



The State of Climate Finance in India

5th edition: 2025

CLIMAKE

Climake is the leading climate finance advisory firm focused on the Global South. With offices in UAE and India, along with associates in the UK and Europe, Climake helps investors with over USD 300 billion under management to plan and deploy capital with greater impact and financial efficiency.

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The year India's climate finance markets grew up

We wrote our first State of Climate Finance in India report, mid-Covid, in 2020. At the time, most of our analysis was focused on how climate finance will evolve over the coming decade, by 2030. Five years on, 2025 seems like an apt midpoint to pause and take stock of how climate action has been financed in India, and to focus on trends for the next decade, till 2035.

A lot has changed since our first report. For one, the climate finance world is much bigger and a lot more vibrant. 2024 turned out to be the best-ever year for climate finance in India. Not only were finance volumes up to record levels, we saw participation from the largest set of private investors we have tracked — angels, venture capital (VCs) and private equity (PEs). For the first time ever, public markets took note of the climate sector with 30+ IPOs. These public offerings not only provided exits to their early investors, but also delivered market-beating returns post-listing, opening doors for further public market interest in the sector.

While this progress is heartening, the bulk of climate funding is still focused on mature areas of solar and wind power generation, and electric mobility. Much more needs to be done to deepen other sectors of climate mitigation; and focus is still missing from the critical capital needed to create climate adaptation and resilience outcomes. Solving for mitigation and closing the climate finance gap in adaptation* will need more than USD 2 trillion in capital over the next decade.

This report looks at not just how this climate finance gap will be funded, but also the structural innovations that need to happen in the climate capital stack. Getting to lower emissions as well as a more resilient world will need more than capital: it will need more innovation, more funders, and an ability and willingness of climate founders and a much wider range of capital providers to take calculated risks. The good news is that all of these now come with even more potential for significant success. We hope funders and founders reading this report take away with them inspiration, pathways and growth areas that can lead to the stronger climate finance outcomes we all need.

** For brevity, we refer to "climate adaptation and resilience" as "adaptation" through this report. This report covers both areas of climate action: mitigation refers to emission reducing activities like renewable energy, sustainable fuels, electric mobility and green materials; adaptation refers to interventions needed to respond to extreme climate events with investments in areas like disaster management, sustainable farming, access to water, wastewater management and cooling.*

Climate Funding Recap: Jan - Dec 2024

Climate equity funding nearly doubled in 2024

2024: India's most active year for climate finance so far

Equity funding in 2024 grew a resounding 95% to **USD 9.41 billion**, compared to **USD 4.82 billion** of equity capital raised for climate action in India in 2023. The equity issuances in 2024 were also well ahead of the previously set high benchmark of **USD 7.15 billion** in 2021.

We estimate that additionally, debt capital of **USD 21.9 billion** was raised by climate enterprises in 2024, resulting in total climate funding of **USD 31.32 billion**, a **40% increase** over 2023.

The first half of 2025 slowed somewhat on account of global political and policy uncertainty. However, anecdotal data tells us that long term trends remain positive: we are seeing a record number of climate-focused limited partners, fund managers and startups set up and focus on India. This is likely to result in even larger climate investments going forward.

Figure 1: Debt and equity funding raised from 2021 to 2024 in climate (Source: Climake analysis)

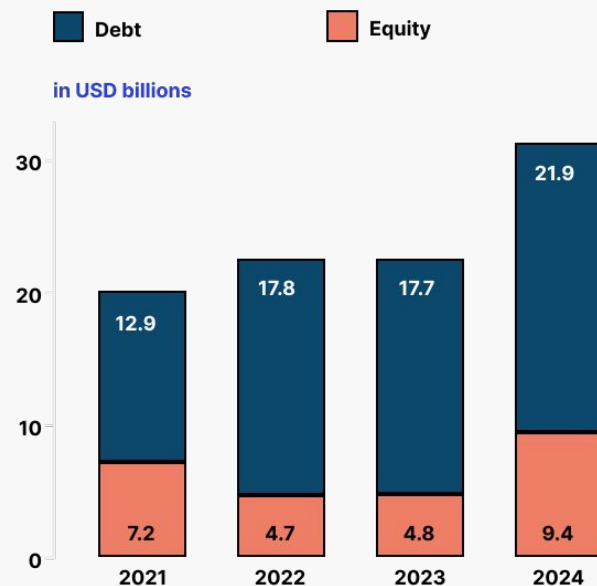
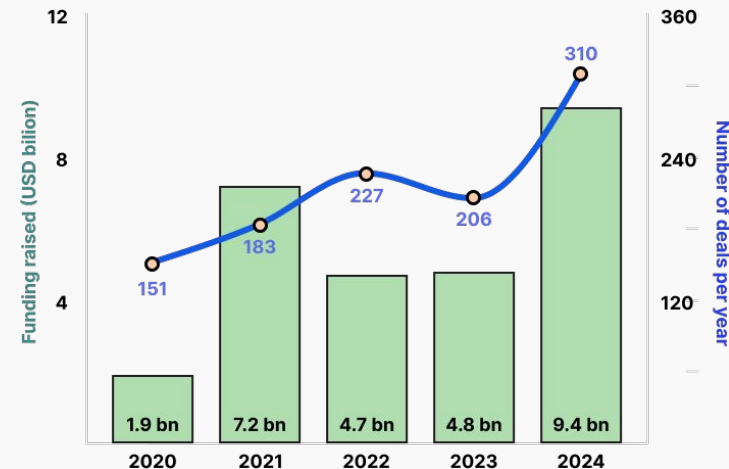


Figure 2: Climate equity funding raised and deals from 2021 to 2024 (Source: Climake analysis)



Renewable energy and electric mobility continued to dominate funding

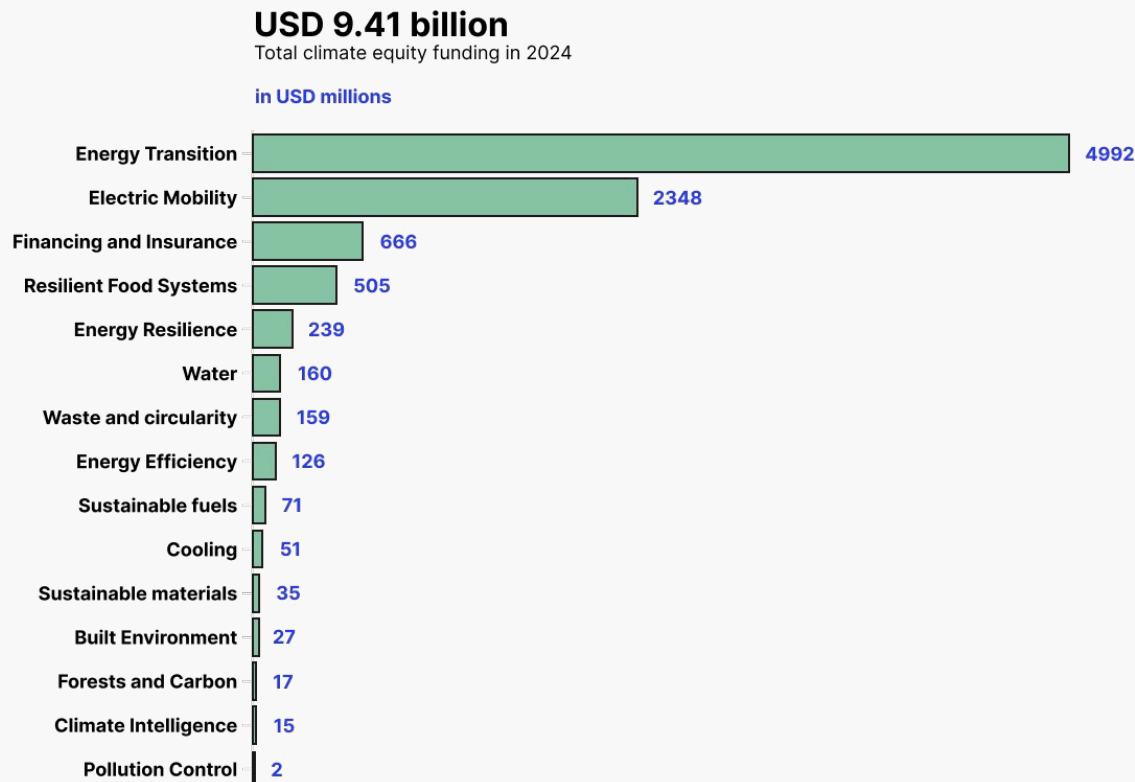
Investments are starting to diversify beyond the top two sectors

Renewable energy and electric mobility account for **78%** of India's equity funding for climate in 2024. While this number is significant, it is lower than the 83% share these two sectors had for all climate equity funding between 2020-2023.

