has clearly become a vibrant place for entrepreneurs. And nonetheless, despite India’s good results in the global reports, all interview partners mentioned the funding difficulties of start-ups, a seemingly contradictory finding that we will further examine in our report.

## **CITIES, SECTORS, FOUNDERS, MAIN PLAYERS, INCUBATORS, ETC.**

India has also emerged as one of the largest startup ecosystems globally. Despite the fast expansion and vibrant nature, the startup ecosystem in India is far from being mature. As the Asian Development Bank (ADB) writes in its report about the start-up environment in India:

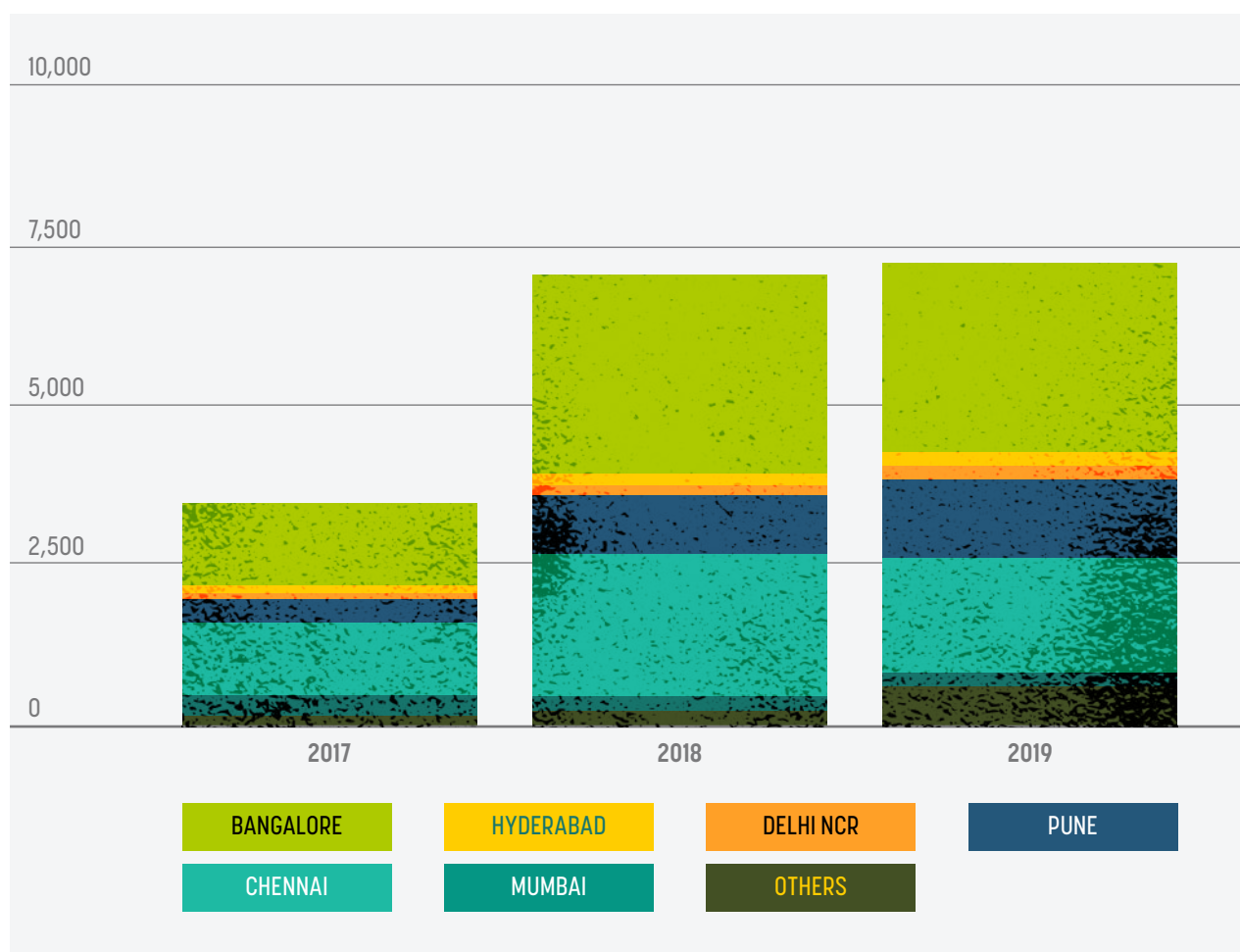
19. Interviewees were asked to declare in which of these four sectors their business would be in: 1) Extractive, including oil and gas, mining and agriculture; 2) Transforming, including manufacturing and transport; 3) Business Services, including communications and professional services; 4) Consumer Services, including hotels and restaurants, retailing and personal services.

“SMALL BUSINESSES BEYOND THE METROS ARE NOT FULLY AWARE OF, OR INTEGRATED INTO, PROGRAMMES THAT PROVIDE STARTUPS WITH VARIOUS GOVERNMENT INCENTIVES & TAX BREAKS. DESPITE THE PROGRESS MADE SO FAR, INDIAN BUSINESSES FACE HUGE CHALLENGES, SUCH AS THE UNORGANISED AND FRAGMENTED NATURE OF THE MARKET IN MOST SECTORS, A LACK OF CLEAR AND TRANSPARENT POLICY INITIATIVES THAT STARTUPS CAN TAP INTO QUICKLY, AS WELL AS A LACK OF INFRASTRUCTURE, A LACK OF KNOWLEDGE AND EXPOSURE, AND COMPLICATIONS IN DOING BUSINESS”

In fact, India’s startup landscape is predominantly focussed around three major cities, Bengaluru, Delhi-NCR, and Mumbai,

which together attracted approximately 85% of all the funding deals in Indian startups in 2019, measured in VC investments.

