CLIMATE 2021 DATA INSIGHT

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There is a growing focus on climate-related investment in GPC markets, but activity to date is dwarfed by the scale of future opportunity

Extreme weather events, the COVID-19 pandemic and shifts in policy and consumer preferences have redoubled the interest of long-term investors in addressing the global climate crisis. Over the past eighteen months, the world's leading private capital investors have announced commitments to accelerate the global transition to net-zero greenhouse gas (GHG) emission economies through dedicated funds and platforms. Even before the most recent surge in climate positioning, decade-long investment horizons have prompted fund and institutional investors to anticipate global environmental risks and prepare portfolio companies for the future. Climate and sustainability have also become key drivers of the unprecedented rate of technological and business model innovation globally.

And yet, the scale of climate-focused strategies to date is dwarfed by the magnitude of future opportunity as the world confronts an energy transition costing trillions. Only USD59b has been invested in climate-focused businesses in GPC markets since 2008, just over 5% of total private capital deal value. Although annual totals have accelerated since the December 2015 Paris Climate Accords, the proportion of total investment going into climate deals has remained stagnant, and climate-dedicated fundraising has represented just over 3% of total fundraising since 2016. With hundreds of billions in dry powder, private capital investors are poised to fund the transition to net-zero by backing innovative climate technologies, making portfolio companies more sustainable and financing heavily regulated sectors in need of transformation. Economies in Asia, Africa, Latin America, Central & Eastern Europe and the Middle East represent an outsized opportunity for climate-focused investors due to growing unmet energy demand, structural inefficiencies and the pace of technological disruption.

ESG FIRST
Climate-focused investment strategies must begin with strong ESG standards that evaluate investment impact for all stakeholders. The unintended consequences of large-scale hydropower projects and the supply chain for lithium-ion batteries used in electric vehicles (EVs) must form part of the equation.

While many climate-focused investors have prioritized either backing climate adaptation solutions or investing in traditional portfolio companies and implementing changes to mitigate their GHG emissions, this report focuses on investments in businesses designed to reduce emissions. It covers companies that sell products and services that have a demonstrable climate impact — like Indian energy solutions provider Radiance Renewables — or replace resource-intensive operations with sustainable alternatives — such as solar-powered water desalination projects developed by Solar Water Solutions in Kitui County, Kenya.

ESG IN ACTION
Private capital investors update legacy processes and infrastructure in portfolio companies to increase sustainability. GPCA's **Investing for Growth Deal Book** highlights top examples of investments in which fund managers have implemented environmental and other ESG transformations to secure strong financial performance and build more resilient businesses.

GPCA has established a taxonomy to classify investment made by private capital investors in climate-dedicated businesses in the verticals described to the right.

Taxonomy of Climate-Dedicated Businesses

ENERGY TRANSITION

RENEWABLE POWER

Investments in renewable power and other enabling technologies that promote the expanded use of renewable energy

Renewable power (solar photovoltaic, wind, biomass, hydro, etc.) developers, producers/generators, equipment manufacturers and distributors

GREEN TRANSPORTATION

Investments in new and existing low- & zero-carbon transport technologies

Electric and biofuel-powered vehicles; EV charging services; EV/biofuel-powered transportation services

ENERGY EFFICIENCY TECH

Investments in solutions that improve the energy efficiency of emitting products and processes

Lower-emission electronics/equipment (i.e. LED lighting); energy monitoring and prediction software/services; manufacturers implementing low-emissions technology

AGRONOMY & FOOD SYSTEMS

SUSTAINABLE AGRICULTURE, AQUACULTURE & FORESTRY

Investments in sustainably increasing agricultural and forestry productivity while mitigating their climate impact

Farms, fisheries and forestry operations following low-emission practices; lower-emission agricultural inputs (i.e. seeds, fertilizers, irrigation)

ALTERNATIVE FOOD

Investments providing sources of human nutrition that mitigate the climate impact of conventional food/water systems

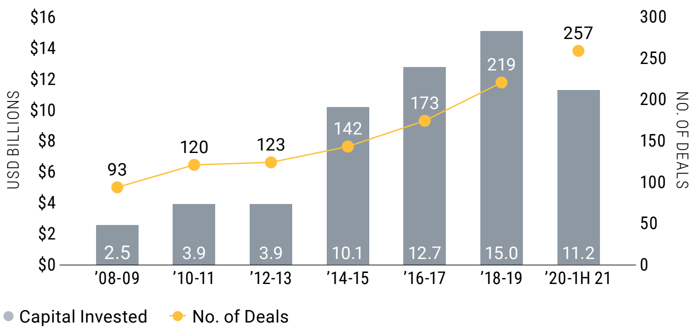
Lower-emission food alternatives, including plant-based, lab-grown and insect protein