Climate investments in India are broadening as deals occur in newer segments and sectors compared to previous years. Resilient food systems were the big comeback story for the year, with investments nearly doubling compared to 2023. New sectors like built environment and grid system interventions for energy resilience also attracted investors interest in 2024.

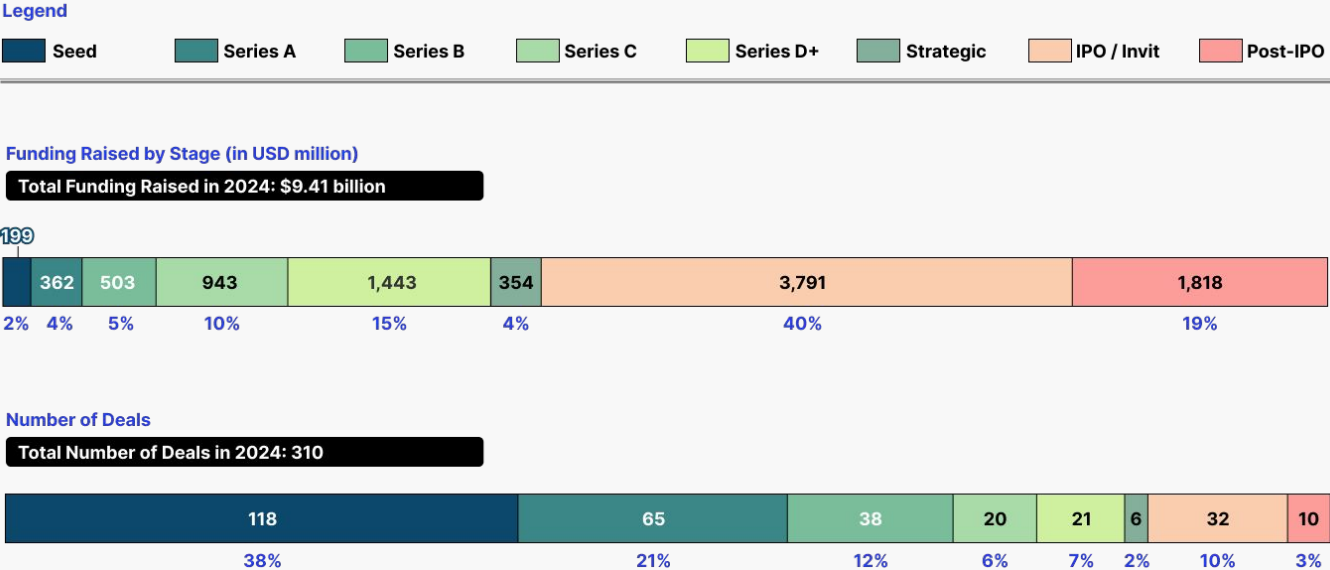
It's worth noting that some sectors have shown growth on the back of one or two large deals: financing and insurance in particular shows a large growth on account of a post-IPO investment in IREDA.

Figure 3: Sectoral breakup of climate equity funding in 2024 (Source: Climake analysis)



Equity deals got larger in 2024

Figure 4: Climate action equity deals and funding by rounds in 2024 (Source: Climake analysis)



Public markets dominate

The big shift in 2024 was the emergence of listed equity and public market investments as a prominent source of capital for the sector.

Public markets - both initial public offerings (IPOs) and private investments in listed entities (PIPEs) accounted for an unprecedented **60%** of the overall equity funding for the year. The average PIPE was for **\$182m** - while at the other end, the average seed-stage funding in climate startups moved up to around **\$1.69m**.

While the IPO and PIPE funding came from a smaller set of deals (**42** out of **310** for the year), the larger cheque sizes meant that sectors favoured by public markets - including climate finance providers, water, waste and circularity - showed growth in investments in 2024.

Deal sizes got bigger in general. 27% of all deals in 2024 were for more than USD 10 million, compared to 20% last year.

The climate funders' universe continued to expand in India

331 climate investors in 2024

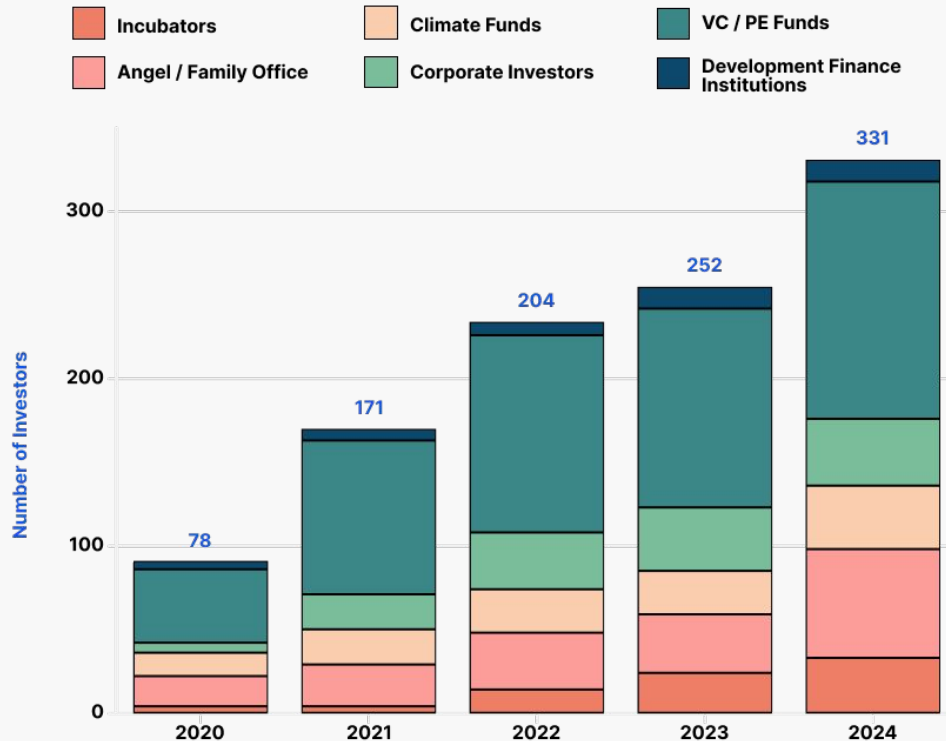
The last couple of years have been the most active in climate investor participation since we started tracking the sector more than a decade ago. Not only are we seeing a record number of new investors, there's also a wider range of interests in investing across new segments and across various stages of risk across the capital stack.

2024 saw a **30%** increase in the number of investors participating in climate deals compared to the previous year. Also, nearly half the investors — **155 out of 331** — made their very first climate investment this year.

We count **629** investors that have made at least one climate equity investment since 2020. Of them, 298 did not invest in the sector in 2024 – we were curious if they had changed focus or gone slow on the sector. However, this wasn't the case. It turns out that **25%** of the sector dropouts were corporate venture funds that invest in fewer deals and are more strategic in their investment priorities.

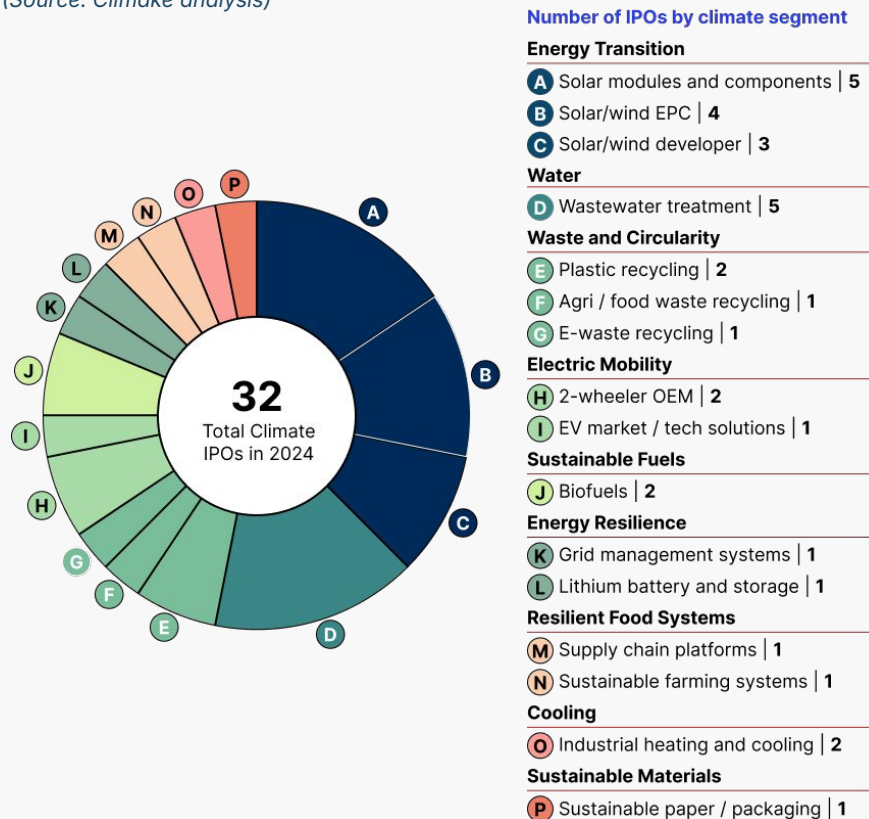
While a handful of funds seem to have reached the end of their investment cycles, there is a lot more dry powder coming into the sector: we have counted at least **90** investors that are raising new funds or evaluating new investments. **35** investors that took a pause in 2024 made new investments in the first half of 2025, showing a continuing appetite for the sector.