**Figure 6** VC Investments by City in India, 2017–2019 (USD, million)

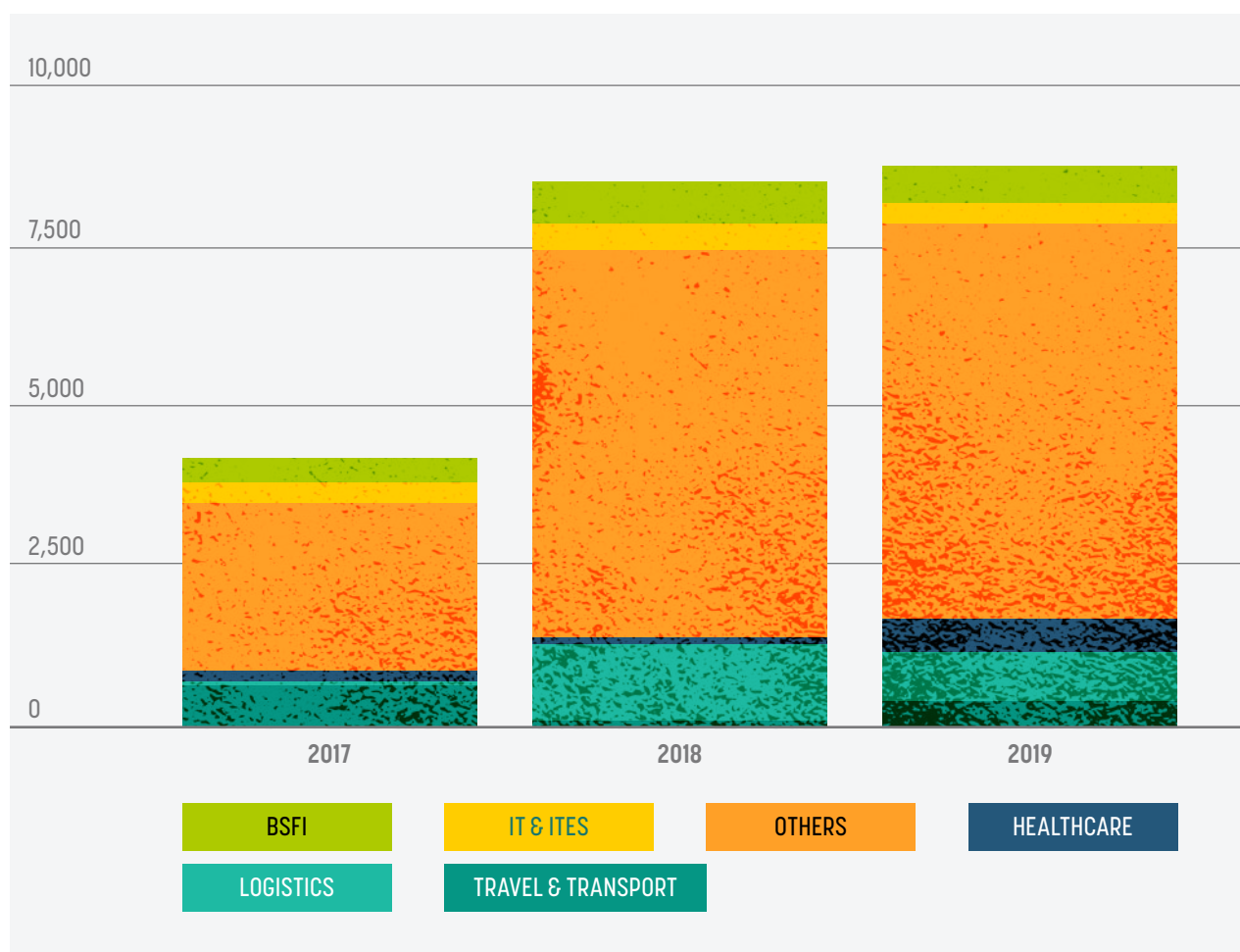


20. Asian Development Bank. The Startup Environment and Funding Activity in India. <https://bityl.co/C7hE>

Furthermore, startup finance is clustered around a few industries and especially IT-enabled sectors including e-commerce, transport, and finance. This implies, in

consequence, that large scale finance for climate tech start-ups is underrepresented in the Tier 1 cities and hardly present in most Tier 2 or Tier 3 cities.

**Figure 7** VC Investments by Industry in India (2017–2019)<sup>20</sup>



In conclusion, one can state two points regarding green start-up finance. Neither does the Indian start-up ecosystem seem to produce a large number of climate start-ups endogenously at all nor do all Indian states achieve start-up funding to

the same extent. However, both would be necessary to accelerate India's transition towards a net-zero economy and to achieve India's climate targets, especially given the decentralised and heterogeneous nature of the country.

20. Asian Development Bank. The Startup Environment and Funding Activity in India. <https://bit.ly/co/C7hE>



# THE STATUS OF CLIMATE FINANCE IN INDIA

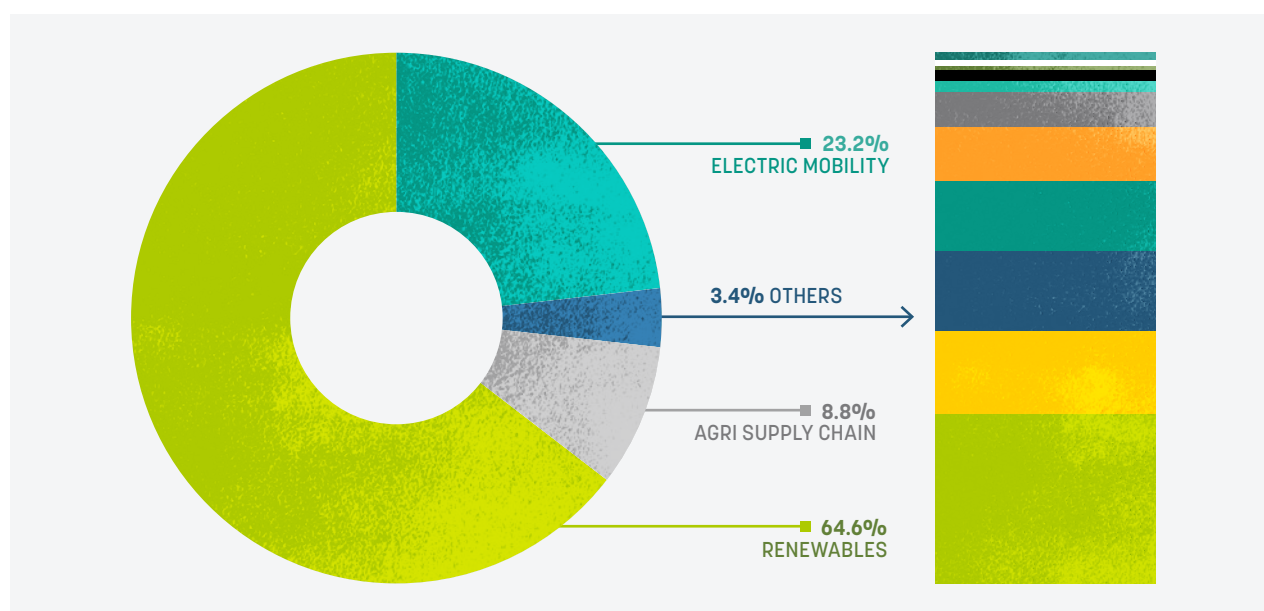
Climate finance has been growing at an aggressive pace in India.

DATA FROM UNITUS CAPITAL SUGGESTS THAT THERE HAS BEEN A 4X INCREASE IN EQUITY FUNDING FOR CLIMATE TECH SECTORS BETWEEN 2020 AND 2021

The total climate tech investments in 2021 was estimated to be around USD 20 billion. However, the funding has largely been

limited to two sectors, renewable energy and electric vehicles, suggesting the policy priorities of the country and reflecting market adoption (see figure below). Another relevant point is that most of this funding goes into established business models for renewable energy and not necessarily to funding innovative ideas for startups. However, this appears to be changing, with the entire startup ecosystem maturing in India. As the ecosystem matures it can be expected that climate specific startups also grow.