WASTE & CIRCULAR ECONOMY

Investments that mitigate the carbon impact of waste and reduce supply chain emissions by replacing new products with less carbon-intensive alternatives

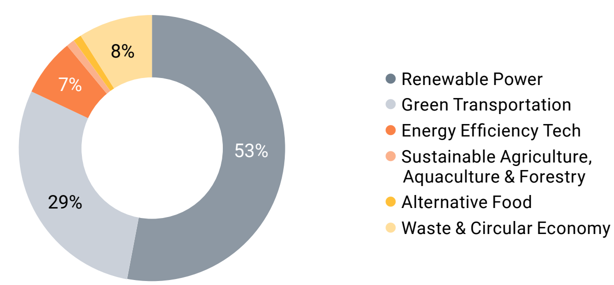
Waste upcycling and recycling services; waste-reducing products, technologies and services

Climate Investment, 2008-1H 2021

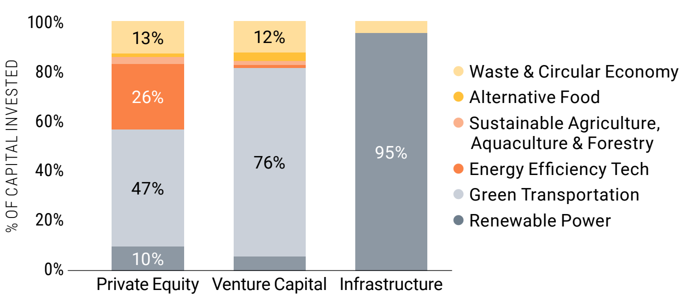


Climate Investment by Vertical, 2016-1H 2021

% OF TOTAL CAPITAL INVESTED

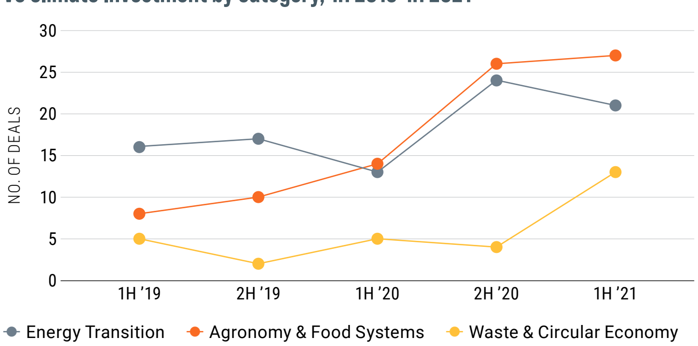


Climate Investment in Select Asset Classes by Vertical, 2016-1H 2021



Note: 'Infrastructure' includes both equity and infrastructure financing transactions.

VC Climate Investment by Category, 1H 2019-1H 2021



Deal activity reveals targeted areas of focus for investors

While the scale of climate investment activity is minuscule compared to the trillions in current and future demand, previous investment activity sheds light on areas of opportunity for investors. Notable recent trends include:

- **Renewable power** deals, led by infrastructure projects in Asia, Latin America and Africa, have driven overall climate deal value, representing over half of all capital invested in climate businesses since 2016. The most active investors in this space include Aster Capital's Schneider Electric-backed Facility for Energy Inclusion, Climate Fund Managers' USD840m blended finance vehicle Climate Investor One and solar debt funds managed by SunFunder. Renewables also accounted for the largest climate deal in 1H 2021, a USD283m investment from Ninety One, Meridiam and others into Ivorian biomass plant BIOVEA Energie.

- Large rounds for Chinese EVs have also boosted recent climate investment totals, with **green transportation** companies in China alone accounting for 27% of climate deal value in GPC markets since 2016. Notably, the USD1.5b round for WM Motor Technology from investors such as Yingke Private Equity and Baidu Capital represented the largest climate deal in 2020. Investors are finding opportunities in this vertical outside of China as well: in 2021, TPG's Rise Climate Fund and Abu Dhabi's ADQ committed USD1b to the EV unit of India's Tata Motors, and the Ecosystem Integrity Fund invested USD3.5m in electric motorcycle taxi company Ampersand Rwanda.