Figure 5: Equity investors in climate action from 2020–2024 (Source: Climake analysis)



Public markets made their largest ever investments in climate equity

Figure 6: Sectoral breakup of public market investments in climate equity in 2024
(Source: Climake analysis)



Public markets: exits and new capital for climate action

The buoyant IPO markets in the past 3 years have finally provided angels and VCs with an answer to “**how will climate startups provide an exit**”. The answer, of course, being “IPOs”.

During 2024, a record **USD 3.8 billion** was raised from IPOs of climate-focused businesses. Though nearly half came from two mega renewable energy IPOs ([NTPC Green](#) and [Waaree Energies](#)) and another **USD 700+ million** was contributed by [Ola Electric](#), there was plenty of interest in smaller deals with **18 IPOs** raising less than **\$10m** each.

Public markets also showed up to provide additional funding to listed businesses, with **USD 1.8 billion** of climate equity raised via institutional investments in listed entities (PIPEs).

Public markets love the sectors VCs don't

Public market investments show an interesting contrast to the sectors favoured by private equity and VC investors. Only **6** of the **17** energy transition investments were in renewable energy developers - the segment that usually receives the most private investment - with the rest going to either module and component manufacturers or EPC companies - both segments considered ‘low growth’ or ‘not differentiated enough’ by private markets.

Other areas of public investments show similar trends. Wastewater treatment plants, heat exchangers, solar pumps are all segments where VCs tell others there isn't enough moat or growth opportunity. These sectors are exactly where IPO markets chose to invest big this year.

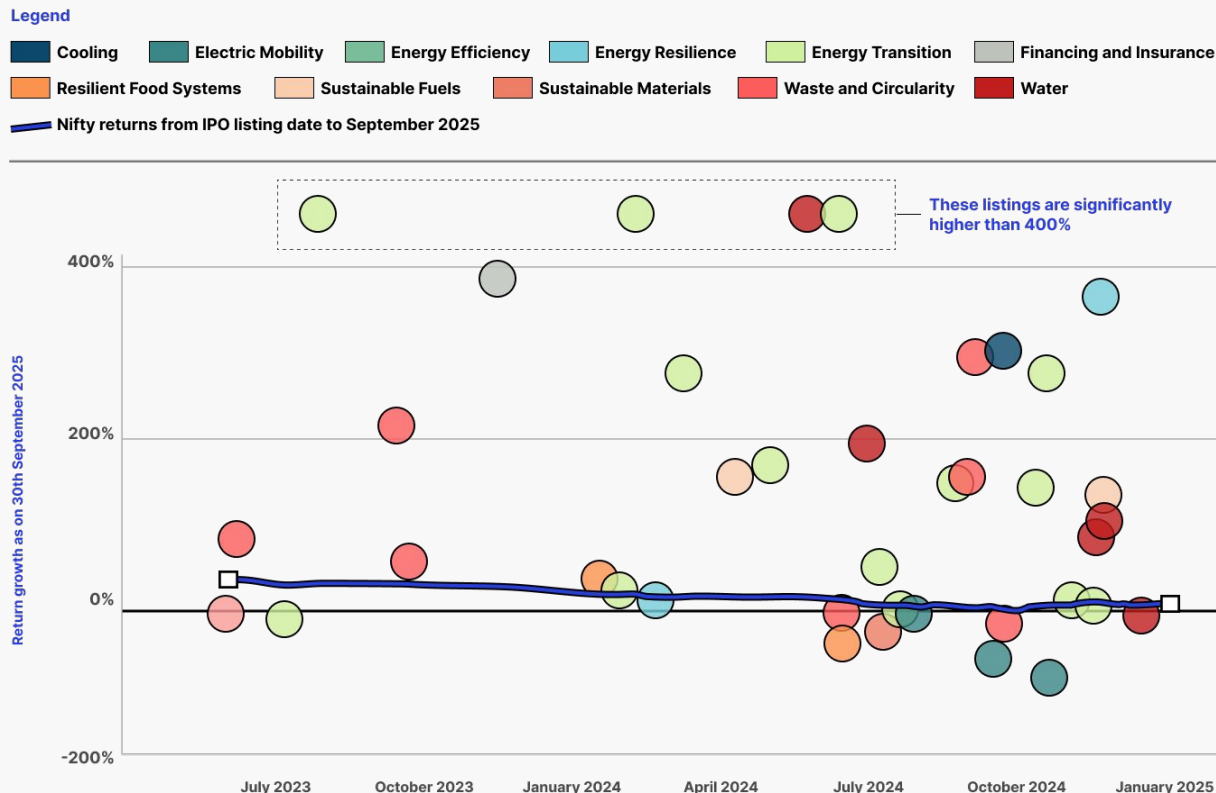
Climate IPOs outperformed the markets

Climate sector IPOs have delivered returns to investors

The **39** climate sector IPOs since 2023 have largely performed well, with median returns of **64%**. While there were some losers — **13** IPOs are currently trading below their issue price — the winners outperformed significantly with **23** IPOs providing their investors with a return of more than **30%** within a few months of listing. Almost half the IPOs (**18** out of **39**) have more than doubled the capital for their investors.

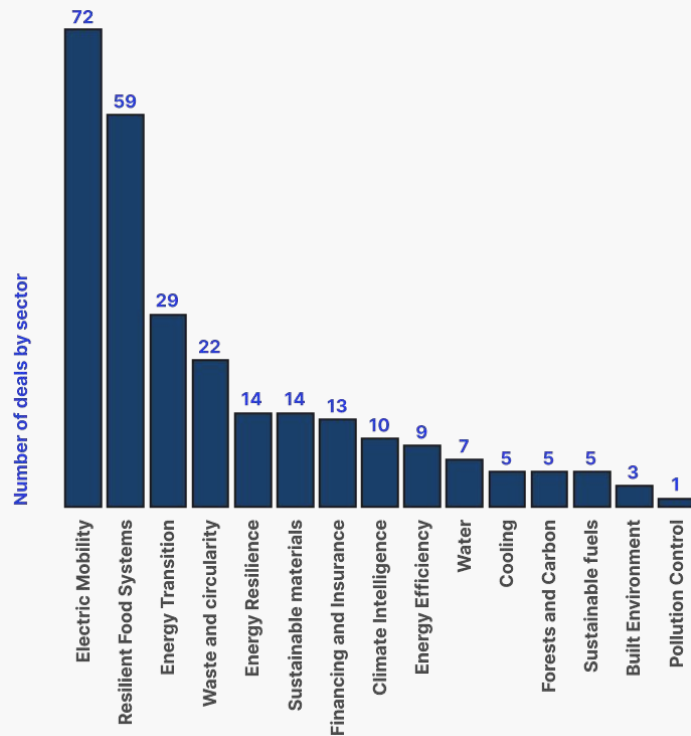
The sector seems to outperform the broader markets, with **60%** of the IPOs — **24** out of **39** — outperforming the Nifty index when compared from their listing date to today. These returns are encouraging not only because they provide a viable exit to private investors, but also because public markets potentially become a source of new capital as climate tech firms mature and look for growth capital.

Figure 7: Public market returns for climate sector IPOs and PIPEs (Source: Climake analysis)



Private sector investors show more diverse interests

*Figure 8: Sectoral breakup of private market investments in climate equity in 2024
(Source: Climake analysis)*



Angels and VCs are taking more risks in this sector

In contrast to the public markets, we are finally starting to see a larger appetite for risk-taking in new and emerging sectors by early-stage investors. The angel networks, family offices, VCs and corporate venture arms that invested in climate tech in 2024 signalled a willingness to finally start exploring areas of investment beyond renewable energy and EVs.

While energy transition and electric mobility still contributed to **74%** of the **USD 3.8 billion** raised from private equity markets, the remaining billion dollars that constituted **26%** of investments from angels, VCs, PEs and corporate venture arms showed more diversity than we have seen in the past.

Resilient food systems, a sector that had seen a dip in 2023, rebounded and moved away from a focus on tech platforms with investments spanning sustainable farming, post-harvest processing and different ways to improve efficiency and productivity of farms.

Waste and circular economy was another winner with areas as diverse as plastic recycling, battery recycling and agriculture waste – all that had only raised smaller sizes of funding earlier – now raising significant **Series B** rounds.

