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Building the Green Economy

Trends and Opportunities for Green
Entrepreneurship in **Kenya**

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EXECUTIVE SUMMARY



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About ANDE

The Aspen Network of Development Entrepreneurs (ANDE) is a global network of organizations that propel entrepreneurship in developing economies. ANDE members provide critical financial, educational, and business support services to small and growing businesses (SGBs) based on the conviction that SGBs create jobs, stimulate long-term economic growth, and produce environmental and social benefits.

As the leading global voice of the SGB sector, ANDE believes that SGBs are a powerful, yet underleveraged, tool in addressing social and environmental challenges. Since 2009, ANDE has grown into a trusted network of over 250 collaborative members that operate in nearly every developing economy. ANDE grows the body of knowledge, mobilizes resources, and connects the institutions that support the small business entrepreneurs who build inclusive prosperity in the developing world. ANDE is part of the Aspen Institute, a global non-profit organization committed to realizing a free, just, and equitable society.



INTRODUCTION

Climate change and environmental degradation pose a significant threat to Kenya's economy. While Kenya is responsible for less than 0.1% of global greenhouse gas (GHG) emissions annually,¹ its economy is highly vulnerable to climate change effects due to its reliance on sectors particularly sensitive to climate shocks, such as agriculture, tourism, and ecosystem services.² The U.S. Agency for International Development (USAID) estimates that climate change will lead to losses of about 2.6% of Kenya's GDP annually by 2030 due to its harm to key sectors of the economy.³ In the past fifteen years, the Government of Kenya has been setting strategies and consolidating goals across initiatives to improve its mitigation, adaptation, and resilience efforts.

The private sector will play a critical role in achieving these objectives, particularly growth-oriented entrepreneurship that can bring new ideas into practice, introduce technical innovations, and create demand for new environmentally friendly goods and services.⁴ Green entrepreneurs - those that address climate change and/or create a positive environmental value either through the process of delivering products/services (e.g., utilizing clean technologies) or by providing products or services in a green sector (e.g., waste management) according to the International Labour Organization (ILO) - tackle climate change from multiple angles. They mitigating the effects of climate change (e.g., carbon sequestration technologies), help communities adapt to its impacts (e.g., drought-resistant crop seeds), and create more resilient industries (e.g., reducing reliance on price-volatile fossil fuels and shifting toward renewable energy). Green enterprises also contribute toward biodiversity and environmental conservation by participating in forest and landscape restoration activities, restoring depleted ecosystems, conserving water, preserving soil, and more.⁵ Importantly, green enterprises can not only reduce negative environmental and health impacts through their products and services but also create sustainable employment and livelihood opportunities, particularly for marginalized groups, women, and youth.⁶

Small and growing businesses (SGBs) are the primary focus of this report. SGBs are defined by ANDE as commercially viable businesses with five to 250 employees that have significant potential and ambition for growth. Typically, SGBs seek growth capital from US \$20,000 to \$2 million. They differ from the broader category of SMEs in that they have ambition for growth yet often lack access to the financial and knowledge resources required to scale.

This report establishes a baseline understanding of the state of green entrepreneurship in Kenya by assessing existing business models, the available financial and technical support for entrepreneurs, and key sectoral issues regarding the policy landscape and market opportunity. Four sources of information were synthesized for this research: interviews with entrepreneurs and other ecosystem stakeholders, a synthesis of existing literature, and two original datasets (i.e., a web-scraped sample of high-performing green SGBs and a directory of all - or nearly all - organizations supporting the green entrepreneurship ecosystem which was created using ANDE's Ecosystem Snapshot methodology.)

The purpose of the study is to inform decision-makers, such as policymakers, donors, investors, and business development service providers, of the primary trends, opportunities, and challenges in the green entrepreneurial ecosystem in Kenya. This executive summary covers key highlights, and the full report is available [here](#).

1 [Climate Change Country Profile: Kenya](#). USAID. Accessed 9 December 2022.

2 Odhengo, P. et al. 2021. [The Landscape of Climate Finance in Kenya](#). Republic of Kenya: The National Treasury and Planning.

3 [Climate Risk Profile: Kenya](#). U.S. Agency for International Development. Accessed 20 November 2022.

4 Rafi, T. 2021. "How Entrepreneurs Could Shape The Climate Change Battle" Forbes.

5 Ibid.

6 [Greening Economies, Enterprises, and Jobs: The role of employers' organizations in the promotion of environmentally sustainable economies and enterprises](#). 2016. International Training Centre of the International Labour Organization.



THE GREEN ENTREPRENEURIAL ECOSYSTEM IN KENYA

Green entrepreneurial activity in Kenya can be categorized into five sector groups: low-carbon energy, land and ocean management, transportation, water and waste management, and the built environment. Within each group, there are distinct sectors (listed in Table 1), which contain numerous business models and address different portions of the market.

