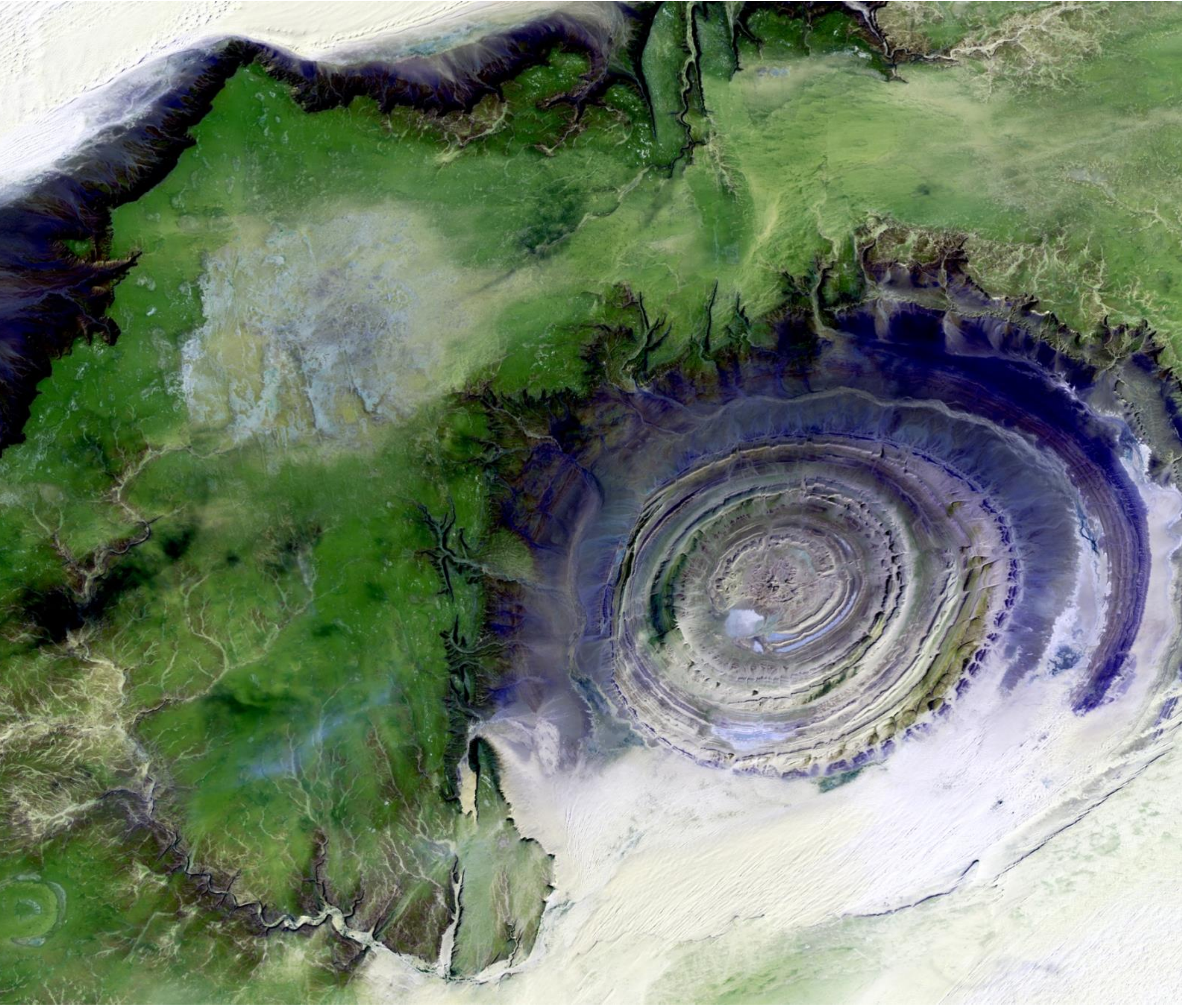

Impact Investments for Humanitarian Innovations at SEEDS

Study for:

SEEDS

Date: 19th August, 2022

START NETWORK

ADRRN TOKYO INNOVATION HUB

Humanitarian innovation fund | elrha

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Impact Investments for Humanitarian Innovations at SEEDS

Impact investments – Definition and Concepts

Impact investments are investments made in companies, organizations, and funds with the intention to generate positive, measurable social and environmental impact alongside a financial return[1,2] ; In most cases, it is required to be accompanied by a mechanism to measure and report the impact created.

The above definition can be simplified by delving into the following core words:

1) **Impact**: Impact may be demonstrated in various ways; for instance, a) Improved livelihoods of low-income groups through employment generation, b) improved gender equality in rural areas through targeted interventions such as microfinance, c) reduced emissions from agriculture sector due to interventions related to climate smart agriculture, or d) improved ability of communities to deal with aftershocks of natural disasters.
2) **Financial Return**: The financial returns can mean either a) recovering the principal (original investment) amount,[3] b) below-market returns (subsidized/concessional returns) or c) commercial market returns.

The point of distinction between grants/venture philanthropy and impact investments is the unambivalent expectation of financial return in the latter. Additionally, unlike socially responsible investing (SRI) the objective is to achieve more than just "do no harm" practices in the case of impact investments.

It should be noted that as the impact investment sector grows in size and complexity, the traditional definitions metrics, business models and investment vehicles keep getting re-evaluated[4]. This also results in lack of common language as well as definitions - leading to some organizations adopting a method of designing their own methodologies for defining and channelizing impact investments. As a result, the ever-evolving impact investment landscape is broad with only some pre-defined baselines, metrics, definitions, benchmarks, or best practices.

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[1] What is Impact Investing, Global Impact Investing Network (GIIN), https://thegiin.org/impact-investing/need-to-know/#what-is-impact-investing

[2] IDR Explains | Impact investing, IDR, Sep 2019; https://idronline.org/idr-explains-impact-investing/

[3] While in some impact investment definitions this aspect is excluded given that there is no growth in the money invested, for the sake of this study we will be including this aspect in the definition of impact investment as also used by IIC.