Other segments where investor interest is starting and where conversations are translating to deals include biofuels, sustainable packaging, green chemicals and modular construction.

Key trends from private sector investments in 2024

Climate founders look for capital outside India earlier

India has always attracted equity capital from a diverse set of investors. However, most investors based in US, Europe and developed Asian countries like Singapore and Japan have traditionally invested at **Series A** level or later in India. Most do not have local teams, and a minimum ticket size makes sense given the diligence process, travel and costs involved.

That seems to be changing. In 2024, we saw climate founders get accepted into incubators and accelerator programs that venture far beyond India. In addition to participating in accelerator programs in [US](#), Japan, UAE and even [Chile](#), startup founders have been seeking seed capital from more diverse locations as well. We saw several angels, [family offices](#) and seed stage investors from Japan investing in Indian climate businesses this year, and a greater participation in India from the UAE as well.

In general, angel investors and family offices have become more active in climate investing: we count **56** new accelerators and family offices that made their first climate investment in India in 2024.

An uptick in global climate funds

Global climate funds investing in India is not new. But until a few years ago, this meant that they would have set up a dedicated India fund (think [Circulate Capital](#) or [Encourage](#)) with teams and investment theses focused on the region. Such region-specific efforts take time, with new funds taking years to set up and start investing.

It is easier and faster when global funds start making allocations to India. While that trend started a few years ago with [mega](#) funds and asset managers making their India debut, 2024 saw a clear uptick in global funds adding Indian investments to their portfolios. [Just Climate](#) made their first investment in India last year, as did [The Ecosystem Integrity Fund](#) and [Rising Tide](#).

This tells us their investments are likely the first of many. This also spreads the word among like-minded investors. We've had numerous conversations with interested investors from US, Europe, UAE and Japan: we believe some of these may turn into investments in 2025 and 2026.

The big US-based DFI shake up

Development finance institutions (DFIs) are usually our most stable investor segment. They create multi-year plans and usually stick to portfolio allocations and the decisions to invest (or not) in a specific geography. This changed in 2024.

The US political environment has had a distinct impact on the likes of DFC. The organisation has been a significant contributor to Indian climate funding with a large number of deals, as well as through creating specific catalytic programs like [PI2](#). DFC, however, seems to be taking a pause on climate funding at the moment, perhaps in deference to changed US policy.

The good news is that DFIs in Western Europe and the Nordic countries stepped up and have been more active in 2024 and 2025 than before. We also had something of a unique development rarely seen in the DFI world: the emergence of a new DFI. [Alterra](#) made its first investment in India in 2025. Not only is Alterra bringing unprecedented capital to climate action, but they are also being truly catalytic by making anchor investments in new climate funds.

India's Climate Action Priorities

Looking to 2035: Climate solutions have significant market potential

Both mitigation and adaptation have significant potential to scale

This report is our first attempt to look beyond 2030 and to build estimates for how climate action and climate finance will evolve over the next decade, by 2035.

Undoubtedly, all of climate mitigation and adaptation sectors will see a growth in market size and adoption, albeit at varying levels of acceptance and scale. This growth, however, is not indicative of how far each sector is progressing towards solving for India's overall emissions, or its adaptation challenges.

The following section, therefore, takes a different approach to estimating climate finance evolution. We look at this evolving space through the lens of the overall demand and supply for energy in India, and the drivers of change over the next decade. Adaptation pathways to 2035 are much harder to predict, though you will notice the progress private investment has made in the space.

Figure 9: Potential of climate sectors through market size, technology maturity, and market maturity (Climake analysis)

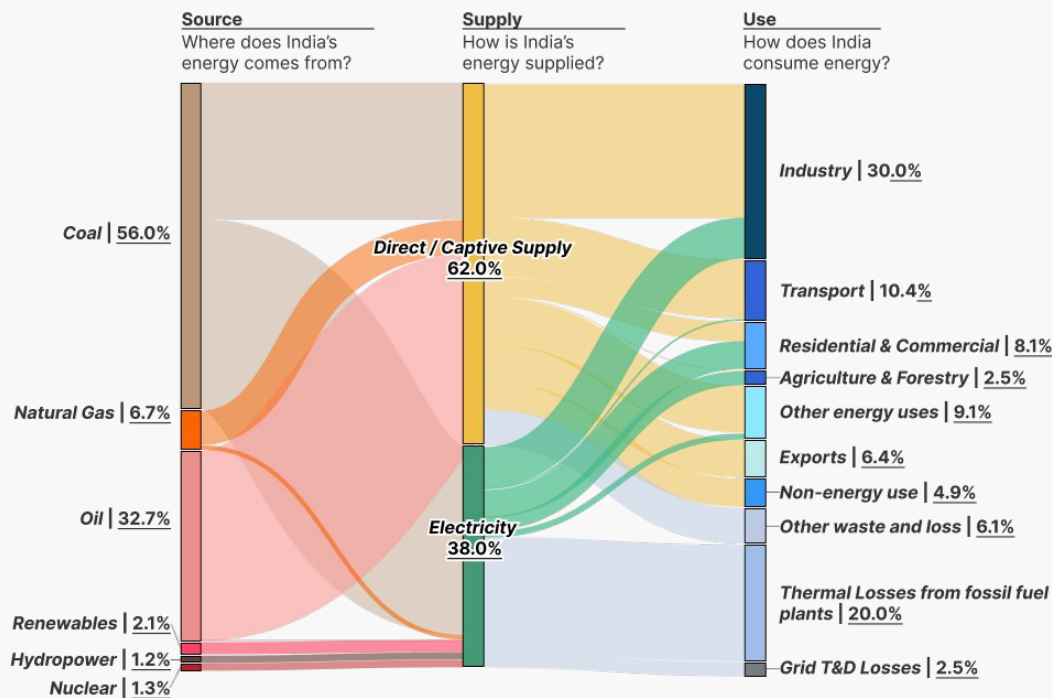


Decarbonising India's supply-side emissions

Figure 10: India's primary energy source, supply, and use in 2023 (Source: [Niti Aayog](#), Climake analysis)

40.94 million TJ

India's primary energy generation in 2023-24



The figure does not include energy from biomass as traditional biomass, usually used in rural areas, is difficult to measure and track. Biomass is estimated to account for **11%** of India's energy supply.

Decarbonisation begins upstream

Fossil fuels account for around **85%** of India's energy sources (if biomass estimates are included). India's journey to decarbonise over the next decade has to focus on how energy is sourced and supplied. We believe a three-pronged approach will move the need on decarbonising India's supply and sourcing of energy:

- Electrifying more sectors and creating use cases to increase the potential for electrification:** Electricity has mature technology options that can provide zero-emission energy. A shift from direct fossil fuel usage - currently **62%** of India's energy source for everything from furnaces to vehicles - to electric options is the essential first step towards decarbonisation.
- Increasing the share of renewables and low-carbon energy sources:** The second step, once we electrify what we can, is for India to make that electricity clean. Much has already been done in this space, though the next decade is where we hope to see the share of clean energy go up from **~12%** of the grid supply to **50%** or more.
- Adopting sustainable fuels for what cannot be electrified:** Industries and transport sectors will face limits in their transition to electrification; sustainable fuels are emerging as key supply-side decarbonisation solutions to address this.

India will electrify transport and industries at scale over the next decade

India's EV plan: do more of the same, only at a bigger scale

EVs account for [8%](#) of new vehicle sales in India in 2025 — their highest share yet. India's "do the same, but bigger" plan for EV expansion will likely build a strong commercially-viable sector, though it will continue to need policy support.

High-utilization fleets remain the key segment for India. 2- and 3-wheelers comprised [90%](#) of the 3.6 million EVs sold from Jan 2024 to Oct 2025, but growth is now focusing towards e-trucks and e-buses.

[Half](#) the [bus sales](#) and potentially 20-30% of [truck](#) sales could be electric by 2035. Subsidies and incentives remain key, with [PM E-Drive](#), FAME's successor, playing a larger role by targeting 2.8 million vehicles across wider vehicle categories. We also expect a higher interest in expanding the support ecosystem, especially the charging infrastructure.

Industries will likely electrify process heat

The electrification of Indian industry primarily targets process heat which makes up around [60%](#) of energy demand. The heat needs that are below 400°C (around [40%](#) of the process heat demand) offer competitive electrification transition today, led by electric boilers and heat pumps — solutions with high TRLs and high efficiency gains.

High-temperature heat (>400°C) is harder to electrify, and not just due to a lack of TRL 8-11 solutions. The energy required to start higher temperature heat processes - which today use coal - is hard to replace through electrification.

Coal accounts for [70%](#) of energy needs in the industry sector. The likelier alternative to decarbonise what cannot be electrified will be to transitioning from coal to sustainable fuels like biomass briquettes.