**Figure 8** Overview of Sectoral Breakup of Equity Funding in India 2021

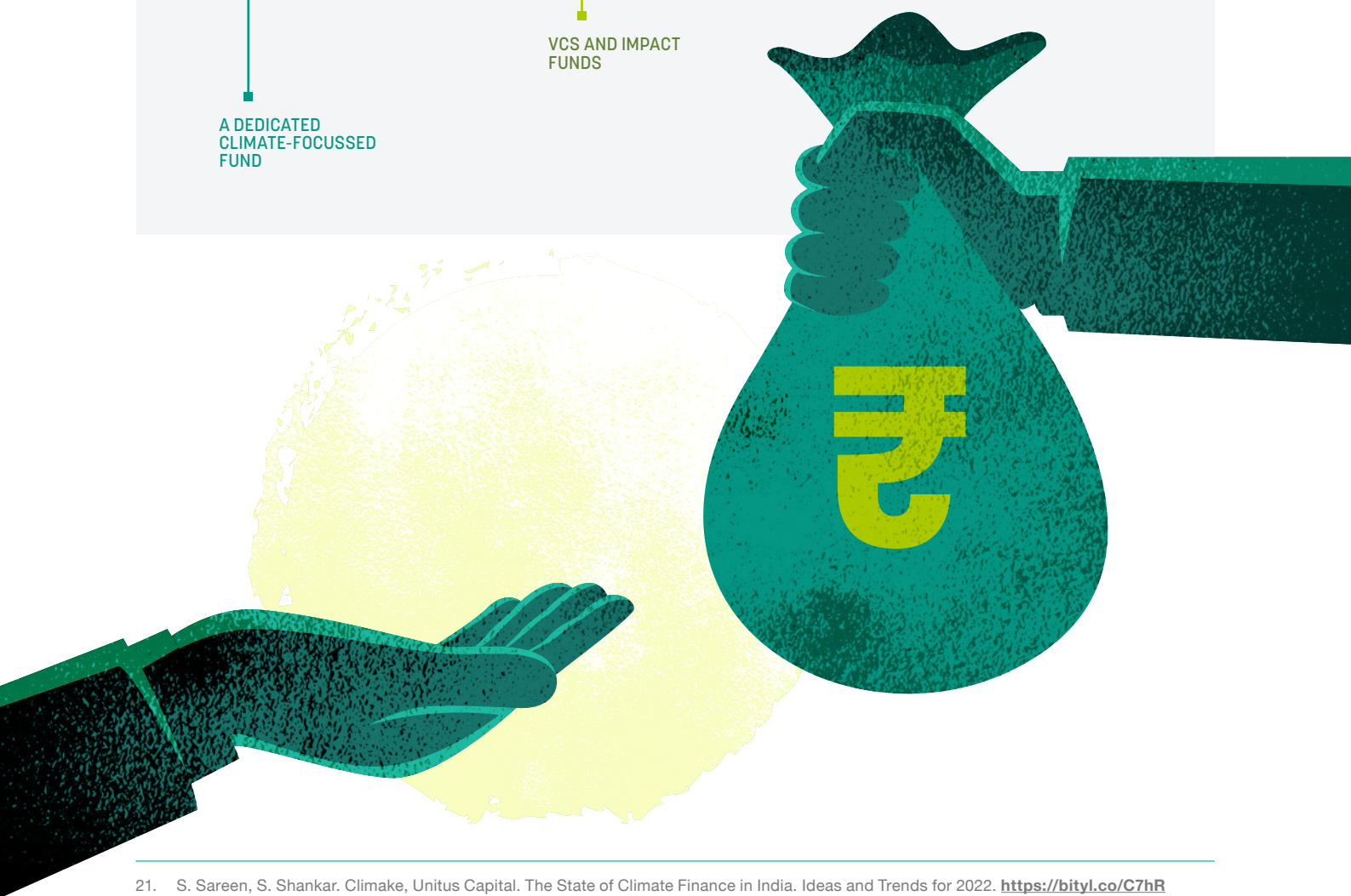
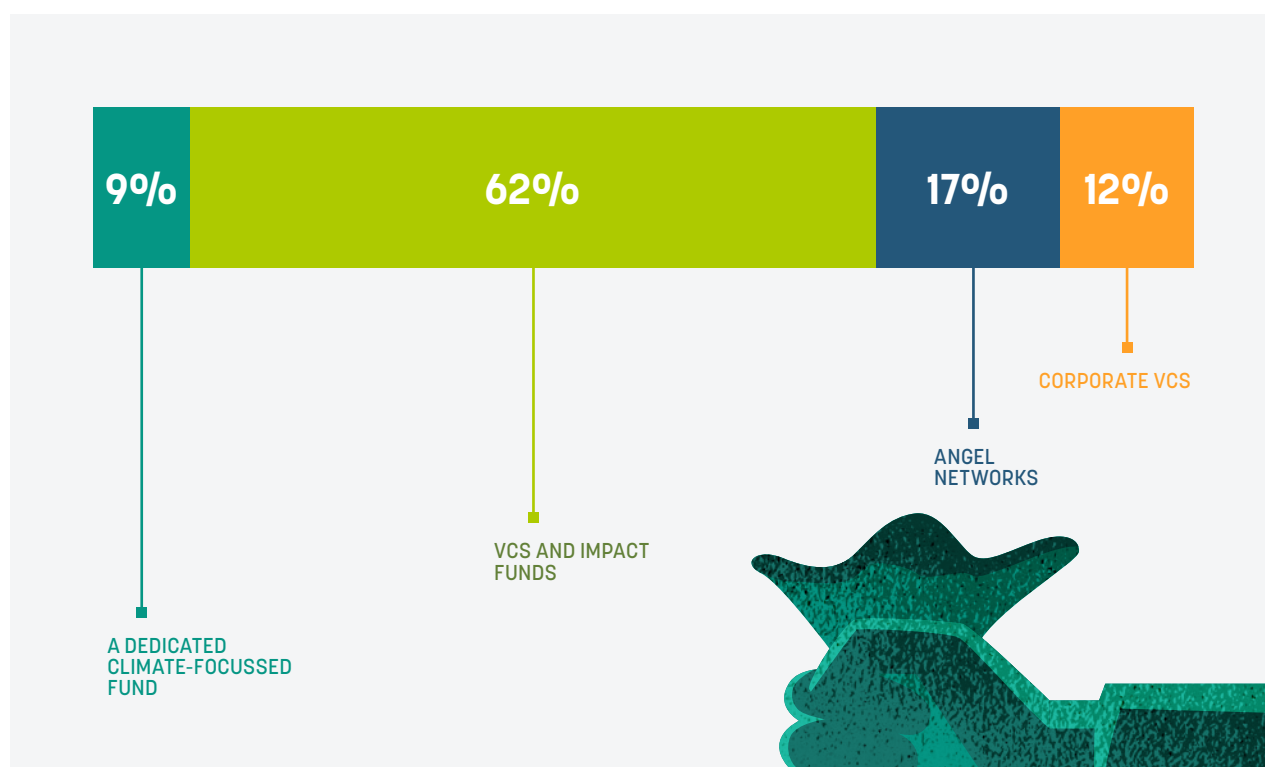


21. S. Sareen, S. Shankar. Climake, Unitus Capital. The State of Climate Finance in India. Ideas and Trends for 2022. <https://bitly.co/C7hR>

Equity funding in particular for climate startups is beginning to mature. A large portion of this funding comes from traditional venture capital firms, impact

investors and angels. There appears to be very few dedicated climate funds (only 9% of overall funding), which provides an opportunity to grow this segment.

**Figure 9** Equity Funding by Source from Institutional Investors in India, 2021<sup>21</sup>



21. S. Sareen, S. Shankar. Climake, Unitus Capital. The State of Climate Finance in India. Ideas and Trends for 2022. <https://bitly.co/C7hR>

# MECHANISMS OF INTERNATIONAL CLIMATE FINANCE

In 2009, during the climate summit in Copenhagen, the developed countries set a goal to mobilise \$100 billion of climate finance annually to the less developed and vulnerable countries by 2020. This financial support would be distributed as loans, grants and/or credits channelised through direct funding (bilateral) as well as multilateral climate funds.