- Investors across asset classes have found opportunities in **waste & circular economy** deals, including a combined USD289m committed in 2021 by Tiger Global, JD.com and others in the Series E and IPO cornerstone investment in Aihuishou, a Chinese consumer electronic recycling and resale platform. Singapore-based RWDC Industries, which develops biopolymer alternatives to petroleum-based packaging, has raised USD168m across its Series A and B rounds led by Vickers Venture Partners in 2018-2020.

- Markets in Latin America and Asia have emerged as burgeoning hubs for **alternative food** startups such as Chile-based NotCo, which raised a USD235m Series D in July 2021, and Singapore-based Next Gen Foods. While this vertical is still in its infancy, representing only 1.2% of global climate investment since 2016, these food technologies have a disproportionate potential to support population growth and combat climate change.

LEARN MORE
Look out for GPCA's upcoming **Foodtech List** for more on this emerging vertical.

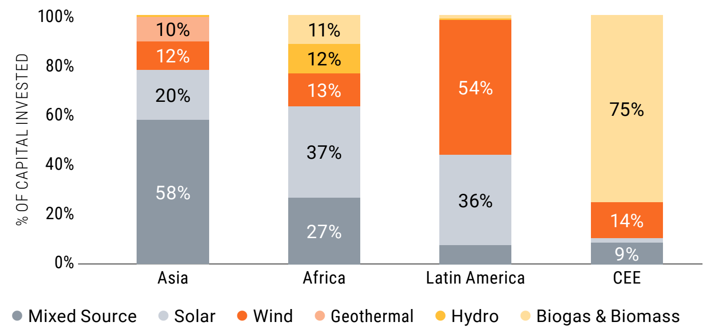
- Venture capital (VC) investors are becoming more prominent players in the climate investing space, participating in 61 deals in 1H 2021, on track to more than double the level of activity in 2019. Deals for agronomy & food systems startups in the **sustainable agriculture, aquaculture & forestry** and **alternative foods** verticals have steadily climbed over this period. In the largest deal in the segment in 1H 2021, SHUAA Partners led a USD60m Shariah-compliant venture debt and equity round for UAE-based controlled-environment produce grower Pure Harvest Farms.

Investors sticking to a 'renewables only' approach will miss the opportunity to contribute to the energy transition through natural gas

Due to the rate of population and energy demand growth, the energy transition in Asia and other GPC markets is critical to reaching global net-zero. Private capital has an outsized opportunity to create a global climate impact in these markets, most of which are still heavily dependent on coal. Investors have identified good deal flow in renewables, committing nearly USD36b to utility-scale and distributed generation renewable power projects and businesses since 2008. The availability of local energy resources and transmission infrastructure, along with the willingness of governments to pursue public-private partnerships, has shaped the renewables opportunity set in each market.

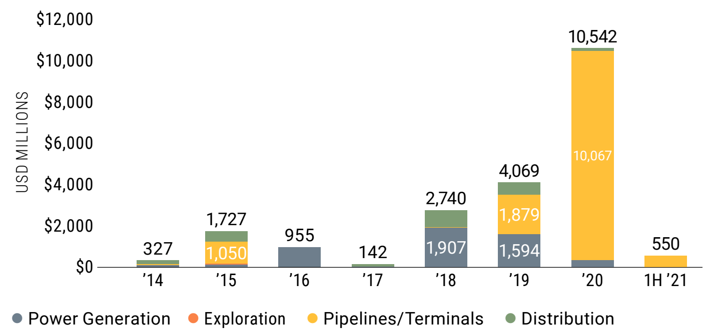
Leading climate-focused investors have recognized the shortcomings of a 'renewables only' approach, which excludes natural gas technologies and has resulted in energy supply shortfalls and unintended social and environmental conflicts. Natural gas assets act as a transitional mechanism to renewables by diverting resources intended for coal and oil and enabling the short-term abatement of carbon emissions. However, investment activity in the segment has been dominated by deals for legacy infrastructure rather than exploration or new power plant development. In 2020, a GIP- and Brookfield-led consortium acquired a 49% stake in Abu Dhabi's ADNOC Gas Pipelines for USD10b. That same year, GIP provided a USD325m senior loan to Saavi Energia, an operator of combined-cycle gas turbines, compression stations and pipelines in Mexico, that it later acquired from Actis in August 2021. To accelerate the long-term transition to net-zero, investors must deploy capital into developing new natural gas assets and expanding the generation capacity of existing plants in the near term.