Figure 11: Technological potential for direct electrification, by sectors, based on 2023–24 energy demands (Source: Climake analysis)

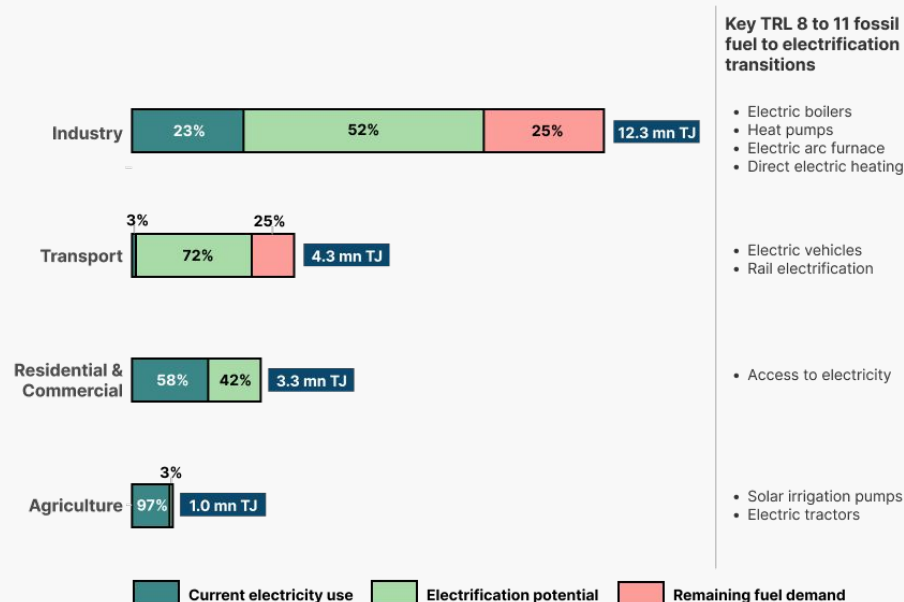
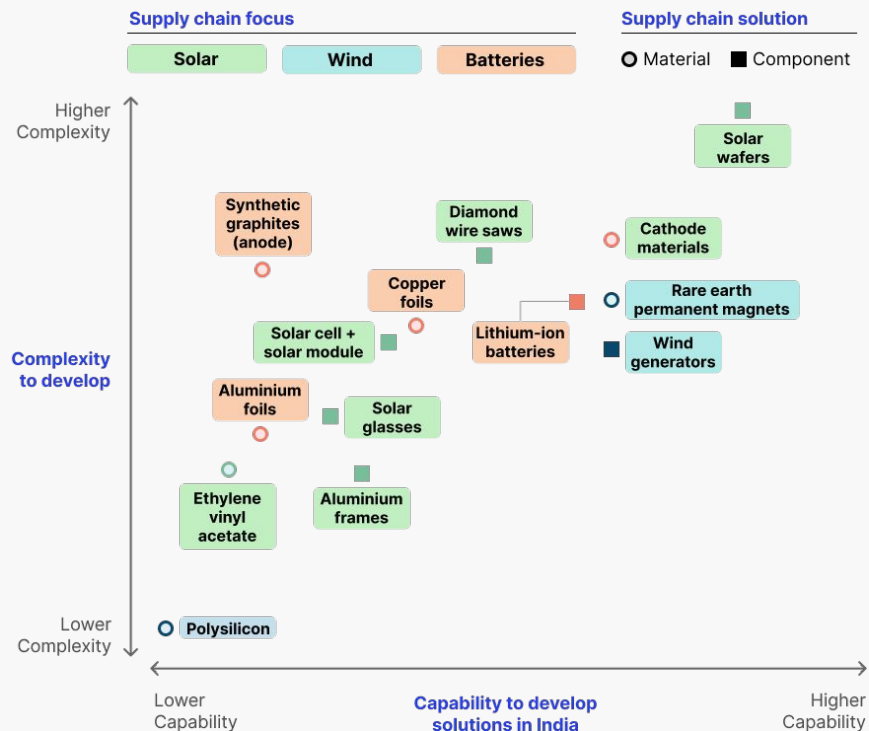


Figure 11 is based on the potential of technologically viable electrification solutions - at **TRL 8 (first-of-a-kind commercial)** to **TRL 11 (proof of stability)**, based on the IEA Technology Readiness Level ratings - to replace fossil fuel use. It includes financing needs and infrastructure complexities which have a significant impact on the pace of the transition from fossil fuel power to electrification.

Renewables will take giant steps towards India's 500GW target

Figure 12: Competitiveness and complexity potential to develop emerging key materials and components in the solar, wind, and batteries supply chain in India (Source: CEEW)



* **Capability** is defined by a variety of factors including ability to access raw materials, technology and skill availability, and infrastructure capacity to develop the necessary solutions

Non-fossil fuels account for 50% of India's electricity grid capacity

FY 24-25 saw India install its highest capacity of sustainable non-fossil fuel energy, **29GW** — a **55%** increase from the previous year. This trend will continue: the first 6 months of FY 25-26 saw **20GW** installed, on track for **54GW** for the year.

India has **137GW** of in-progress and planned renewables capacity that will take its sustainable non-fossil fuel capacity to **338GW**. Solar energy accounts for **61%** of this upcoming capacity with hybrid (**20%**) and wind accounting for the remainder. With **80%** expected to go live by 2027, India is likely to achieve the **60GW** annual capacity addition that we projected it would need.

Nuclear energy has also come back into focus with India considering a **100 GW** target for 2047. India's plans to open nuclear energy to private sector, and global advances in small modular reactors bode well for new nuclear capacities.

The growing domestic renewables supply chain

As India's renewables capacity has grown, so has its domestic supply chain. Funding for the renewables supply chain, from January 2024 to June 2025, reached **USD 1.20 billion**, including **5 IPOs** of solar modules and cells companies.

India's aggressive capacity additions as well as policy support in the form of PLIs, domestic purchase mandates and import tariffs have led to rapid growth in the solar module manufacturing.

Several panel manufacturers are also now looking to backward integrate into making solar cells. Both these sectors will continue to scale over the next decade.

However, that is where the domestic supply chain ends.

Integrating from cells to wafers or polysilicon will have constraints in resources and technology, so those will likely continue to be imported.

Sustainable fuels will start getting mainstream

Biofuels show growth potential

Sustainable fuels derived from agricultural, animal and food waste have the potential to replace fossil fuels across multiple use cases. Ethanol blending is one such success story, reaching its [E20 goal](#) in advance. Other, more advanced biofuels, are now starting to show scale.

India's usable biomass feedstock of [570 million MT](#) — which can support second generation (2G) biofuels outputs equivalent to **7.5%** of India's current energy demand — is getting tapped for renewable natural gas (RNG), sustainable aviation fuel (SAF) and drop-in fuels.

Investments by IOCL, HPCL and Reliance into bioenergy plants from agri-residue, mark the start of commercialisation that promises to ramp up faster, and expand to newer priorities: [SAF](#) is emerging as the next area, with India's first [commercial SAF facility](#) being set up by IOCL.

Green ammonia: India's green hydrogen opportunity

Green hydrogen's role in decarbonisation is limited as a transport fuel due to cost and logistics challenges - but it can be significant in transitioning industrial inputs away from fossil fuels.

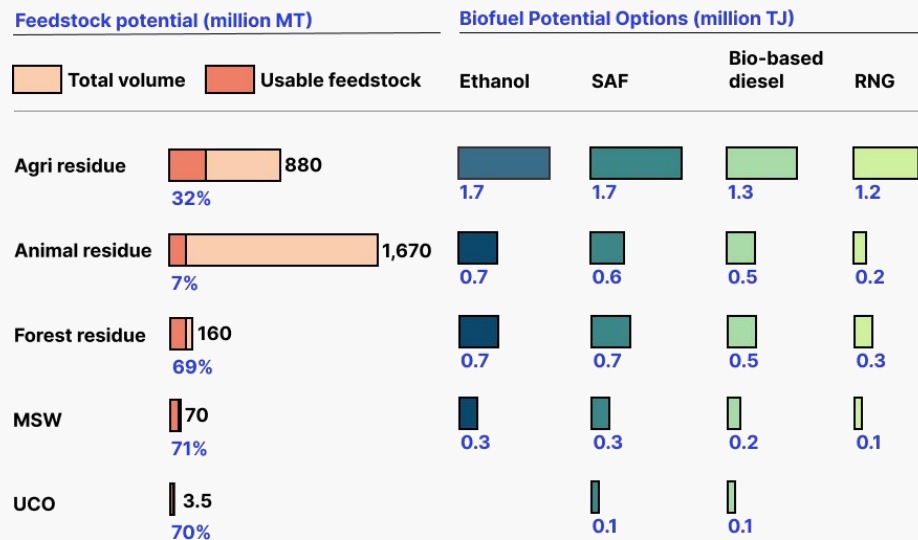
Green hydrogen has industrial uses ranging from being a reducing agent in steel, to making green ammonia used in fertilizers and in fuel for shipping.