[4] Impact Investing Market Map, Principles For Responsible Investment (PRI), 2018; https://www.unpri.org/download?ac=5426

Key Terminologies within the Impact Investment Ecosystem:

Impact Enterprises

Impact enterprises are those developing innovative business models to address various social, environmental, and economic challenges while having a for-profit business model. To meet their objectives, these enterprises need funding at various stages. The type of funding requirement depends on that the stage of business. For instance, early-stage impact enterprises often need flexible capital funding such as grants, concessional loans, or third-party default guarantees. At later stages, as a suitable business model is established (growth stage), such enterprises often shift to raising growth capital such as equity to scale. In sectors where business models may have long break-even periods such as education, healthcare, or clean energy, enterprises often raise blended finance (a mix of commercial and grant capital) in the form of patient capital, impact monetization bonds or concessionary long-term loans. Once such enterprises mature, the hypothesis remains that they would be able to give exits to impact investors and attract mainstream private equity or debt.

The Four Lens Strategic Framework[5] classifies impact enterprises into following categories:

[5] The Four Lens Strategic Framework: http://www.4lenses.org/setypology/integration

Table 1: Social Enterprise Classification

	Type	Meaning	Example
	Embedded Social Enterprise	In this form of enterprise, the business operations and activities coincide with social impact objectives and activities. Social initiatives rely on the finances (revenues and profits) of the enterprises, which allow them to operate as self-sustaining entities. The social outcome is the key objective of the business and therefore the clients of the business are the beneficiaries of the social outcome.	• *Entrepreneurship Support Model*: Providing business and financial support to small businesses, (profit making) initiatives, self employed individuals, etc. Example: Unnati Microfin Private Ltd., offering finance to unbanked sections and businesses in India • *Market Intermediary Model*: Offering value added services such as market access, access to finance, market linkage, etc to small producers with the aim to reap maximum benefits and returns. Example: AgroStar offering post harvest and credit facilities to small holder farmers in India • *Employment Model*: Provides employment opportunities and job training to its beneficiaries or "clients,". These are usually people with high barriers to employment such as disabled, homeless, at-risk youth, and ex-offenders. The organization earns revenue by selling its products or services in the open market. Example: Mirakle Couriers, a courier company that employs individuals who are hearing-impaired • *Fee for Service Model*: Commercializes its social services and sells them directly to the target population, individuals, communities, or third-party payer. Example: SEWA, federation of women-led institutions providing economic and social support to women in the informal sector.
	Integrated Social Enterprise	Enterprises with an overlap between social programs and business activities. The integrated social enterprises fund the nonprofit's operations and mission activities	• Service Subsidization Model: The enterprise sells self produced good and services to external markets and use the proceeds to finance its social impact. Example: Aravind Eye Care, offering low-cost eye care solutions to rural population financed through its mainstream business.
	External Social Enterprise	The social activities are quite distinct from its business activities. Not-for-profit set up external enterprise to generate finance to sustain its social programmes. However, the activities of the two entities are not interrelated.	• *Organisational Support Model*: Sell products or services in the market to generate finances to fund social programs of the parent organization. Example: Infosys, Indian multinational information technology company that provides business consulting, information technology and outsourcing services. Infosys Foundation works towards removing malnutrition, improving healthcare infrastructure, supporting primary education, rehabilitating destitute individuals and caring for animals, and preserving Indian art and culture.

Source: The four-lens strategic framework and Impact Investment in India, Renita D'Souza

Impact Investors

Impact investors are capital providers that deploy capital into impact enterprises. In many cases, they are characterized by *limited partners*[6] (consisting of larger donors or development finance institutions or Governments) that deploy capital into funds operated by *general partners*[7] who operationalize the funds and charge a fund-management fee. Newer definitions of impact investors also include development focused financial institutions such as Small Industries Development Bank of India (SIDBI), or Northeastern Development Finance Corporation Ltd (NEDFI) in India. In addition to capital, several investors also provide non-financial support or technical assistance to scale their investees. These mostly include the likes of incubators and accelerators that have funds dedicated to investing in early-stage impact enterprises. Impact investors often partner with non-financial support providers such as consulting firms that support in scaling their portfolio. Such firms also constitute important components of the impact investment ecosystem while not directly supplying or absorbing capital.

Figure 1: Types of Impact Investors

Source: Yunus Social Business

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[6] Limited Partners: They are third party passive investors with the income and expenses flowing directly to their hands to be taxed in the year when they accrue. They mostly only exists to provide funding

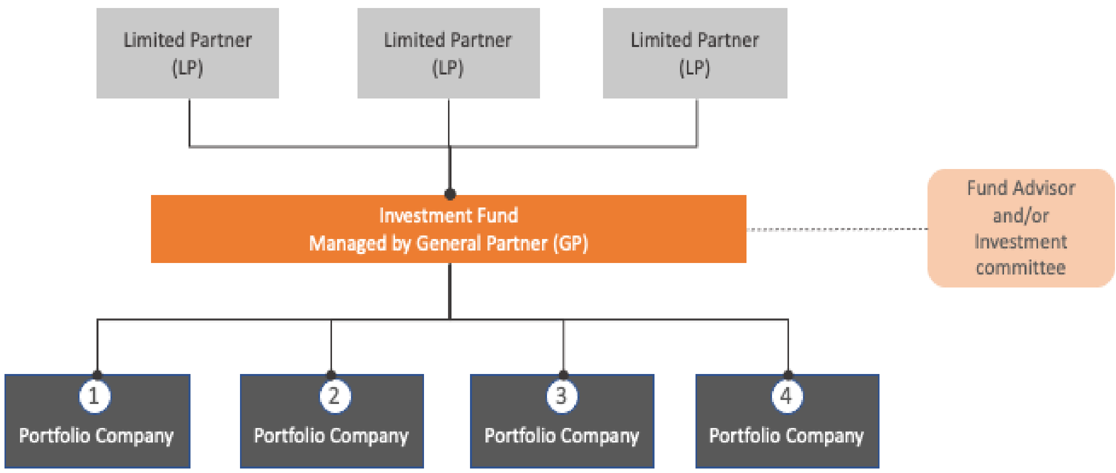
[7] General Partners: Manage daily operations such as managing staff, paying bills, and working with customers

While the previous schematic provides a high-level categorization of impact investors, certain stakeholders that constitute the ecosystem are detailed below in two categories: Primary Investors and Ancillary investors:

Primary Investors

- *Fund managers:* **They represent organizations or individuals that scout for a pipeline, develop a portfolio, measure impact (via third-parties), and provide exits.** Fund managers are often referred to as *General Partners* and deploy capital of *Limited Partners* that commit capital to a fund. An impact fund can raise capital from other investors and ancillary investors described in later parts of this section such as Development Financial Institutions(DFIs), Foundations, High Net Worth Individuals (HNIs), and Institutional Investors. Most of the funds that are active in India are based offshore due to more favorable regulatory conditions ;