Renewable Power Investment by Energy Source & Region, 2016-1H 2021

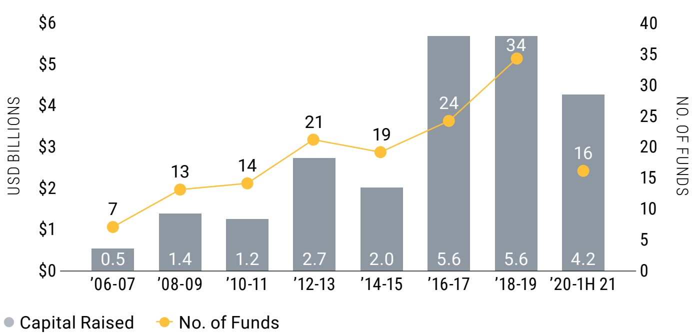


Note: Excludes natural gas and combined cycle plant deals. 'Mixed Source' includes companies with significant operations across more than one renewable energy source and several deals where power source could not be identified.

Natural Gas Investment by Segment, 2014-1H 2021

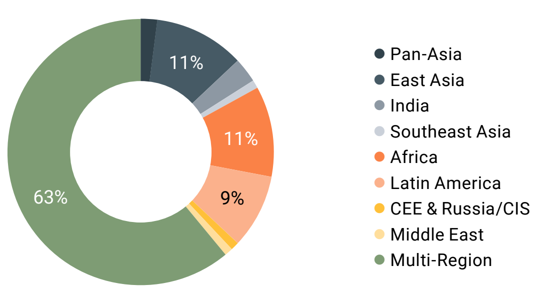


Climate-Focused Fundraising, 2006-1H 2021



Climate-Focused Fundraising by Geography, 2016-1H 2021

% OF TOTAL CAPITAL RAISED



Top-down LP demand has resulted in a rise in climate-dedicated fundraising

LP demand has driven the recent expansion of fundraising for climate-focused vehicles. Even as COVID-19 slowed global fundraising in 2020-1H 2021, GPs raised over USD4.2b for funds dedicated to climate solutions in GPC markets, and Actis Energy 5 and BlackRock Climate Finance Partnership have already closed on an additional USD2.1b in 2H. Other global GPs active in GPC markets have announced dedicated vehicles this year: General Atlantic and Nuveen launched climate platforms, and Brookfield and TPG raised a combined USD12.4b for climate funds, attracting commitments from OTPP, Temasek and Saudi Arabia's PIF, amongst others. CDPQ and other marquee institutional investors have announced climate-focused direct investment platforms, further adding to the pool of investible capital in climate solutions.

Multi-region renewable energy infrastructure funds managed by GPs such as Actis and Copenhagen Infrastructure Partners have accounted for the majority of climate fundraising since the Paris Agreement. Still, over USD1b has been raised each for Latin America and Africa — where investors leverage abundant resources to address unmet electricity demand — and East Asia, a global leader in energy transition technologies.

Despite the recent excitement around climate-dedicated vehicles, it is still uncertain how a climate-focused approach will play out in the portfolios of many of these funds. For managers diversified across asset classes, it is also unclear whether new climate funds will translate to an increased emphasis on climate in their other investment platforms. As long-term investors in companies that drive global economic growth and employment, private capital fund managers must make climate a central consideration across strategies and sectors.

Largest Climate Funds Achieving a Close, 2020-1H 2021

FUND MANAGER(S)	FUND	FUND TYPE	GEOGRAPHIC FOCUS	FUND CURRENCY	VINTAGE YEAR	CAPITAL RAISED, '20-1H 21 (USDM)	CAPITAL RAISED TO DATE (USDM)
Brookfield Asset Management	Brookfield Global Transition Fund*	Infrastructure	Global**	USD	2021	-	***7,000.0
TPG	TPG Rise Climate*	Growth	Global**	USD	2021	5,400.0	5,400.0
Actis	Actis Energy 5*	Infrastructure	Africa, Asia, Latin America	USD	2020	2,900.0	***4,700.0
China Everbright	China Everbright Limited Belt and Road ESG Fund*	Growth	Africa, Asia, CEE & CIS, Latin America, Middle East	CNY	2020	459.5	459.5
BlackRock	BlackRock Climate Finance Partnership*	Infrastructure	Asia, Latin America, Africa	USD	2021	-	***250.0
responsAbility Investments	responsAbility Access to Clean Power Fund	Direct Lending (Senior Debt)	Africa, Asia, Latin America	USD	2019	7.0	158.0
Berkeley Energy	Africa Renewable Energy Fund II*	Infrastructure	Africa	EUR	2021	157.6	157.6

*Fundraising as of 30 June 2021. **Fund is not included in GPCA's aggregate statistics since it plans to invest the majority of capital outside of GPC markets. ***Reflects capital raised in 2H 2021.