Green ammonia in India is [cost competitive](#) with imported grey ammonia - the source of **86%** of India's demand - and is a more viable candidate for exports than green hydrogen.

We have tracked **11** operational and planned green ammonia projects totalling **21.3 MTPA** to be live by 2032.

We are also tracking an announced green hydrogen capacity of **4.3 MTPA**.

Figure 13: Second generation biofuel potential from biomass waste feedstock (Source: [Global Biofuel Alliance](#))



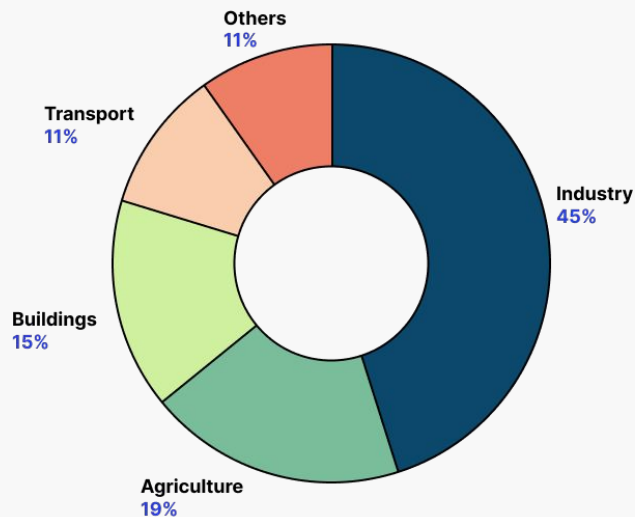
The usable feedstock share is based on feedstock collectability and alternate uses of the feedstock. The biofuel potential options outlines the quantity, by energy, of the four identified 2G biofuels from the available feedstock in India.

India will re-define demand-side mitigation priorities

Figure 14: India's demand-side emissions breakdown (Source: Climake analysis)

3.2 billion tonnes of CO₂ equivalent

Total demand-side emissions (excluding energy waste and loss)



The figure above only includes emissions directly attributable to the activities of the above sectors. It does not include emissions related to thermal, and transmission and distribution losses, and also does not include emissions related to biomass use.

Demand-side interventions have huge mitigation potential

Demand-side interventions complement supply-side interventions in terms of tackling emissions in how we use, distribute and consume energy and materials. We identify three demand-side investments that can be impactful:

- **Making processes more energy efficient:**
Efficiency is the most immediate and scalable demand-side lever, due to ease of adoption in existing systems. Energy efficiency can reduce India's energy needs by up to **17%**.
- **Making demand more sustainable and circular:**
More circular demand chains mean less extraction, less waste and lower embedded emissions. Circularity in 4 key materials - cement, steel, plastics, and aluminium - can reduce India's total emissions by **9%**
- **Innovations for decarbonised material alternatives and process innovation as long-term drivers:**
Beyond circularity and efficiency, India will need zero-carbon solutions in diverse applications: steel making processes, fertiliser manufacturing, building construction and data centres being some examples. These will come in the form of new materials or re-designed processes that need long development cycles and appropriate funding.

Circularity and efficiency will decarbonise demand-side emissions

Circularity and recycling is accelerating

The significant cross-cutting potential provided by circular solutions is accelerating through key waste streams. These are advancing high-quality recycling capabilities: primarily electronic waste, battery waste, municipal solid waste and plastic waste. Investor confidence in the sector is rising, with **USD 188 million in equity** flowing into the sector between January 2024 and June 2025, complemented by debt — we identified **10 debt deals** above **USD 5 million**, including a first DFI loan for [tyre recycling](#).

Municipal compliance norms and EPR coverage are the main drivers for the sector, influencing its growth and capital opportunity. Construction waste, one of India's hardest-to-manage segments - accounting for **25% of total waste** - is a new area, as [recycled content mandates](#), beginning from 2026-27 can unlock new opportunities.

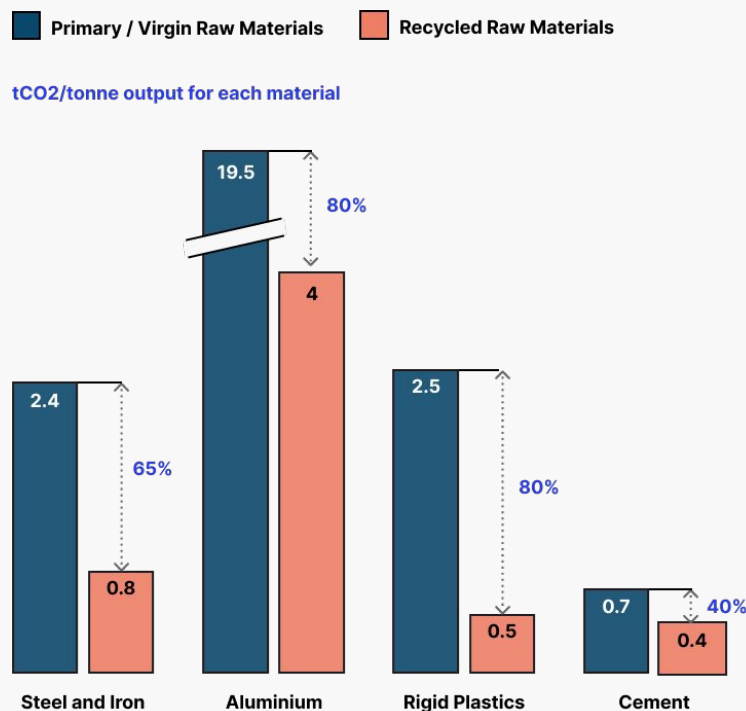
Energy efficiency: mitigation's low hanging fruit

Energy efficiency's potential to support decarbonization has been recognised through a series of policy and market enabling steps: from compliance norms of the [Perform, Achieve, and Trade \(PAT\) scheme](#) and the [Energy Conservation Building Code \(ECBC\)](#). There is also a more stringent revamp of the BEE Star Rating System [expected in 2027](#), as well as diverse customer financing options now available from specialised lenders, such as SIDBI, IREDA and mainstream banks like the State Bank of India.

Industrial and commercial efficiency - which can reduce industrial emissions by **15%** - offer the sector's most significant private investment potential.

From January 2024 to June 2025, **USD 156 million** was raised across **16** deals in the efficiency space, with all but two focused on industrial and commercial efficiency solutions.

Figure 15: Emission reduction potential of recycled raw materials vs virgin materials for 4 key materials (Climake analysis)



Some emerging areas for demand-side interventions

Overview

Demand-side mitigation must move beyond circularity and efficiency to address embedded emissions across production and consumption systems. These emerging solutions - ranging from process innovations to low-emission materials - can require long development cycles and currently attract limited investment.

Yet, they operate in high-growth sectors where India's rapid expansion creates strong future potential.

The following examples highlight three demand-side solution areas that may be early in investor adoption but have demonstrated a growing commercial traction, signalling their viability as the next frontiers for demand-side decarbonisation.

Buildings

Buildings accounts for [16%](#) of India's emissions; a share that can rise as [40%](#) of India's 2050 building stock is yet to be built. Reducing energy demand from buildings will need a combination of new construction approaches and sustainable materials.

Prefabricated modular buildings are emerging as a low-emission construction model, with significant potential. This solution may have only started seeing equity investments in 2024 — receiving **USD 27 million** — but it has companies with over **USD 100 million** in annual revenue already, signalling a mature sector with opportunities for investors.

Sustainable materials can tackle [35%](#) of a building's life cycle footprint—but progress depends on decarbonising steel and cement: sectors still in early stages of transition.

Data Centers

India's data centre capacity is expected to grow [10-fold](#) by 2030. The 24×7 power demand and cooling loads are expected to see data centres account for [3%](#) of the India's electricity consumption, up from less than [1%](#) today).

However, this growth opportunity can be met through efficient, low-carbon data centres, which have the potential to reduce energy consumption by up to [45%](#), offering significant opex cost and power load benefits. These adopt solutions from liquid and air cooling, to precision thermal systems and modular data centre units.

While most of this new capacity will leverage global technologies, domestic innovators are emerging. The segment raised **USD 18 million** between January 2024 and June 2025, signalling early momentum for locally-built solutions.

Agriculture

Around **70%** of India's agricultural emissions are attributed to methane emissions from crop production and livestock rearing. The remaining comes from energy use, which are addressed by increased electrification and renewables.