Figure 2: Typical Impact Fund Structure



Source: Global Impact Investment Network (GIIN)

- *Development Financial Institutions (DFIs):* **DFIs are multilateral, bilateral, or quasi government institutions that invests in private sector for developmental purposes.** Multilateral[8] DFIs include regional institutes like Asian Developmental Bank (ADB), African Development Bank Group (AfDB), and others like World Bank linked institutions such as International Finance Corporation (IFC), International Developmental Association (IDA), and The Multilateral Investment Guarantee Agency (MIGA). Bilateral[9] include agencies such as Britain's British international Investments (previously CDC), United States of America's (USA) Development Finance Corporation(DFC) [previously The Overseas Private Investment Corporation (OPIC)], PROPARCO by France, FMO by Netherlands, and KfW/DEG by Germany.

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[8] Mulitilateral agency is a international financial institution chartered by two or more countries for the purpose of encouraging economic development in poorer nations. Multilateral development banks consist of member nations from developed and developing countries.

[9] Bilateral agency is a financial institution set up by one individual country to finance development projects in a developing country and its emerging market

In India, majority (90%) of direct and indirect investments are made by DFIs suggesting that most of the investment trends in the country are driven by DFIs. These DFIs often channel capital via fund managers, while over the last few years there has been an increasing number of DFIs investing directly into mature impact enterprises[10] with extremely high deal sizes (generally upward of USD 10 million);

- *High Net Worth Individuals (HNIs):* **HNIs are individuals that have accumulated wealth and are open to investing in impact enterprises.** They often take investments in early-stage enterprises with the intention of scaling these enterprises and subsequently exiting from them. Once invested, HNIs are also referred to as angel investors;
- *Institutional Investors:* **These include government authorized organizations** (Banks, insurance companies, or pension funds) that provide capital usually in form of loans to critical needs sectors. For instance, in India banks have a priority sector lending mandate that requires them to focus on agriculture. Such banks could arguably included in the definition of impact investors.

Ancillary Stakeholders:

- *Private Foundations, Religious Foundations, and Charities*: **These include philanthropic organizations** that often provide funding to support impact investors achieve specific goals. For instance, they may provide capital for technical assistance, impact measurement, or even piloting business models. Some Foundations such as Shell Foundation also have impact investing arms through which they deploy funds through fund managers;
- *Corporate Social Responsibility (CSR) Funds:* **These are funds from larger corporations** mandated to be spent on developmental activities by National Governments. While distinct from Impact Investing (since they operate only through Grants), there has been a growing focus of leveraging CSR funds for de-risking impact investments;
- *Funding Platforms or exchanges:* **These are platforms that connect stakeholders demanding impact capital with suppliers of impact capital**. Such platforms include the Impact Investment Exchange or DealShare by the Asian Venture Philanthropy Network.

A. *Impact Investor Profiles*[11]

Impact enterprises look at various aspects before raising funds depending on what stage of business they are, the sector they are involved in, the presence of investors in the sector, and other factors that impact their bankability. Similarly, there are different

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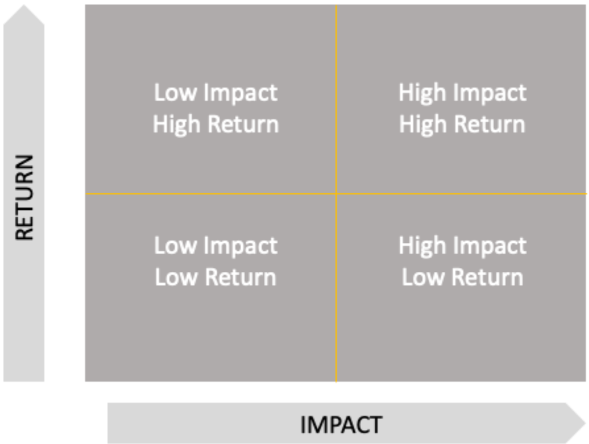
[10] Global DFIs investing directly in social ventures in increasing opportunities, The Economics Times, Nov 2012; https://economictimes.indiatimes.com/news/company/corporate-trends/global-dfis-investing-directly-in-social-ventures-for-increasing-opportunities/articleshow/17273567.cms?from=mdr

[11] Impact Investing Simplified, Nishith Desai Associates, July 2019; http://www.nishithdesai.com/fileadmin/user_upload/pdfs/Research%20Papers/IMPACT_INVESTING_SIMPLIFIED_IN_INDIA.pdf

characteristics that impact the choices of investors. Some of the parameters that define an impact investors mandate include:



- *Risk profile:* Investor may be willing to invest in high impact high return social enterprise such as '*CropIn*'[12] an agtech enterprise leveraging machine learning to provide weather-based input advisory; or invest in low impact high return enterprises such as '*ridlr*'[13] an enterprise that uses technology to crunch real time traffic information to improve one's commute.
- *Rate of return:* Some investors expect market or above market rate returns such as '*Omidiyar Capital*'[14] an investment firm that invests in most promising impact enterprises, a few of them also have social impact as an aspect. For instance, it invested in '*FarMart*'[15] a SaaS led agritech platform that enables agri-retailers to serve farmers better by providing them with access to information, market linkages and inputs. On contrary to this, some investors expect lower than market rates or muted rate with significant social and environmental impact for instance, '*Acumen*[16]' that invests in early-stage enterprises whose products and services can transform their lives. An example of their investment is '*Avani Bio Energy*[17]', an enterprise converting pine needles into electricity feeding it directly to the grid ensuring reliable and clean energy to villages in Uttarakhand who otherwise suffer from poor transmission infrastructure.
- *Ticket Sizes and Stage of Investments:* Ticket sizes refers to the average size of a deal that an investor prefers to invest. This can differ between types of investors for instance, typically, DFIs often invest upward of USD 10 million per deal, while private sector impact investors invest between USD 500,000 to USD 5 million per deal. Smaller early-stage investors including funds housed in accelerators and incubators have even lower ticket sizes.