Most Active Climate Dealmakers, 2016-1H 2021

Energy Transition

INVESTOR(S)	NO. OF DEALS
Aster Capital, Climate Fund Managers, SunFunder	13
Actis, responsAbility Investments	12
Matrix Partners	10

Agronomy & Food Systems

INVESTOR(S)	NO. OF DEALS
Lever VC	10
Big Idea Ventures	9
SOSV	8

Waste & Circular Economy

INVESTOR(S)	NO. OF DEALS
Circulate Capital	7
Aavishkaar Capital	5
BlackPeak Capital, Tiger Global Management	4

Largest Climate Investments, 2020-1H 2021

INVESTOR(S)	COMPANY	COUNTRY	CLIMATE VERTICAL	INVESTMENT TYPE	TRANSACTION VALUE (USDM)	INVESTMENT DATE
Yingke Private Equity, SIG Asia Investments (SAI), SAIC Capital, Baidu Capital	WM Motor Technology	China	Green Transportation	Late-Stage	1,469.5	Sep-20
Sterlite Power, AMP Capital Investors	AMP Capital - Sterlite Power Energy Transmission Platform	India	Renewable Power	Growth	1,000.0	Dec-20
Sequoia Capital, Qatar Investment Authority (QIA), Mubadala Investment Company, Hillhouse Capital, Coatue Management, Aspex Management, Alibaba	XPENG Motors	China	Green Transportation	Late-Stage	900.0	Jul-20
KKR	ESG Group (ESG Cheongwon)	South Korea	Waste & Circular Economy	Secondary Buyout	738.2	Aug-20

Notable Climate Exits and IPOs, 2020-1H 2021

COMPANY	COUNTRY	CLIMATE VERTICAL	INVESTOR(S)	YEAR(S) OF INVESTMENT	CAPITAL (USDM)	EXIT DATE	EXIT AND RETURN DETAIL
Grupo Disal	Chile	Waste & Circular Economy	Australis Partners	2017	N/A	Jun-21	Strategic sale exit via USD184.4m acquisition by Brazil-based environmental management company Ambipar Group.
Aihuishou	China	Energy Efficiency Tech	Tiger Global Management, Tiantu Capital, Kuaishou, JD.com, Huihe Capital, GTJA Innovation Investment, Fresh Capital, Fortune Venture Capital, Cathay Capital Private Equity, 5Y Capital	2014-2021	N/A	Jun-21	IPO on NYSE raised USD227m. Investors did not dispose of any shares.
Wento	Poland	Renewable Power	Enterprise Investors	2012-2017	59.8	May-21	Strategic sale to Norwegian state-owned energy company Equinor for EUR100m (USD120m).
Peak Timbers	Eswatini	Sustainable Agriculture, Aquaculture & Forestry	Criterion Africa Partners	2012	19.5	Mar-21	Strategic sale to Shiselweni Forestry Company for ZAR574m (USD38m) at ZAR754m (USD51m) enterprise value.
Safex Chemicals	India	Sustainable Agriculture, Aquaculture & Forestry	BanyanTree Finance	2016	8.7	Mar-21	Secondary sale via USD50m investment from ChrysCapital.
Nanofilm Technologies	Singapore	Energy Efficiency Tech	UOB Venture Management, ICH Gemini, Heliconia Capital Management, EDB Investments (EDBI)	2018	37.3	Oct-20	IPO on SGX raised SGD240.1m (USD176m). Investors did not dispose of shares.
Trina Solar	China	Renewable Power	CDH Investments	N/A	N/A	Jun-20	IPO on STAR Market raised RMB2.3b (USD329m). CDH did not dispose of any of its 11.3m shares.

Methodology

GPCA's reporting covers activity by long-term, private direct investment funds that are backed by institutional investors — along with their co-investors — across the following asset classes: private equity, venture capital, private credit, infrastructure and natural resources. For more information on research methodology, please refer to the Data Methodology webpage or contact research@GPCapital.org.

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