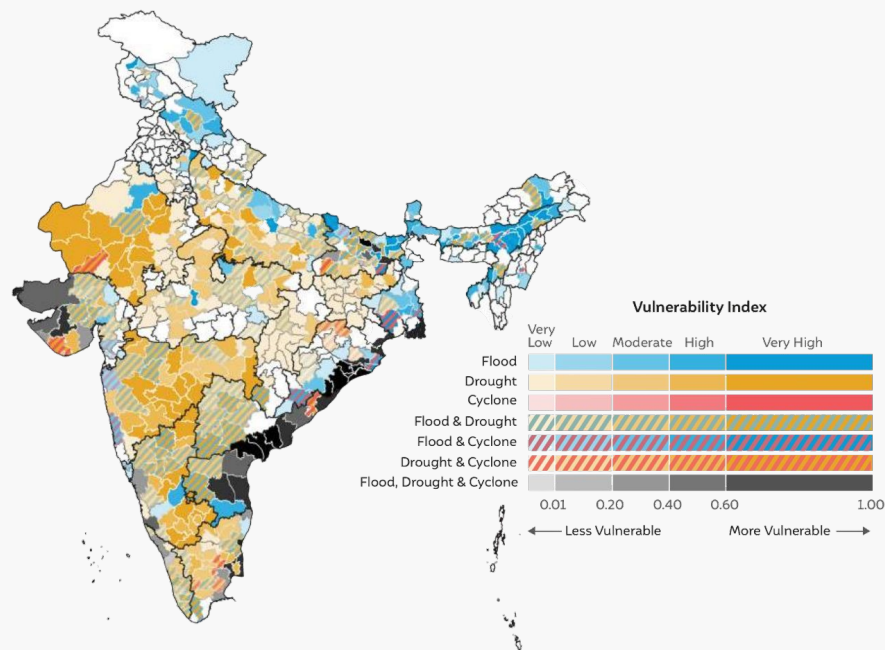
Tackling methane emissions will require on-farm interventions across inputs, farming practices and food production.

Investing in on-farm solutions is on the rise. In 2024, on-farm solutions with mitigation levers (farming systems, post-harvest loss reduction) raised **USD 148 million**, up from **USD 41 million** in 2020.

Even as decarbonising agriculture is at its early stages, these mitigation-enabling solutions are becoming an opportunity with some of the challenges of scaling farming interventions in a fragmented market starting to get addressed.

Adaptation investments will become critical

Figure 16: Map of vulnerable districts in India and acute extreme weather events they face (Source: CEEW)



Adaptation is more urgent than ever

India faced [322](#) days of extreme weather events in 2024. 2025 is worse: [97%](#) of the days between January-August 2025 experienced heavy rains, floods or landslides. [84%](#) of Indian districts are now extreme heatwave hotspots.

These trends underpin the need for adaptation investments to scale significantly as climate change impacts lives, food production, power generation and pretty much every economic asset .

But every year, the financing gap for climate adaptation grows, with latest estimates for developing countries at between [USD 215 and USD 387 billion](#) by 2030.

Public finance and development capital remain the main sources of funding and those are much needed for areas like disaster management. But private capital has a critical role to play in solving for adaptation.

Investors should move from misperceptions to data

Private capital continues to believe the myth that adaptation does not have potential for cash flows or returns. Data says otherwise.

In 2024 alone, equity investments in adaptation amounted to **USD 773 million**, almost equalling the total of all investment over the last 10 years till 2023 - which we have tracked at **USD 899 million**.

The bulk of these new investments are in sustainable food systems, where proven revenue models exist. Customer demand is also increasing for cooling solutions and safe drinking water.

Corporations and governments are also starting to invest in solutions that make physical assets (buildings, energy storage, power grids) more resilient. This creates a potential for adaptation investments that can profitably address significant opportunities in the sector – rewarding those who finance them.

Top adaptation areas: Progress and pathways

Food Systems

Investing in agriculture is now about building resilient food systems that boost yield and quality amid rising climate pressures. It is India's most high-opportunity adaptation sector.

On-farm adaptation has surged to dominate agri-funding — from less than **1%** in 2020, to **61%** of the sector's equity in 2024, as capital shifts beyond supply chains.

Sustainable farming systems which insulate or reduce external climate impact has been the main driver, drawing **USD 379 million** in the 18 months from January 2024, which is **74%** of sectoral funding.

On-farm adaptation investments will need to expand to seeds, climate-resilient crop varieties and post-harvest processing, as investing in the segment will become synonymous with ensuring food security for the 1.5 billion in India.

Energy Resilience

Energy resilience - energy storage and grid upgrades - is crucial to address power outages due to climate events, in addition to the work already being done to expand renewable energy integration.

Grid interventions, long driven by public programs, gained traction in 2024 with **USD 123 million** raised via public markets; even as energy storage grabbed more headlines and capital.

India's energy storage policy has opened new markets for battery energy storage services (BESS), for lithium-ion batteries to go beyond EVs and for non-lithium players to expand to large-capacity grid storage. BESS capacity and costs will improve, but pumped hydro - with its **30%** cost benefit - is the current storage option of choice; accounting for **90%** of the current 7GW of storage and a pipeline of **86GW** to go live by 2035, versus the stated target of **47GW** for BESS.

Water

Rising consumption and erratic rainfall are intensifying India's water security challenge. Regulatory tailwinds, corporate risk pressures and the push for safe drinking water are transforming water access from a risk area into a viable private finance opportunity, though maturity varies across segments.

Wastewater treatment accounted **95%** of the **USD 160 million** raised in 2024 and seeing 5 small- to mid-cap IPOs is reflective of infrastructure plays being the traditional incumbents in the sector.

But water also offers investor opportunities in emerging areas such as water conservation and engineered drinking water, which made up over **50%** of deals from January 2024–June 2025, signalling rising investor interest in an overlooked adaptation sector, which has in the past demonstrated several exit pathways for investors.

Cooling

Rising temperatures and intensifying heatwaves are turning cooling from a luxury to a necessity. India's access gaps - from households to food and medical cold chains - are widening. Additionally, the need to cool **10 billion sq ft** of new commercial space and expand industrial and data-centre capacity is unlocking private finance opportunities.

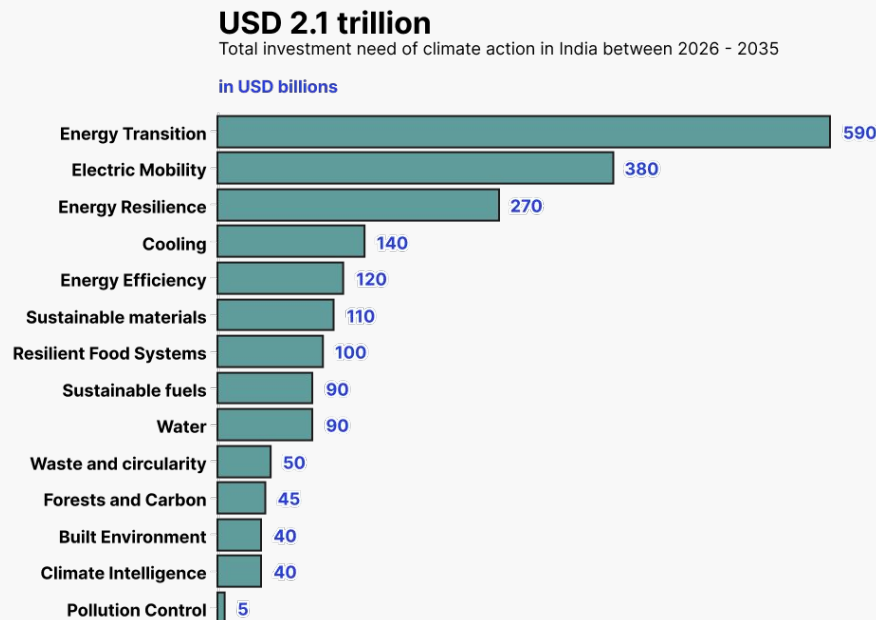
Even with traditional incumbents around, emerging players will find opportunities in cooling: from renewable-powered and high efficiency cooling (India's star label system is expected to tighten), novel materials and passive cooling offerings, to delivering differentiated service models.

The sector's **USD 50 million** in funding in 2024, including a components maker IPO, may be small today, but we've tracked over 80 active, growing, enterprises here and it marks the emergence of cooling as an investable, high-potential segment.

India's 2035 Climate Investment Roadmap

India needs USD 2 trillion in climate capital by 2035

Figure 17: Total investment need for climate action in India between 2025–2035 (Source: Climate analysis)



All mitigation and adaptation sectors need rapid scaling up

The next decade is likely our final chance to make a difference with mitigation investments. The [Climate Clock](#) now estimates the point of no return is less than **4 years** away: if we are still talking about how to deal with hard-to-abate sectors in 2035, it is not going to help all that much.

Mitigation investments are not the only need of the hour. Even if we are successful in getting to net zero before hitting the crucial **2 degrees** of warming (as unlikely as it seems), extreme climate events will continue to accelerate over the next few years, making building adaptation and resilience solutions more imperative than ever.