  The dynamics can further change with each nation. In developing countries, there is often a concentration of investors investing around USD 1 million or more, creating a very high early-stage capital gap. In India, for instance, the average deal size is close

[12] https://www.cropin.com/

[13] https://ridlr.in/login

[14] https://omidyar.com/who-we-are/

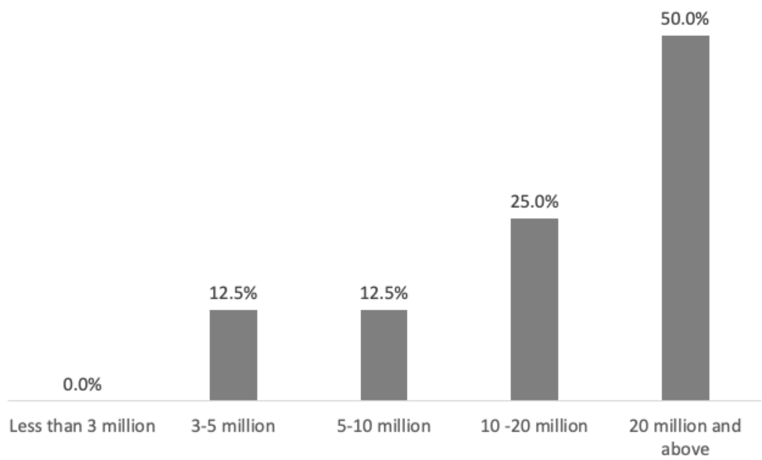
[15] https://www.farmart.co/

[16] https://acumen.org/

[17] http://avanibioenergy.com/

to USD 19 million, with DFIs dominating the sector with large ticket size deals. Most impact enterprises in India are not at a scale to absorb such capital.

Figure 3: Value of Impact Investments, 2018



Source: Brooking Survey

Corresponding to ticket sizes, stage of investments is also a critical factor that determines the profile of an investor. There are funds dedicated to early-stage investments such as Antler, Acumen, or Caspian debt. They often invest in pre-series A enterprises. Similarly, the likes of Aavishkaar Capital, Ankur Capital, Omnivore, FarmFit Fund, Chiratae Ventures prefer growth stage enterprises between Series A and Series B. DFIs normally focus on mature investments.

- *Investment Sector:* Impact investors also often have preferred sectors. For instance, Omnivore capital[18] only invests in Agriculture technology companies, while the likes of Oikocredit[19] have a dedicated focus on financial services sector and likes of Climate Impact Capital (CIC)[20] have a focus on energy and climate change. There is also a growing focus on climate change mitigation and adaptation as a destination for impact capital. Disaster mitigation, management and adaptation still remains a less sought-after sector because of the lack of bankable business models in the space.

- *Time commitment:* Some investors apart from capital also invest time and effort with the aim to make a difference and monitor the social enterprise by sitting on its board. Most of such investors are private equity investors such as Aavishkaar Capital. It is on board of its portfolio impact enterprises such as AgroStar and Ergos both providing agtech solutions to solve systemic issues in Indian farming practices. It also offers its expertise and thus involve in making important business decisions. However, in other instances, some investors only financially invest while having no time or experience to offer in particular sector.

[18] Omnivore Capital: https://www.omnivore.vc/

[19] Okiocredit: https://www.oikocredit.coop/en/

[20] Climate Impact Capital (CIC): https://climateimpactcapital.com/impact-investing/

B. Impact Investment tools:

Three common tools of impact investment are debt, equity, and others. Recently there have been emergence of other innovative financing mechanisms such as blended finance instruments that often combine non-repayable capital with debt and equity to incentivize the flow of private capital into non-lucrative sectors. Blended finance tools include outcome-based financing, impact monetization funds, first loss default guarantees, or technical assistance linked investments. Details of some of the tools used in impact investing are given below:

Table 2: Types of Impact Investment Tools

Type of Capital	Terms	Key Impact Investing Players
Debt	Debt is a fixed income asset that allows the lender (or giver) to earn a fixed interest. In Impact investing space, mid to long term duration (2-7 years). Patient and flexible debt providers and providing easier terms for many social businesses (as compared to traditional lenders).	• Caspian debt • Yunus Social Business • Acumen • Grameen Capital • CredAvenue
Equity	Selling shares in your organization to an investor. Equity investors receive a share of any profits paid out by the organization and get to have a say in how the organization is run. Most social equity investor are there for long term (5-7 years) in some cases it is longer than 7 years. Variable dividend payments (in many cases impact investors do not take dividends but may take some coupon payment. Exits in such investments are made with some premium earned over principal investment amount.	• Village Capital • Aavishkaar • Unitus Ventures • Caspian • Upaya
Technical Assistance (TA) Funds	TA funds are non-financial investments provided by local or international specialist. The ways it can be delivered are sharing information and expertise, instructions, skill training, transmission of working knowledge, and consulting services and may also involve the transfer of technical data.	• UnLtd India • Vilgrow • CIIE CO • Indian Angel Network • D Labs
Concessional Capital	Concessional loans are extended on substantially more generous terms than market loans. The concessionally is achieved either through interest rates below those available on the market or by grace period, or a combination of these. Concessional loans typically have long grace periods.	• GivFunds • RaboBank • UBS
Guarantee	An agreement promising to pay the investor in the event the investee can't.	• UGRO capital • Asian Development Bank (ADB) • Triodos Investment Management
Grants	Grants are usually provided prior to the financial close of a transaction and are specially aimed at providing funding and early-stage support to innovators	• USAID • FCDO • World Bank
Innovative tools or mezzanine financing	Venture debt Venture lenders use venture capital support as a source of validation and the primary yardstick for underwriting a loan. Venture debt is a type of loan offered by banks and nonbank lenders that is designed specifically for early-stage, high-growth companies with venture capital backing. Development /Social Impact Bond (SIB) Development Impact Bonds (DIBs), like Social Impact Bonds (SIBs), are results-based contracts in which private investors provide pre-financing for social programmes and public sector agencies pay back investors their principal plus a return if, and only if, these programmes succeed in delivering social outcomes.	• InnoVen • Alteria Capital • Trifecta Capital • Multilateral agencies and local governments

Source: Yunus Social Business Enterprise Landscape Study (India) and multiple sources

Impact investment Landscape with a focus on India:

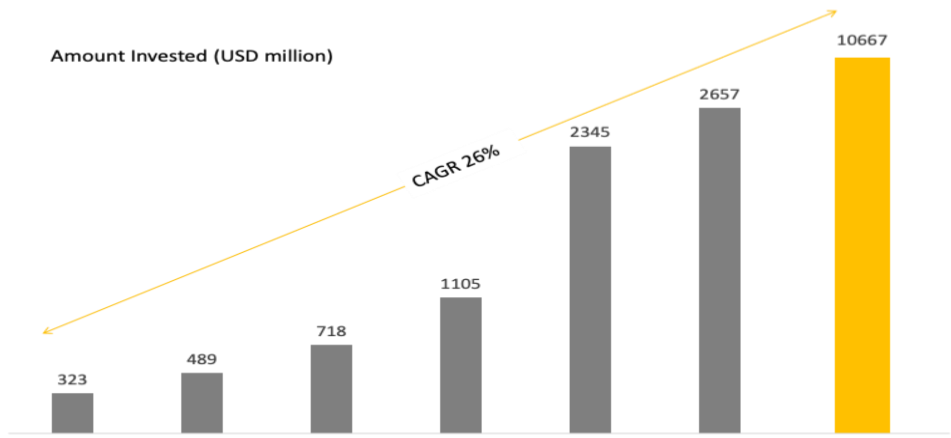
Overview of Global Landscape

Given that impact investing is relatively a new term, GIIN in 2019 for the first time developed a rigorous methodology to estimate the total size of the market. Although it started to report on impact investment since 2010, it was initially based on data from just 24 members that used their own proprietary system to track impact outcome. According to its 2020 report[21] which is based on database of 1,720 impact investors, it estimates the current market size at USD 715 billion[22]. It highlights, significant growth in capital allocation to water, sanitation, and hygiene (WASH) and financial services sector. Agriculture sector was seen to receive significant investments although relatively it accounted for small portion of the total Assets Under Management (AUM).

Overview of the Indian Landscape

The Indian Impact investment landscape has grown exponentially in the last decade according to Impact Investors Council (IIC). Around 600 impact enterprises affect 500 million lives and have attracted around USD 9 billion[23] of capital between 2010-2019. According to Asha Impact the impact investment in India has grown at a Compounded Annual Growth Rate (CAGR) of 26% (2010-2019) with around 550 enterprises bringing in USD 10.8 billion[24] of investments.

Figure 4: Impact Investment Landscape in India 2010-19



	2010	2012	2014	2016	2018	2019	Total
No of deals	62	73	120	166	177	152	1251
Avg ticket size (USD million)	5	7	6	7	13	17	9

Source: Asha Impact

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[21] 2021 report is not yet published.

[22] 2020 Annual Impact Investor Survey, GIIN, June 2020; https://thegiin.org/research/publication/impinv-survey-2020

[23] Impact Investing: An underrated investment opportunity for family offices and high-net-worth individuals, Forbes, Feb 2022; https://www.forbesindia.com/blog/finance/impact-investing-an-underrated-investment-opportunity-for-family-offices-and-high-net-worth-individuals/

[24] Discrepancy in data could be related to lack of fixed definition of impact investments.

In 2021, around 294 impact enterprises in India attracted USD 6.8 billion[25] of investments across 345 deals. The data revealed that with around 79 deals, climate tech[26] has emerged as the most popular sector with investor attention in early-stage surging to all time high.

Demand Side: Impact Enterprises

The structure of impact enterprises has been changing over the years- from the total number of social enterprise landscape only about three-fifths of all enterprises have for-profit structure. This also includes models that include collective ownership structures such as cooperatives and producer companies for instance MPWPCL[27] (NSPDT), a tribal women owned and managed poultry collective.

In the ever-evolving space, many not-profit social ventures are now transforming into for-profit ventures to be able to secure better financing and ability to scale faster. Many such not-for-profit organisations are developing commercial revenue streams to ensure financial sustainability resulting in emergence of market oriented, business-like, entrepreneurial businesses. Almost one fifth of all impact enterprises in the country are not-for- profit[28]. For instance, *SEWA*[29] which spined off a new entity Enterprise Support System as "grassroot accelerator" supporting various women collective enterprises across different stages of growth.

Supply Side:

a) Sector of Investment

The focus sectors for investment in India has yet been health, education, and agriculture[30]. Technology has also been seen as a major disrupter and is attracting investor's attention across all major sectors. Technology has particularly stood out where funds look beyond business models with limited customer base towards tech solutions that are able to multiply its reach and thus impact exponentially. The ease

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[25] 2021 in Retrospect, India Impact Investment Trends, Impact Investors Council (IIC); http://iiic.in/wp-content/uploads/IIC_2021_in_retrospect.pdf

[26] Climate tech includes:

1) Energy enterprises offering disruptive clean energy access, energy optimization solutions, improving access for rural population. It excludes large scale energy infrastructure enterprises such as solar rooftop projects and other large projects under 'green finance' lens.
2) Sustainable Mobility enterprises providing low carbon mobility solutions for people and goods
3) Climate smart agriculture solution providers

[27] Madhya Pradesh Women Poultry Producers Company Pvt Ltd (MPWPCL);

[28] India Social Enterprise Landscape Report, ADB; https://www.adb.org/sites/default/files/publication/29955/india-social-enterprise-landscape-report.pdf

[29] The Self Employed Women's Association (SEWA); https://sewabharat.org/research/collective-social-enterprises/

[30] The promise of Impact Investing in India, Brookings India, July 2019; https://www.brookings.edu/wp-content/uploads/2019/07/The-promise-of-impact-investing-in-India.pdf

of replicability of such solutions expanding its reach is also one of the key factors of growing investors interest.

b) Investment Instruments/ Tools

According to recent impact investment report by Brookings, most impact investments were equity based (75%) followed by debt (17%) whiles rest (8%)[31] was a mix of debt, equity, and blended finance tools. Additionally, impact investing space in India has evolved to have more 'patient capital[32]' with even typical private equity investors and venture capitalists going beyond the usual cycle of five years of investment. This is usually in cases where, impact enterprises are operating in challenging markets/sectors and require long term capital to grow, scale and sustain. Hence, the required capital is expected to be patient, which is very different from commercial capital providers. Unlike the commercial investments impact investment are more involved in strategy and business development of its investees[33].

c) Investor type

In India, most impact capital comes from foreign donors including DFIs, institutional investors, HNIs, and global foundations. Domestically, Indian family offices and HNIs contributing to around 7.5%[34] to total impact investments between 2016 and 2020, are critical stakeholders in this landscape.