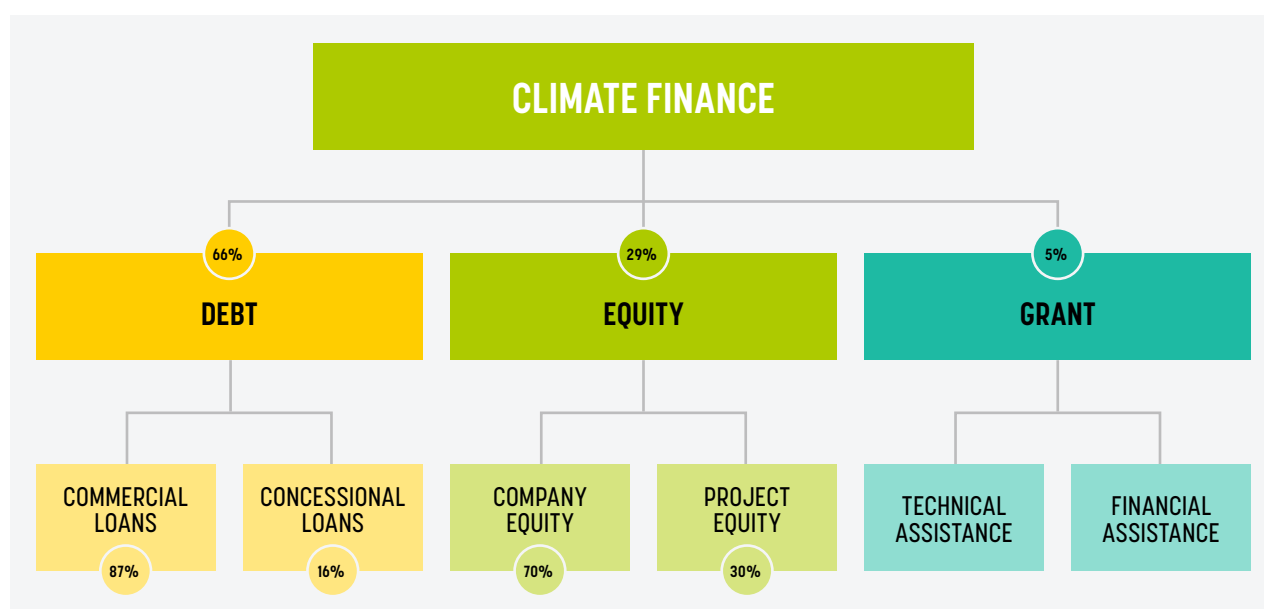
## SOURCES AND INSTRUMENTS

While financial commitments have been a key constraint in the deployment of climate finance, structural challenges like disbursement of capital, also needs attention. Climate capital flows (privately and publicly) from developed nations to emerging and developing countries through direct and indirect channels. Direct channels include flow from sources like governments or corporations to specific projects in receiver countries. Indirect channels include bilateral, multilateral or national funds. These funds are structured via mainly three kinds of instruments.





**Figure 10** Overview of International Climate Finance Instruments and Quantums<sup>22</sup>



**Debt**, usually in the form of loans that have to be repaid. International debt is usually channelised through multilaterals to government or government-owned companies in India. Multilateral Development Banks (MDB) are entities created by several countries to further economic development of poorer countries. Traditionally these banks have been focussed on developing infrastructure and making investments in projects that improve human wellbeing. However, in the current context there are several multilateral climate specific funds. Some of the important ones are: Green Climate Fund (GCF), Global Environmental Facility (GEF), Climate Investment Fund (CIF), Adaptation Fund (AF). It is important to note that several of these funds also blend grant and equity based on the project profile. Debt can either be at a concessional rate

to existing market rates but can also be at or at market rate. Debt from MDBs is typically extended to the government or a government owned organisation. This type of finance usually assumes the least risk, and requires a sovereign guarantee. Examples of such debt include long-term debt from multilateral and bilateral organisations such as the International Finance Corporation (IFC). Another type of debt instrument is bonds, which can be raised by private banks and/or issued by the government. Green bonds are one example of this.

**Grants** are usually free money that only requires social, environmental or climate impact. Such grants are made through governments or donor agencies either directly to projects, funds or organisations. However, it can also go as a subsidy in

22. Hamerkop.co and The Climate Policy Initiative, <https://bityl.co/C7hu>

order to reduce the cost of debt, or to reduce the risk so that the terms of the debt can be enhanced. An example of such a blended approach is the GCF that blends various types of finance to suit the recipient.

EARLY STAGE FINANCING IS ONE THE MOST CRUCIAL POINTS FOR ESTABLISHING ANY ORGANISATION. IN THE INDIAN CONTEXT, MOST EARLY STAGE FINANCING IS MOST COMMONLY SOURCED FROM FAMILY AND FRIENDS.

**Equity**, usually in the form of a stake in the project or the company that is working on topics that align with the priorities of the investor. There are several sources of private equity, including investments into climate activities by angel investors, by companies that specialise in financing new ventures (venture capital) or equity that comes from large holdings or investors into mature companies to improve operational efficiencies or to turn them around (private equity). Equity financing assumes the greatest risk and therefore takes on ownership in the companies or projects invested in.

## FINANCIAL MECHANISMS IN STARTUPS

Obtaining external financing for startups has been deemed as one of the most challenging issues in the startup ecosystem globally. As the startup undergoes various stages, the funding requirements and sources change as well. Early stage financing is one the most crucial points for establishing any organisation. In the Indian context, most early stage financing is most commonly sourced from family and friends. At the same time, incubators and accelerators at this stage provide none to minimal financial support and rather focus on technical, infrastructural and advisory guidance.

Once the startup is established and gains initial traction, entering the market and scaling to growth is when the capital requirements significantly begin to increase. This is also the phase when options for support are minimum. A report<sup>23</sup> by Climate Finance Initiative befittingly identifies this as 'The Missing Middle'.



23. Bridging India's Innovation Funding Gap, Climate Finance Initiative, April 2021, <https://bit.ly/3LA7DZH>

# KEY DRIVERS, GAPS AND BARRIERS

Based on our research, there are the following five important gaps that emerge in the current Indian startup environment:



## #1

### CLIMATE SPECIFIC STARTUPS ARE LAGGING OVERALL COMPARED TO I.T. OR E-COMMERCE.

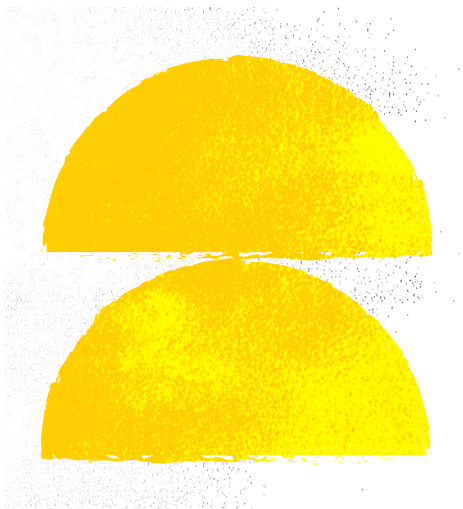
While the Startup India Scheme has been successful in increasing the number of startups over the last 3 years, climate specific startups are limited. A differential treatment of climate startups from that of IT and fintech is important to make, given the differing nature and market environment of climate tech startups in India.