We estimate that India's climate action investment need will amount to over USD 2 trillion from 2025 to 2035, nearly USD 190 billion a year.

This includes all the investments needed to transition solutions and their supply chains to sustainable and resilient options – for example, the investment need for solar generation includes the additional capex on solar plants, and investments in manufacturing capacities for solar panels, solar cells, and other components.

This number only includes investments driven by climate priorities. It does not include **'business-as-usual'** investments, such as increased air conditioner manufacturing or additional transmission lines as energy load increases which will occur regardless of climate considerations. Climate resilient investments in water infrastructure are included, but not routine upgrades and expansions of water and wastewater infrastructure.

India's climate investment target is less daunting than it looks

Investment Need ≠ Investment Gap

An investment goal of **USD 2 trillion** over the next decade would need a significant increase in capital deployment from today's levels. However, the reality is less daunting than it appears.

At some point of maturity and scale, markets take over a sector's financing needs. We've seen this with solar and wind companies that today largely raise only commercial capital - it is just another allocation from the trillions of dollars that asset managers deploy every year.

The real gap is where either technology or markets in a sector are not mature; either specialised financial instruments or a deep sectoral knowledge is needed for investors to make the capital allocation decision. We mapped this stage of maturity and the consequent investment gap for all **14** mitigation and adaptation sectors we track. The results are encouraging.

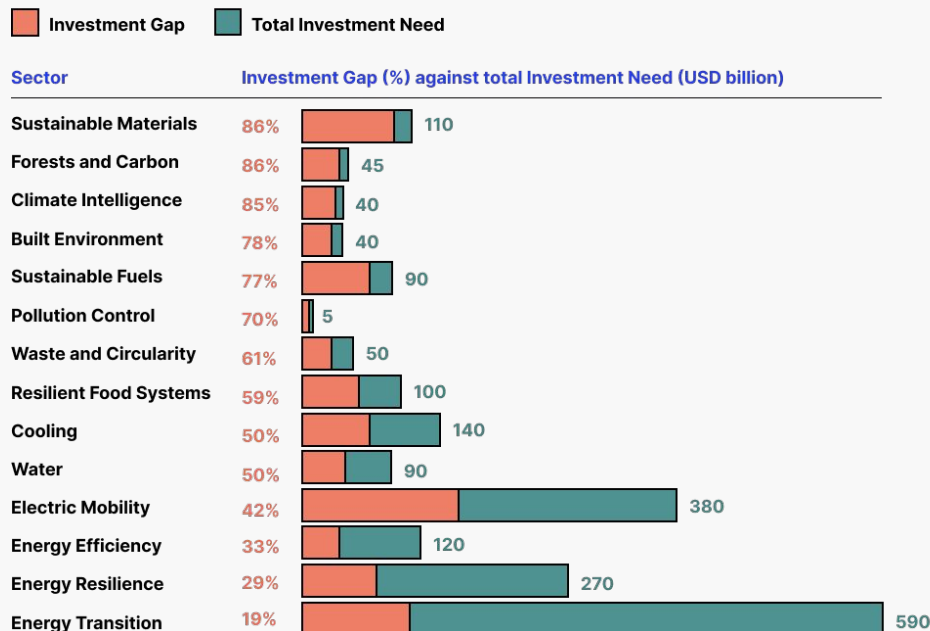
India's total investment gap for climate over 2025-2035 is **USD 864 billion**.

Investment needs are not linear so if we start with the **USD 31 billion** that was invested in climate action in 2024, a **15%** annual growth rate will get us this investment capital. It is still a pretty large ask, so we are not saying it will be easy. New investors and structures will need to emerge to fill this **USD 864 billion** gap.

Figure 18: Investment Gap for climate mitigation and adaptation sectors from 2025–2035 (Source: Climake analysis)

USD 864 billion

Total investment gap for climate action in India between 2026 - 2035



New structures need to evolve to address India's climate investment gap

R&D funding needs significant scale up

Nearly **35%** of the investment gap - **USD 300 billion** - is for technologies that are nascent and have not reached commercialisation yet.

Government grants, at [less than USD 2 billion](#) in 2024-25, are inadequate to fund the R&D needs of these sectors. New initiatives, like [RDI scheme](#), will help but India will need to significantly augment its innovation spend for green steel, cement, new materials and fuels to scale.

This will need a combination of: **(a)** [family offices](#) and [foundations](#) stepping in to provide long term capital to catalyse innovation; **(b)** a greater collaboration between academia, startups and corporations to pilot new technologies; and **(c)** a robust network of early funders, incubators and VCs alike, to provide risk capital. The likes of [Breakthrough](#) have shown us R&D can be VC funded; we just need a lot more of it.

FOAK (First Of A Kind) funding will need new fund structures

Commercial plants are not just larger pilots. Take chemical recycling: you can build your first pilot with a **USD 500,000** investment but scaling it to a meaningful size to sell drop-in fuels to commercial-scale customers will need an investment of **USD 10+ million** - beyond the risk levels of a regular VC or a lender.

First-of-a-kind plants need more than risk taking capabilities in a funder. Startups need to bring proof that their technology can work at scale, and that markets and customers exist for when the production starts — most investors will need some form of offtake guarantees.

Even with all of this in place, FOAK funding is hard to get. But climate tech won't scale without an ecosystem to support FOAK plants: these could be VCs specifically built to take risk on several FOAKs to diversify risk, or low-rate, long duration structured finance vehicles.

VC Funds (and their LPs) need to evolve

We identified **503** angels, VCs, PEs, and climate funds that invested in climate in the past 5 years. We estimate that this translates into a dry powder of USD 50 billion (assuming each fund has an average of **USD 100 million** left to invest). That's not enough.

We estimate that **30%** of India's **USD 864 billion** climate investment gap would be funded by equity; **that would require 5x more venture capital than exists today.**

While some of this gap will be met by new funds of existing fund managers, we need new fund managers. Already, the likes of [Synapses](#), [Green Artha](#), [7th Gen Ventures](#), are building out climate funds. The challenge is Limited Partners: most are not looking to back new managers. We believe solving climate change needs many things that have not been done before. Supporting new managers could be one of the most impactful actions.

Debt markets need rapid growth strategy

A final note on debt: as companies and technologies mature, debt becomes the ideal instrument for funding capacity expansion and working capital.

A myriad of debt providers exist to meet this demand, and recent developments enable this further: **(a)** proposed changes to [ECB norms](#) for easier foreign debt; **(b)** acceptance of [surety bonds](#) as guarantees providing options beyond banks; and **(c)** green bonds markets keen to look at new [sectors](#) and [structures](#).

However, debt for climate often takes a long time to raise. Lenders, both global and in India, often sit on significant deployable capital while diligence processes take **6+ months**. Both lenders and climate tech founders need skills and knowledge to evaluate debt structures for growth capital. A more transparent, streamlined approach to credit could potentially unlock debt faster.

Endnotes

"Survival is insufficient."

— *Emily St. John Mandel, Station Eleven*

Climate action is becoming the focus for an increasing number of private sector investors, as well as for public markets. While the increased attention and finance flow is heartening, it's clear that current capital levels are not enough to meet the Paris Agreement goals of keeping global warming to less than two degrees compared to pre-industrial levels.

We need to keep investing in mitigation interventions to keep the two-degree target alive. But climate change is not waiting for us to play catch up. The longer we go on, the more we see the impact of a warmer planet and extreme weather events. Mitigation is no longer enough. Investments in adaptation and resilience need to step up significantly from current levels to combat the effect of heat waves, erratic rainfall patterns and sea level rises. Every year from here on will be the warmest on record and every year from now on will have the worst hurricanes, floods and landslides.

Investments in cooling, asset protection and resilient food systems are no longer optional, they are a necessity. They are also no longer the purview only of governments. Private sector investment opportunities are emerging aplenty from this adversity, and we hope the readers of this report - entrepreneurs and investors alike - will cast their sights beyond established mitigation areas to invest time and resources tackling the challenges of making our planet more resilient through new and emerging approaches.

This is what Climake works towards. Do reach out if we can help you deep dive into any part of this report. We are at hello@climake.co

About the authors



Simmi Sareen

Co-founder, Climake

simmi@climake.co



Shravan Shankar

Co-founder, Climake

shravan@climake.co



Simmi and Shravan started Climake in 2020 to catalyse climate finance in areas where it's most needed. Today, Climake is a leading advisory firm for the global south, advising funds, DFIs and LPs around the world on maximising the climate impact and returns from the capital they deploy.

Climake also helps founders working on new and emerging areas of climate action connect with the right capital providers.

We are currently present across UAE, Europe and India, and we are always happy to talk about new ways to solve for and fund climate action. Reach out to us at:

simmi@climake.co

shravan@climake.co



CLIMAKE

Dubai, Mumbai, Chennai

climake.co | hello@climake.co