Impact investment in Climate and Disaster Risk management

Demand Side: Impact enterprises

Impacts of climate change are numerous and includes both economic and social loss. For instance, unpredictable and wavering weather conditions affects most industries and sectors however, more severely those that directly depend on it such as agriculture, aquaculture, aviation and transport. It has also affected livelihoods and socio-economic dynamics of communities across the world directly and indirectly. Rapid depletion of limited natural resource such as water in many parts of the world is an example of indirect ways in which climate change affect lives. While direct impacts are visible on crops and livestock that face survival struggles due to extreme hot or cold conditions. Increasing natural disasters is one of the most distressing direct outcomes of climate change.

According to The National Disaster Management Authority (NDMA), India because of its geo climatic and socio-economic conditions is vulnerable to varying degrees to floods, droughts, earthquakes, urban flooding, and slides, and avalanches and forest fires. The

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[31] The promise of Impact Investing in India, Brookings India, July 2019; https://www.brookings.edu/wp-content/uploads/2019/07/The-promise-of-impact-investing-in-India.pdf

[32] Patient Capital is often referred to as an investment with no expectation of a quick turnaround profit. Instead, the investor is willing to forgo an immediate return in anticipation of more substantial returns down the road.

[33] The promise of Impact Investing in India, Brookings India, July 2019; https://www.brookings.edu/wp-content/uploads/2019/07/The-promise-of-impact-investing-in-India.pdf

[34] Impact Investing: An underrated investment opportunity for family offices and high-net-worth individuals, Feb 2022; https://www.forbesindia.com/blog/finance/impact-investing-an-underrated-investment-opportunity-for-family-offices-and-high-net-worth-individuals/

vulnerabilities are compounding due to changing demographics, socio- economic conditions, unplanned urbanization, environmental degradation, geological hazard, development in high impact zones, amongst many similar activities[35].

Natural disasters create market inefficiencies that underlie opportunity which can turn motivation into intention and action to provide new products and services[36]. The incompetency of governments and responsible stakeholders gives an opportunity for the innovators to fill the void. Additionally, local innovators and entrepreneurs have deeper community-based knowledge and problems of the customers and thus can provide more feasible solutions. Further such innovators may be more effective in exploring new technologies and introducing radical innovations that can help address some of the major challenges of the time- climate change.

According to Saathi Re, an NGO collecting information about the social impact space, there are about 8,960[37] NGOs, research institutes/universities, independent innovators, and impact enterprises are working in the Disaster Management sector in India.

Supply Side: Investments/ Finance

It should be noted that although climate change adaptation/ mitigation and disaster risk reduction/ resilience both deal with responding to threats to humanity from natural phenomena, there are certain differences between the two. Considering that SEEDS efforts are concentrated in disaster management with a small presence in climate adaptation, citing these differences would further aid in directing the study closer to its objective and placing SEEDS on the sector map.

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[35] National Disaster Management Authority (NDMA), Annual Report 2020-21; https://ndma.gov.in/sites/default/files/PDF/Reports/NDMA-Annual-Report_20-21.pdf

[36] Natural disasters, entrepreneurship, and creation after destruction, Javier Monllor and Patrick James Murphy, 2016; https://www.researchgate.net/publication/315343244_Natural_disasters_entrepreneurship_and_creation_after_destruction

[37] Saathi Re, https://www.saathire.com/sector/Disaster%20Management/

Difference between Climate Mitigation and Disaster Mitigation

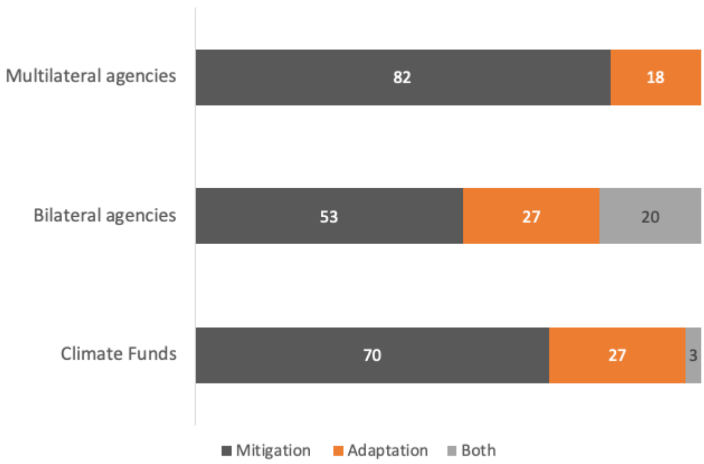
While climate change mitigation solutions are intrinsically long-term aiming to reap positive impacts in the future, disaster mitigation responses are solutions to address any occurrence of disaster in the near future.

Table 3: Difference between Climate Mitigation and Disaster Mitigation

	Climate Mitigation	Disaster Mitigation
Meaning	• Measures to lessen the impact of climate change resulting from carbon emissions.	• Pre-emptive measure to reduce negative impacts of a crisis or disaster. It aims at lessening the severity both before it starts and during the ordeal.
Innovators/ Solutions/ Impact enterprises	Examples of Climate mitigation includes: • **Using renewable energy sources**: *Oorja* offers access to clean, reliable, and affordable energy for productive use i.e., power income generating appliances. It helps marginal farmers and economically disadvantaged consumers transition from diesel fuel to modern energy. • **Building modern technology/solutions that reduce/minimize carbon footprint**: *PECKD* is a sustainable fashion brands in India that makes garments that are completely biodegradable. It uses fabric that is made with fruits & vegetable extracts, buttons made with nuts, and even thread made of compostable yarn. • **Making older technologies and equipment more carbon efficient**: *Transaera*, is working to curb air conditioning energy demands with a more efficient air conditioner that uses safer refrigerants to cool homes. Apparently, its machine can cut the impact on the climate by one-fifth compared to traditional AC.	Examples of Disaster mitigation includes: • Building disaster (earthquake) resilient infrastructure • Developing emergency response procedures in cases such as heat waves, floods, etc • Disease mitigation strategies such as those practices during recent covid pandemic (quarantines, closure of non-essential businesses, social distancing, etc)
Investments	High	Low

It stands to reason that most of the disaster mitigation activities, innovations, and strategies are anchored by government(s) and implemented with support from NGOs, local community groups and disaster management teams. There is little or no presence of impact enterprises with bankable business models in the space.