## #2

### THERE APPEARS TO BE A LACK OF FUNDING FOR THOSE STARTUPS THAT WANT TO SCALE FROM THEIR FIRST MVP TO ENTERING THE MARKET BY ACQUIRING CUSTOMERS.

That is, from the first grants of Rs.30–50 lakh (USD 39,163–65,272) to investments of Rs.2–5 crores (USD 261,089–652,724) to move the startups towards a mature stage is missing. This has been termed as the missing middle<sup>15</sup>. In particular, startups struggle to manage working capital requirements and resort to pledging personal properties to raise loans. Support to manage working capital requirements is most crucial for startups, especially climate startups given input costs to develop products.





## #3

### **INVESTOR'S EXPECTATIONS TOWARDS CLIMATE TECH STARTUPS ARE SHAPED AND MAYBE BIASED BY IT, RETAIL AND OTHER DOMINANT STARTUP SECTORS IN INDIA.**

In the light of the nature of the climate tech for a similar financial return specificities investors must expect a longer time for financial return on investment. This includes the overall impact of such businesses on their own yield calculation would be a desirable practice but is largely absent today. This may require specific Environmental, Social, and Governance (ESG), climate or impact investors compared to investors purely looking at financial returns.

## #4

### **WHILE SEVERAL MULTILATERAL AGENCIES DO FUND CLIMATE SPECIFIC PROJECTS, ESPECIALLY LARGE SCALE RENEWABLE ENERGY PROJECTS, THESE TEND TO COME WITH SOVEREIGN GUARANTEES AND MOREOVER THEY ONLY FUND PROJECTS THAT HAVE AN ESTABLISHED TRACK RECORD IN INDIA.**

Funding for early stage and mature startups in the form of multilateral loans is completely absent so far, given the higher risk perception.



## #5

### **TODAY START-UP ACTIVITY IS LARGELY CLUSTERED AROUND A FEW TIER-1 CITIES (BENGALURU, DELHI NCR AND MUMBAI).**

Software solutions can be developed, deployed and maintained from virtually any place in the country. But climate tech and infrastructure projects are different and requires a local presence on the ground for the construction and operations of the assets be it electricity generation, waste treatment, water supply or similar.

# IMPORTANCE OF THE STARTUP ECOSYSTEMS AND THE ROLE OF THE GOVERNMENT

The Silicon Valley serves as the role model for many other regions, wishing to replicate the success story, and India with its government Startup India Scheme is no exception. However, copying the success of Silicon Valley has turned out to be hard for many countries and regions. The involvement of the Indian government as a generous capital sponsor of startups is likely an effective measure to catalyse the development of an ecosystem of financiers, mentors, other support business and associated infrastructure. It is important to note that government funding is only a catalyst and not a stand-alone solution<sup>24</sup>. A successful startup ecosystem is thought to include the following essential components<sup>25</sup>:

1. A large number of innovators and entrepreneurs. This is usually from a talent pool of universities and colleges, but can also be from existing talent in companies.

2. A thriving incubation and seed funding ecosystem, with access to facilities and laboratories, mentors and technical experts.
3. A fully developed range of funders from seed stage, angels, private equity and debt funding that cuts across a startup's life.
4. A track record of previously successful startups.

With regards to point 1, there appears to be a move towards encouraging university and college graduates to move towards entrepreneurship in India. This is also helped by the Startup India Scheme which has invested considerably in establishing incubators, facilities and access to mentors. Funding (point 3), is somewhat limited, but improving for most technology startups, especially in the digital (or app) space. A robust climate specific ecosystem is

24. Brander, J. A., Du, Q., & Hellmann, T. (2015). The Effects of Government-Sponsored Venture Capital: International Evidence\*. *Review of Finance*, 19(2), 571–618. <https://doi.org/10.1093/rof/rfu009>

25. A Blueprint for Bridging India's Climate Innovation and Funding Gap" study, p. 7

somewhat lacking. We propose a structure that could remedy this in a later chapter. Finally, the track record for successful startups, especially unicorns, is on the uptick especially in cities where startup activity is the highest. For example most of the startup activity is centred around, Bangalore, Delhi NCR, Mumbai and Pune. This is an opportunity but also a concern, given the geographical size and population

of India. There is a need to invest in higher education, especially across remote areas of the country to ensure that the talent pool for entrepreneurs (point 1) increases.

The International Energy Agency (IEA) in its report on startups<sup>26</sup> recommends several major measures in enabling the ecosystem.

**Table 4** Overview of IEA's Strategies to the Government to Accelerate the Startup Ecosystem and Current Gaps/Opportunities in India

STRATEGY	CURRENT STATUS IN INDIA
<b>#1 Leverage on what you already have</b>	India has a large technical talent pool, good universities and a fast changing social acceptance of working for startups.
<b>#2 Channel the right money at the right time</b>	India's financing ecosystem has considerably developed over the last decade, setting the stage for investors improving their risk profile by investing in startups.  However several startups, especially climate ventures, report challenges in accessing early stage equity at fair terms and non-recourse debt, especially for managing working capital requirements.
<b>#3 Support peer-to-peer networking</b>	There are several networking events for startups in India and growing rapidly. These are mainly privately driven and a few by the government.
<b>#4 Publicise innovation and raise awareness</b>	Socially, working for a startup is seen as something progressive and 'cool'. This is in stark contrast to the 'find a secure job' mantra that was so typical of the Indian middle class until a few years ago. Social acceptance of startups as a way to wealth has considerably improved over the last few years. Movie stars and sportspeople making investments in startups have accelerated social acceptance. The Make in India initiative might have also had an impact in 'taking pride' in products and services made in India, impacting the way startups are seen.
<b>#5 Offer single access points for multiple support measures services</b>	The Startup India Scheme has considerably improved registration and approvals for startups through the online web-portal. The portal also offers access to mentors, innovation challenges and funding opportunities.

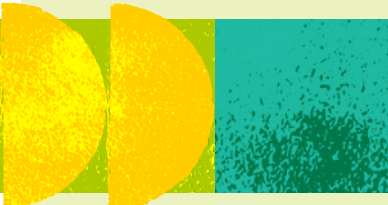
26. International Energy Agency. How Governments Support Clean Energy Startups, <https://bit.ly.co/C7e3>

It is important to bear in mind that a government intervention is by no means a stand alone solution and should rather be seen as a catalyst and multiplier. The proposed measures here are aimed at strengthening the framework conditions

of the overall startup ecosystem in India. The idea is not to give the government a role to steer businesses. Ultimately, the ecosystem must run with minimum (but effective) government support.

## THE CASE OF EIT INNOENERGY

The European Institute of Innovation and Technology (EIT) was established in 2008 through an act of the European Parliament. The main purpose of its establishment was to improve innovation in Europe. As a part of this, the EIT InnoEnergy is one of eight 'innovation communities' with a focus of accelerating innovation in clean (or sustainable) energy. The organisation has invested over USD 500 million into more than 480 products<sup>27</sup>.



**IMPORTANT ELEMENTS THAT EIT INNOENERGY ADDRESSES ARE THOSE OF TALENT AND KNOWLEDGE TRANSFER, BY ACKNOWLEDGING THE IMPORTANCE OF THEM TO ACHIEVE THE ENERGY TRANSITION.**

Although EIT InnoEnergy received initial public funding from the European Union it remains a private organisation with a legal form of a European Company (Societas Europea = SE). Its shareholders consist of global conglomerates such as Engie, Siemens or Total as well as some of Europe's most prestigious engineering universities, e.g. KIT in Karlsruhe, KTH in Stockholm or UPC in Barcelona. Contrary to many VC firms, EIT InnoEnergy does not manage funds of external investors and reinvests profits.