Figure 5: % Public finance for climate mitigation and adaption



Source: Economic Times (United Nations Framework Convention on Climate Change)

Difference between Climate Adaptation and Disaster Risk Reduction

While climate adaption responds only to disasters resulting from global warming such as floods, hurricanes, wildfires, disaster risk reduction efforts also offers solutions for non-climate change related disasters such earthquakes and meteor showers. Additionally, climate change responses are specific to large scales threat to humanity having permanent and long-term effects on the planet; whereas disaster risk reduction and resilience efforts respond to disasters irrespective of their timeline and scale of impact.

	Climate Adaptation	Disaster Risk Reduction (Resilience)
Meaning	• Climate change adaptation involves responses to climate change by adjusting lifestyles and social economic practices according to expected future conditions .	• Adaptation is a sub-set of resilience which includes resist, absorb, accommodate to and recover from the effects of hazards in timely and efficient manner. With respect to disaster- the concept of risk reduction is more relevant than adaptation.
Innovators/ Solutions/ Impact enterprises	Examples of Climate adaptation includes: • **Access to clean drinking water in case of droughts**: Aquasafi builds kiosks to enable access to clean purified drinking water to communities living in drought prone areas. • **Producing more resilient crops/ use of water efficient practices in case of droughts- drought resilient crops** : *Cocoter,* is supporting farmers to grow drought and storm-resistant coconut farms	Examples of Disaster Risk Reduction includes: • Predicting and preparing for potential disaster • Community awareness programs about management pre and post disaster occurrence • Building earthquake resistant structures
Investments	Medium	Low

Table 4: Difference between Climate Adaptation and Disaster Risk Reduction and/or Resilience

Financing Disaster Mitigation and Risk Reduction

In terms of financing, both disaster adaptation and mitigation investments can be tricky since the timing and magnitude of returns are uncertain. Innovators in the space of climate mitigation such as solar projects have clear business models and revenue stream; on the other hand the adaptation and disaster risk reduction innovators struggle with developing revenue generating models. Further, in many cases, such adaptation innovations require high upfront costs and it requires more skilled and dedicated resources for its operations. Because of this, the public climate finance has been biased towards mitigation efforts over adaptation.

However, there have been some recent arguments about **need for shift in focus from preventing a worse future to addressing and adapting to inevitable consequences that we are facing now.** Thus, both climate adaptation/mitigation and disaster mitigation/ risk reduction need urgent priority to help humans, animals, and plants to survive despite of climate change. Between climate and disaster adaptation, the former seems to have relatively more investment scope due to clear business angles, yet it faces similar challenges. According to Bloomberg[38], global climate adaptation market could be worth USD 2 trillion in next 5 years. Globally, climate adaptation increased from USD 22 billion in 2015-16 to USD 30 billion in 2017-18 (35%). However in India, like many developing countries, the adaptation finance is a challenge. Although there is a growing need for climate change adaptation, one of the key barriers is the definition of adaptation finance. Further, the lack of perceived 'business case' is a critical challenge with private sector's adaptation financing. Additionally, lack of impact metrics, reporting requirement, and a sense of need-based investments added to the difficulty of tracking private sector adaptation finance[39].

There is a need for commercial investors, governments, bilateral and multilateral agencies along with local innovators and impact enterprises to work together towards climate adaptation and disaster resilience/risk reduction.

Investment Landscape- Climate Adaptation, Resilience, and Disaster Risk Reduction

In India, most of the climate adaptation and resilience finance is primarily directed to three sectors: water and watershed management, agriculture and land use, and disaster risk management. Private finance in adaptation is mostly concentrated towards supporting water and watershed management with some investments towards infrastructure, energy, and other built environment. During 2017-18 private sector financing towards adaptation was less than 0.1% but over 53%[40] for mitigation actions.

Climate Funds

There are very few investors in adaptation space; few climate funds offer support in the space, details of some such funds are given below:

- **Global Environment Facility Trust Fund (GEF)** [41] offers funds to developing countries to build resilience and adapt climate change through its Adaptation Fund (AF). The innovation facility part of this fund supports innovators in the space to access finance. The facility offers small (upto USD 250,000 each) and large (upto USD 5 million each) grants to developing countries.
- **Green Climate Fund (GCF)**[42] supports both in the mitigation and adaptation efforts of both private and public sector offering climate solutions. It offers loans, grants, blended, and concessional funding to innovators.

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[38] Investors Bet Climate Adaptation Will Soon Be Profitable, Bloomberg, Nov 2021; https://www.bloomberg.com/news/articles/2021-11-17/why-investing-in-climate-adaptation-will-soon-be-very-profitable-green-insight

[39] Mobilizing the Private Sector for Developing Resilient Infrastructure in India, SNAPFI, July 2021; https://www.diw.de/documents/dokumentenarchiv/17/diw_01.c.821399.de/snapfi_developing_resilient_infrastructure_india_12072021.pdf

[40] ibid

[41] Innovation Facility part of Adaptation Fund, https://www.adaptation-fund.org/apply-funding/innovation-grants/

[42] Green Climate Fund (GCF), https://www.greenclimate.fund/projects/investment-framework#

- **Climate Investment Fund (CIF)**[43] apart from the significant support to the innovators in the mitigation space, the fund also offers support through grants to public and private innovators in the resilience space. It also offers concessional funding to innovative public and private innovations.
- **Clean Technology Fund (CTF)**[44] seeks to promote scaled-up financing for demonstration, deployment and transfer of low-carbon technologies with significant potential for long-term greenhouse gas emissions savings.

Figure 6: Breakdown of climate finance from multilateral and bilateral sources in India

Source: MOEFCC 2021

DFIs/ Donors:

India's climate sector (mostly climate mitigation) receives funding from both bilateral and multilateral organisations. Among the multilateral banks, financing from International Bank of Reconstruction and Development (IBRD) and International Development Association (IDA), under the World Bank and ADB are the largest sources of finance. **Asian Development Bank (ADB)**[45] funds Green Climate Fund for its efforts in People's Republic of China (PRC). Between 2016 and 2019, ADB mobilized 25%[46] of its total investment for adaptative actions. Most of the financing was in form of loans similar to financing from IBRD and IDA.

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[43] Climate Investment Fund(CIF), https://www.climateinvestmentfunds.org/topics/climate-resilience

[44] Clean Technology Fund (CTF), https://fiftrustee.worldbank.org/en/about/unit/dfi/fiftrustee/fund-detail/ctf

[45] Catalyzing Climate Finance, https://www.adb.org/sites/default/files/publication/691211/sdwp-075-climate-finance-shandong-green-development-fund.pdf

[46] Mobilizing the Private Sector for Developing Resilient Infrastructure in India, SNAPFI, July 2021; https://www.diw.de/documents/dokumentenarchiv/17/diw_01.c.821399.de/snapfi_developing_resilient_infrastructure_india_12072021.pdf

Bilateral sources of finance include UK Aid, EU, Germany's Federal Ministry for Economic Cooperation and Development (BMZ), Germany's Federal Ministry of the Environment, Nature Conservation and Nuclear Safety (BMU), and Japan International Cooperation Agency (JICA).

Between bilateral and multilateral organizations, the former contributes more of financing towards adaptation although it is small in absolute terms. Most of such financing is in form of grants. JICA with an exception contributed through loan for mitigation actions.

Anticipatingly, most of the funding in the sector especially for adaptation work was channeled through national ministries or nodal bodies. It also puzzles together when looked at from the project type for investment. For instance, World Bank offered financing to state of Maharashtra[47] for a project that aims to enhance climate resilience of smallholder farming systems in selected districts of the state. Another example is financing received by Solar Energy Corporation of India (SECI) for a project focused on Innovation in Solar Power and Hybrid Technologies in India[48].

Incubators and Accelerators:

Incubators and accelerators especially in sectors like climate and disaster play a vital role in offering non -financial technical support to small innovators and enterprises. In some cases, they (can) also help them refining their solutions before launch by providing them test beds and pilot opportunities. They also play an important role of creating a bridge between innovators, market supplier, NGOs, and other stakeholders already present in the field. However, climate specific incubators and accelerators are scarce, needless to mention the state of disaster sector. Further, many sectors agnostic players themselves face the challenge of being financial self-sufficient. The common sources of finance are government, international organizations, private investment, and revenue from equity. In developing countries, first two are mostly applicable and the ones that are able to support themselves are part of consulting firm, seed fund, or think tank.

Having applied the complexity of the sector, incubators and accelerators in the space would need to contextualize their operations and investment strategies.

Barriers/ Challenges for Investment in Disaster Resilience / Disaster Risk Reduction

Like many countries financing in disaster space has been a focus of the government or grant funders only- however, the rising incidence of natural disasters, unarguably highlights that public sector finance alone will not be sufficient. There is a clear case for the need of innovative solutions and technologies thus a certain requirement to encourage impact enterprises and private investors in the space.

Critical challenges such as asymmetric information, high risks, and uncertain returns are primary reasons for limited investments to the sector. Due to high risks and uncertainty

[47] Department of Agriculture in Government of Maharashtra

[48] Mobilizing the Private Sector for Developing Resilient Infrastructure in India, SNAPFI, July 2021; https://www.diw.de/documents/dokumentenarchiv/17/diw_01.c.821399.de/snapfi_developing_resilient_infrastructure_india_12072021.pdf

most of the innovations in the disaster space struggle to get private investments. Moreover, relevant innovations and technologies also take a long time to mature- It takes more than 10 years for a technology to reach profitability at scale. Additionally, many of such innovations are require high capital for research, research and development (R&D) and demonstration, deployment, and commercialization of the solution. External finance is generally expensive for high technology startups – since it involves high costs on acquisition of intangibles which cannot be used as collateral. Considering these variables, private impact investors are discouraged to lock in an investment in such a sector when other low capital alternatives are available with quick returns.

Table 5: Barriers for Investment for Climate Resilience Enterprises

Investment barrier	Description
Lack of common definition and Taxonomy	Investors, governments, and other related organizations employ different definitions and screening criteria for climate resilience. Many DFIs include three aspects in adaptation finance- 1) identified 'context' of climate risk, 2) stated 'intent' to address risk, and 3) demonstrated risk between proposed activities and the risks. How an entity defines adaptation and resilience may influence the range of climate risks considered, type of resilience action taken, and the project objectives.
Lack of awareness of need and benefits of climate resilience activities	Despite the improved understanding and recognition for need for climate resilience innovations and subsequently for its finance – there is yet limited understanding of the broad benefits of climate resilience and how they may be measured. Some financing institutes and organizations still use parameters such as "number of beneficiaries" to measure the progress of adaptation
Lack of common scale of measurement and assessing impact	Assessing the amount and magnitude of impact and benefits from the climate resilience interventions/ response is limited. There is absence of common measures and thresholds across reliance. In case of investment the case history for comparative purposes is also lacking.
Inevitability	Resilience innovations and interventions do not have clear source of cash flow, monetary flow- making them less attractive for investments and bankability.
Limited predictability	Uncertainty about the rate, scale and cumulative impact from resilience project and innovations can slow down the financial impact and disrupt the impact analysis- this can limit the market uptake of the innovation
Lack of understanding about resilience amongst investors	Historically, climate resilience and adaptation has been a state subject and their focus has primarily been ensuring the safety of the population and guaranteeing the reliable functioning of infrastructure in face of climate risks. On contrary, investors in the climate space look for business continuity, reliability, replicability, and maintenance and continuance of supply chains along with financial returns. There is lack of understanding amongst the private investors about the nature of climate resilience innovations and its significant difference from innovations in other sectors.

Conclusion and Next Steps

SEEDS, operating primarily in disaster mitigation and risk reduction with some presence in the climate adaptation, is well timed to start supporting local innovators and solution providers. Given that there is ample room for innovation, having businesses in the sector may ensure much needed scalability and sustainability of the solutions. Its Innovation Hub aiming to support local innovators and individuals in the space will help in filling the innovation void left by NGOs and government.

However, having analyzed the barriers and challenges and the nascency of the space, it will face severe challenges not only to financially support these innovators but also be self-sustainable. Further since SEEDS would be amongst the first few organizations in the disaster space that would aim to raise impact investments it would face severe push back from the existing challenges and constraints. There is a need to devise innovative operational and financing model along with relevant stakeholders that would be willing to take the risks. Strategic partnerships would need to be forged to ensure sustainability.

Progressing to the next phase of the study, following are the next steps that need to be undertaken:

- Discussing the current findings and learnings
- Develop a detailed understanding of placement of SEEDS on the sector map given its current and planned activities
- Determine and collectively decide next steps- ‘go’ or ‘no-go’ for phase II of the study
- If yes, collectively assess possibilities feasible and applicable for SEEDS
- Identify relevant stakeholders and initiate preliminary discussions to assess and validate feasibility