EIT InnoEnergy sees itself not as a typical VC but rather an impact investor and creator of an ecosystem in the field of sustainable energy with services to the supported startups. EIT InnoEnergy has created a unique ecosystem comprehending established MNCs from the energy sector, universities, research institutes, policy makers, independent industry experts and coaches. Moreover, the organisation has forged strategic partnerships including the European Battery Alliance (EBA). The organisation stresses

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27. EIT InnoEnergy, <https://eit.europa.eu/our-communities/eit-innoenergy>



the importance of the ecosystem and a holistic view of the entire value chain. Therefore, the company invests in small software ventures as well as large scale battery manufacturers.

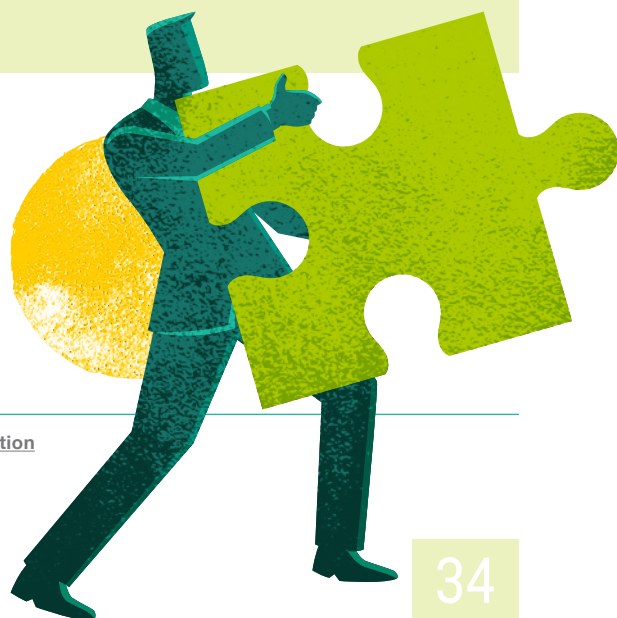
Other important elements that EIT InnoEnergy addresses are those of talent and knowledge transfer, by acknowledging the importance of them to achieve the energy transition. Besides its offer of master programmes in cooperation with leading universities in Europe, the organisation is also engaged in the field of professional training with expert learning courses and initiatives such as the EBA Academy. Here the objective is to reskill professionals towards storage industries. These measures taken altogether attract a valuable source of talent from across the world and dovetail it to its incubator programmes.

As for its investment approach, EIT InnoEnergy does not grant money, it only invests in ventures with a deep understanding of the specific long-term investment cycles of the sector. Most companies, which approach EIT InnoEnergy, ask for money. But instead of directly funding a startup, EIT InnoEnergy first seeks to understand the underlying need and to offer services from its network. Examples for such services are market research, sales connection to large groups, HR specialists or expert advice on public funding.

What has been the impact of EIT InnoEnergy so far? In 2022 in its “The Global Startup Ecosystem Report—Cleantech Edition” the Startup Genome LLC ranked EIT InnoEnergy among the global top 10 Accelerators & Incubators as well as Top VC Firms and Impact Investors<sup>28</sup>. End of May 2022 dealroom.co listed a total of 240 investments in startups including two unicorns (FREYR and Northvolt) while EIT InnoEnergy claims a total investment volume of 560 million EUR on its website.

Overall, the EIT InnoEnergy model is a valuable example of how the government can catalyse the innovation ecosystem, with minimum interference, yet with maximum support.

28. Startup Genome LLC, <https://startupgenome.com/reports/gser-cleantechedition>



# THE GREEN GROWTH EQUITY FUND: A GCF BACKED FUND TO SPUR INVESTMENTS IN GREEN INFRASTRUCTURE ASSETS

The Green Growth Equity Fund is a programme commissioned by the GCF to Nederlandse Financierings-Maatschappij voor Ontwikkelingslanden N.V. (FMO), the government-owned Dutch development bank. The fund is managed conjointly with EverSource Capital, which is a joint venture between the private equity firm Everstone Capital and Lightsource BP a global solar developer and asset manager.



**TAKEN TOGETHER, IT BECOMES EVIDENT THAT THIS INVESTMENT VEHICLE, ALTHOUGH CERTAINLY A GROWTH ACCELERATOR FOR THE SECTOR, DOES NOT HELP INDIAN STARTUPS IN FACE OF THE MISSING MIDDLE DILEMMA.**

As a Private Equity fund Eversource Capital is not seeking to acquire only an equity stake but prefers to absorb the entire company. Furthermore, there are two noteworthy key points with respect to the concept of the missing middle for startup finance in India: Firstly, EverSource Capital is only looking at established companies with mature technologies and proven business concepts. And hence related secondly, the typical ticket size for investment is a mid double-digit USD million figure. Taken together, it becomes evident that this investment vehicle, although certainly a growth accelerator for the sector, does not help Indian startups in face of the missing middle dilemma.

Despite being an officially commissioned GCF project with the aim of offering “early and growth stage equity for scalable, green infrastructure assets”, interestingly, the investment strategy is neither bound by any UN definition for climate finance or sustainability nor for startups, SMEs or any maturity level. This is a fact that requires attention and underscores the importance of a clear understanding of what is meant by green, climate or sustainability on the one hand and early or growth stage equity on the other hand.

# CASE STUDIES

In order to understand the perspectives of startups, we interviewed two startups that have moved from pre seed stage to an early stage phase. Both startups have established an MVP and are now in the process of

expanding their customer base and geographical spread. Both the startups have been incubated by the Innovation and Incubation Centre (IIC) at PDEU.



## ABOUT

Imagine Power Tree is a startup that makes solar trees. The organisation has been incubated at the Pandit Deendayal Energy University (PDEU), where the first idea was born. Subsequently, the founder was able to secure a small grant for the prototype development and the proof of concept. The result was the first solar tree.

## FINANCIAL JOURNEY

As for the finances of the venture there have been 3 distinct stages so far:

- **Stage 1:** Grants from family and friends plus own savings.
- **Stage 2:** Managing working capital was a big challenge as usual for companies doing business with the government sector in India because of delayed payments. As a consequence, the founder decided to get a loan from a commercial bank by mortgaging his own house.
- **Stage 3:** During the Covid crisis the business turned slow. But then suddenly orders came in from large clients for more than 1.5 mn USD. Here again the founder opted for a mortgage solution and also put property from family members on the table.

Overall, the funder also explained the challenging environment for equity funding for Indian startups in a market that is not yet mature. The few existing investors that would be willing to fund such a company demand unreasonable stakes in the venture in return. Currently, the company is trying to raise equity finance of up to USD 1.2 mn. As funding from domestic business angels is scarce the amount would probably need to be split into several rounds. On the other hand foreign investors look at larger ticket sizes to invest into such firms.

## ABOUT

The venture is active in the domain of waste management and construction with a concept of transferring plastic waste into construction materials. The company was established in 2018 and has filed several patents since then.

## FINANCIAL JOURNEY

- The company has completely been bootstrapped from a series of grants from various incubation programmes, seed grants, CSR funding and competitions. The series of grants have been critical to sustain and invest in setting up a manufacturing plant in Gujarat. However, there is a significant overhead in terms of managing the requirement of the grant, which is costly and time consuming. A summary of the grants is as follows:
  - Government of Gujarat Startup Fund: Rs.21.2 lakh (USD 27,675)
  - CSR funding from SAP: Rs.2 lakh (USD 2,610)
  - Award money from competition at Vibrant Gujarat: Rs.22 lakh (USD 28,719.8)
  - HDFC CSR grants: Rs.20 + lakh (USD 26,109)
  - Ministry of Housing and Urban Affairs: Rs.2.5 lakh (USD 3,263)
- Due to the COVID-19 pandemic the development of the company was unstable, i.e. initially it grew fast to 18 persons, but had to be reduced to the 2 co-founders. Today the headcount stands at 12.
- The promoters also took on a personal debt of Rs.25 lakhs (USD 32,636) to manage short-term working capital obligations. However, this amount has been paid back on account of good sales.

Currently the company is exploring further funding options, especially through impact investment funds from abroad. As with many other funding agencies in the Indian context too, the VCs and funds they approach do not invest into startups at early stages and the minimum revenue for a venture is approximately 1 million USD.



# RECOMMENDATIONS, CONCLUSION AND KEY MESSAGE

We recommend that the Government of India, in conjunction with the state governments, establish a comprehensive climate specific blended fund specifically aimed at accelerating climate tech startups. In order to do this, firstly we suggest the Government define **Climate Tech** and establish its own identity vis-à-vis other tech startups.

Because the financing needs of startups vary based on the stage, type and nature of business activity, geography and markets and several other factors, we recommend that the type and volume of funding be calibrated to suit the needs of the startup. This fund may, therefore disburse all three essential forms of funding for various startups in different stages of growth — equity, debt and grants.

The government must play an enabling role given the fact that there is a gap in the market, which does not seem to close under current conditions. Having said that, one must be wary of making this fund a highly complex, bureaucratic and administrative heavy structure. This calls for a fine balance

where the Government adopts a push strategy in the early stage, and then adopts a disengage strategy to enable the networks of markets, investors, banks and other stakeholders to take over operations and decisions.

THE FUND'S ADVISORY COUNCIL MAY BE COMPOSED PRIMARILY OF BANKS, INVESTORS AND LIMITED REPRESENTATION FROM THE GOVERNMENT. THIS IS IMPORTANT IN ORDER TO SET FUNDING PRIORITIES AND GUIDE THE DEVELOPMENT OF THE CLIMATE FINANCE SECTOR IN INDIA.

Administratively, the fund may be initially housed at the DPIIT, which is already housing the Startup India Scheme and has considerable experience in working and promoting startups. Eventually, the fund should be given an independent structure and should be led by market criteria and transparency. It is important to disentangle the decision-making process of the fund from traditional government

administrative tangles.

A network of incubators across the country are already plugged into the Startup India Scheme. We recommend that specific climate challenges (akin to open innovation challenges) be launched in order to attract good startups.

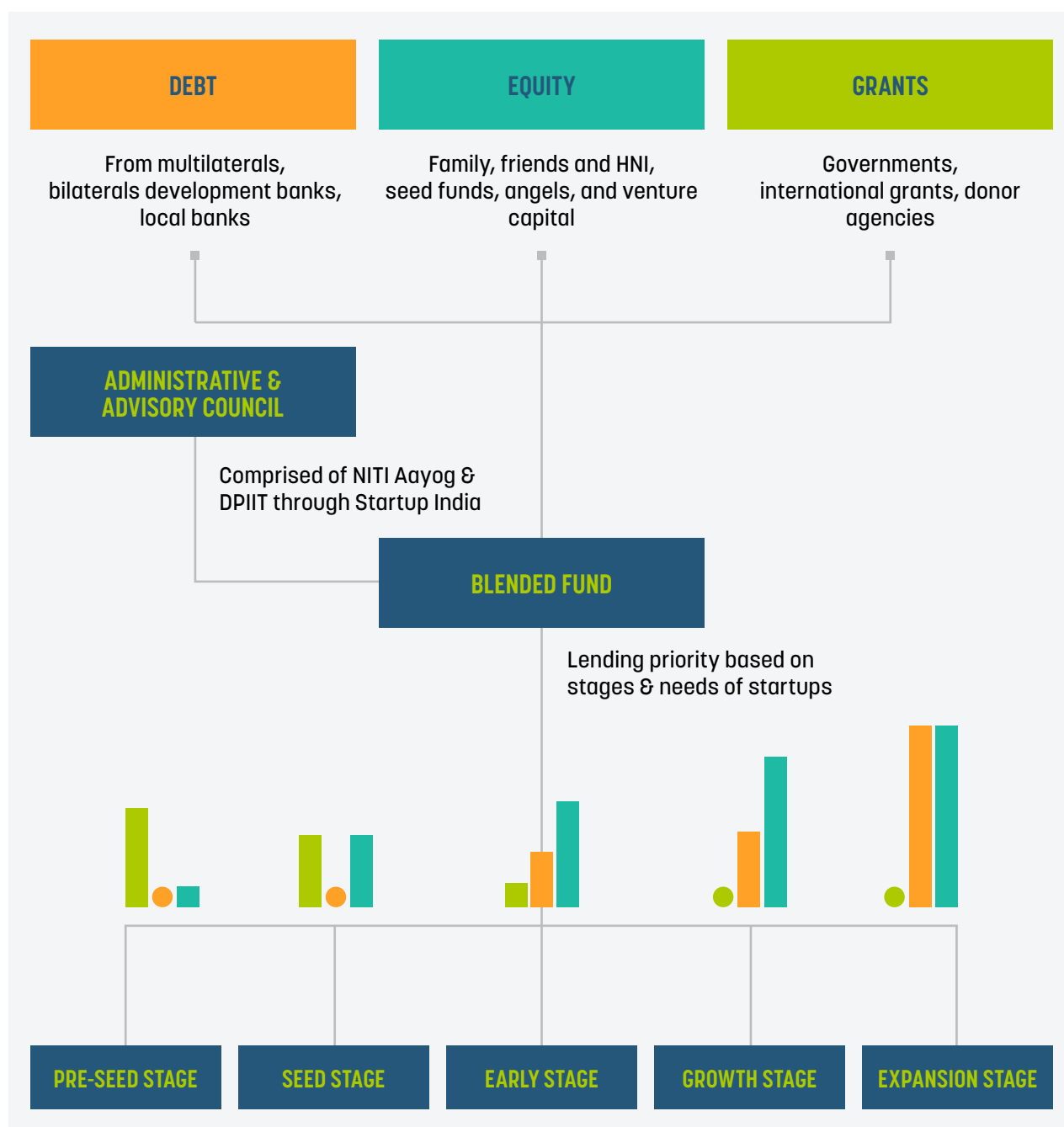
The fund's advisory council may be composed primarily of banks, investors and limited representation from the Government. This is important in order to set funding priorities and guide the development of the climate finance sector in India. Based on these priorities, sectoral sub-limits may be set. The council may also have the ability to make calls in exceptional circumstances.

A network of incubators across the country are already plugged into the Startup India Scheme. We recommend that specific climate challenges (akin to open innovation challenges) be launched in order to attract good startups. It is important to devolve decision making powers to the incubators

to fast track funding decisions.



**Figure 11** Overview of Proposed Blended Finance Structure for Startups in India Ecosystem and Current Gaps/Opportunities in India



## DEBT

In particular, debt can come in the form of existing domestic loans, credit lines, working capital loans to climate startups. In particular, we recommend that the Indian Renewable Energy Development Agency (IREDA) take a much more leading role in

promoting climate startups. This can be done by setting up a dedicated department within the organisation to work with and finance climate startups in the country. IREDA is registered as a NBFC under the Government of India, and regularly raises 'Green Finance' through its Green Bond

issues. Although the role of IREDA in the country has been somewhat limited to larger projects, we recommend that the organisation be significantly bolstered to support startups in the growth and the expansion stage.

GIVEN THAT THE GOVERNMENT CAN PLAY A SIGNIFICANT ROLE IN DECREASING THE PERCEIVED RISK PROFILE, THE DEBT CAN BE ON CONCESSIONAL TERMS, COMPARED TO WHAT STARTUPS MAY OTHERWISE RAISE ON THE DOMESTIC MARKET.

Multilateral and Bilateral International agencies such as the IFC, ADB, AFD and other development banks can lend to the fund given the fact that there exists the sovereign guarantee. Debt in the form of low-cost can also play a vital role in accelerating climate innovation through startups. However, most of these organisations are limited by the amount of risk they can take. Further, they lend directly to governments or government backed organisations. We recommend that such international developmental institutions engage specifically with IREDA (or a similar organisation in India) to fund climate specific activities for startups in all stages, eventually leading to mature companies.

Such organisations are already blending grants and subsidies to reduce the interest rate for developing countries and can continue this for climate related companies. Domestic banks in India also have a role to play. In particular banks such as Yes Bank and others have raised a considerable amount of money in the form of issuing green bonds. While such organisations need not necessarily be restricted to our proposed fund structure, they can significantly contribute to this initiative. Given that the Government can play a significant role in decreasing the perceived risk profile, the debt can be on concessional terms, compared to what startups may otherwise raise on the domestic market.





Further, startups, particularly its founders, face challenges in bringing collaterals onto the table. The proposed loans from this fund, can be given on a non-recourse basis.

### SHORT-TERM LOANS AND STARTUP INDIA

Most startups struggle with managing working capital requirements. Borrowing from friends, family and oneself is very common to keep the company afloat. Most banks in the country only lend to startups based on collateral, which is usually land. Unfortunately, not all entrepreneurs own land. This makes raising short-term loans to meet urgent and immediate cash requirements exceedingly difficult and costly. We recommend that the Government of India, akin to the Mudra scheme for small business, be extended to include a climate specific scheme. Startups may propose their requirements through the Startup India portal and automatically be connected to banks. Post verification of the business plan, and the financials, domestic retail banks can extend small loans (Rs.5–20 lakhs, USD 6,527–26,108) to startups without any collateral. This naturally means that the banks will have to assume a greater risk. The Government of India through the Startup India scheme can set aside a specific fund to provide this collateral in the event of default. However, we recommend that such instances be prevented insofar as possible by assigning business mentors who may take an active role in assisting business in repaying these loans.

As discussed in the earlier sections of this report, venture capital and angel investors

are beginning to mature especially for the climate sector in India. This bodes well for the sector. While most VCs and angels have their own means of inviting and screening startups, they can significantly expand their activities by coming on board this proposed fund. For investors, especially smaller angels, that do not have access to the pool of startups, the Startup India portal is an excellent way to screen potential startups. They can also associate themselves with the existing incubators that are already on the portal. As on date, startups that apply online have the option of choosing an incubator that they want to house themselves in. By tagging on angel investors, decisions can be made on which startups to invest in, to what amount, and what mix of grant plus equity. Importantly, we recommend that such decisions be made in a distributed manner to avoid costly time delays due to the government approval process. The whole mechanism hinges on transparency, autonomy of decisions and speed. Luckily, the GOI has already distributed the decision power for its grant scheme under Startup Seed Fund to various incubators. This approach must be extended to equity brought in by angels and VCs.



CARE MUST BE TAKEN THAT EXISTING DEVELOPMENT ASSISTANCE SHOULD NOT BE GREENWASHED AS CLIMATE FUNDS. ESTABLISHING A BASELINE OF DEVELOPMENTAL ASSISTANCE CAN HELP ENSURE THAT CLIMATE SPECIFIC GRANTS ARE MADE TO THIS FUND.

## CLIMATE EQUITY

The question of climate equity, and especially the USD 100 billion per year transfers can also be channelised (or at least some portion of this) to this fund. This can again be in the form of grants, debt or a mix of the two, either administered through country specific development agencies in India, or directly as transfers to the government of India as climate developmental assistance. Care must be taken that existing development assistance should not be greenwashed as climate funds. Establishing a baseline of developmental assistance can help ensure that climate specific grants are made to this fund.

## BEYOND FINANCE

While finance is a critical and necessary requirement to startups, it is certainly not the only requirement. Perhaps more importantly are access to mentors who can personally guide entrepreneurs through the ups and downs of the startup cycle. This involves several obvious skills such as strategy, sales, marketing, technical, HR,

finance and a host of others. But also critical is the ability to build and nurture high-performing teams. Studies have shown that the number one cause for failure in startups is a discord between the promoters and/or team members. Aligning members to form a cohesive unit to achieve the vision, mission and goals of the startups is paramount. This is harder to achieve and usually cannot be obtained by attending a few training sessions. Experienced mentors are needed to handhold team members through such turbulent phases in order to stay together to achieve success. While governments cannot play a direct role in this, they can certainly build knowledge networks with access to mentors, personality coaches to improve life skills. Fortunately, the Startup India platform already has several mentors listed on this. This can be expanded, perhaps even formally, by supporting startups with fees for such professional services.

Similarly, access to technical assistance and a network of technology mentors and subject matter experts, both locally and internationally is critical for startups to solve problems in a timely manner.

# LIST OF TABLES

<b>Table 1</b>	Overview of the MSME Definitions in India
<b>Table 2</b>	Overview of Climate Finance and Instruments
<b>Table 3</b>	Overview of IEA's Strategies to the Government to Accelerate the Startup Ecosystem and Current Gaps/Opportunities in India
<b>Table 4</b>	Overview of IEA's Strategies to the Government to Accelerate the Startup Ecosystem and Current Gaps/Opportunities in India

# LIST OF FIGURES

<b>Figure 1</b>	A simplified schema for various green financing
<b>Figure 2</b>	Growth of startups and related jobs (2016–2020)
<b>Figure 3</b>	Sectoral breakup of startups in India
<b>Figure 4</b>	Stages of a startup
<b>Figure 5</b>	Overview of India's ease of business ranking
<b>Figure 6</b>	VC investments by city in India (2017–2019)
<b>Figure 7</b>	VC investments by industry in India (2017–2019)
<b>Figure 8</b>	Overview of sectoral breakup of equity funding in India 2021
<b>Figure 9</b>	Equity funding by source in India 2021
<b>Figure 10</b>	Overview of International climate finance instruments and quantum
<b>Figure 11</b>	Overview of proposed blended finance structure for startups in India



# CLIMATE FINANCE FOR STARTUPS IN INDIA

Key challenges, opportunities and recommendations to  
foster a vibrant climate-tech environment in the country