Table 1: Green sector groups and sectors*

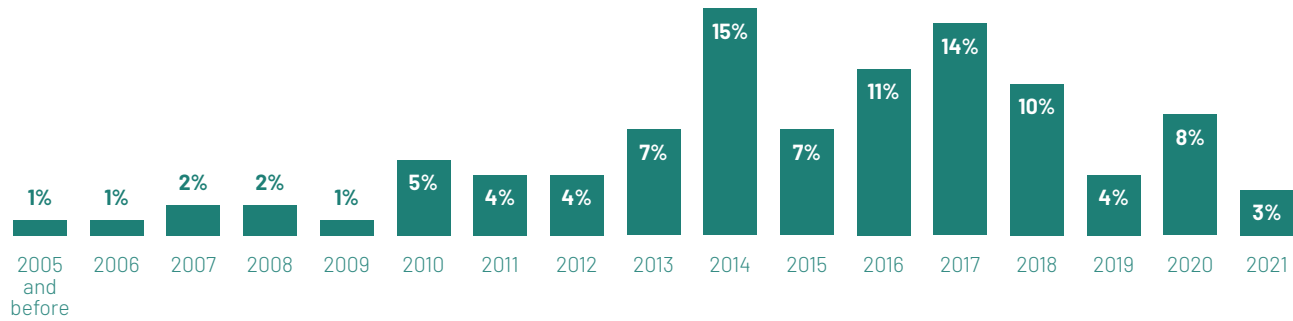
LOW-CARBON ENERGY	LAND AND OCEAN MANAGEMENT	TRANSPORTATION	WATER AND WASTE MANAGEMENT	BUILT ENVIRONMENT
Energy Efficiency and Storage	Sustainable Agriculture and Aquaculture (e.g., crop diversification, micro-irrigation)	Sustainable Transportation (e.g., electric vehicles, charging infrastructure)	Water Management (e.g., collection, treatment, supply)	Green Buildings (e.g., retrofitting, new builds)
Renewable Energy (e.g., grid-tied renewables, off-grid renewables)	Sustainable Forestry (e.g., reforestation, carbon-sequestration, afforestation)		Waste Management and Circular Economy (e.g., solid waste, sewerage, post-use processes)	Disaster Management (e.g., developing monitoring and response systems)
Cleaner Fuels (e.g., biofuels, green hydrogen)	Eco-tourism (e.g., eco-lodging, eco-tours, agro-tourism)			

***Note:** Industries and business segments without notable SGB activities in Kenya (e.g., rail, aviation, pipeline, biogas-powered vehicles) are also excluded from the scope.

Green entrepreneurship in Kenya has grown in the last decade. Based on a sample of 100 green enterprises in the SGB range, identified through publicly available sources such as Crunchbase and portfolios of investors and accelerator programs, most were founded in the past decade, with only about a quarter having been started before 2014 (Figure 1).



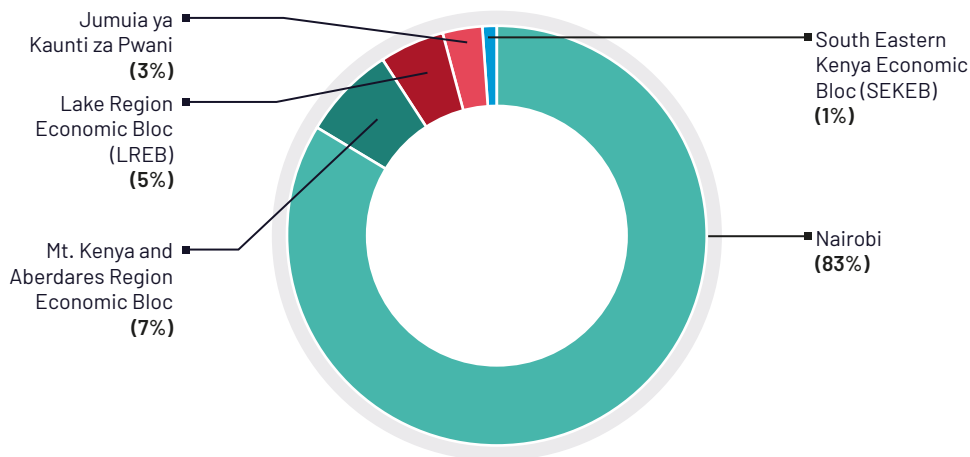
Figure 1: Founding year of sample green SGBs



Source: Entrepreneur data (N=100)

Over 80% of the green SGBs identified for this study are headquartered in Nairobi (Figure 2), which is not surprising given Nairobi’s status as an economic hub not just in Kenya but across Africa. It is important to note that this reflects prominent green SGBs and not all green business activity in Kenya. Rather, this shows that green SGBs with the most traction are typically located in the capital, where there are sufficient business services and adequate connections to investors, partners, and advisors.

Figure 2: Sample green SGBs by headquarters



Source: Entrepreneur data (N=94)

Using ANDE’s Entrepreneurial Ecosystem Snapshot methodology, 176 organizations were identified that offer programs, initiatives, research, or investment targeted to green entrepreneurship in Kenya (referred to as “intermediary data” in the report).⁷ Nearly all provide some sort of non-financial support to either entrepreneurs or other intermediaries, and roughly 50% offer some financial assistance. Most organizations support entrepreneurs in two or more green sectors. **Intermediaries’ support for sustainable agriculture and aquaculture is most common, while ecotourism and disaster management are least common.**

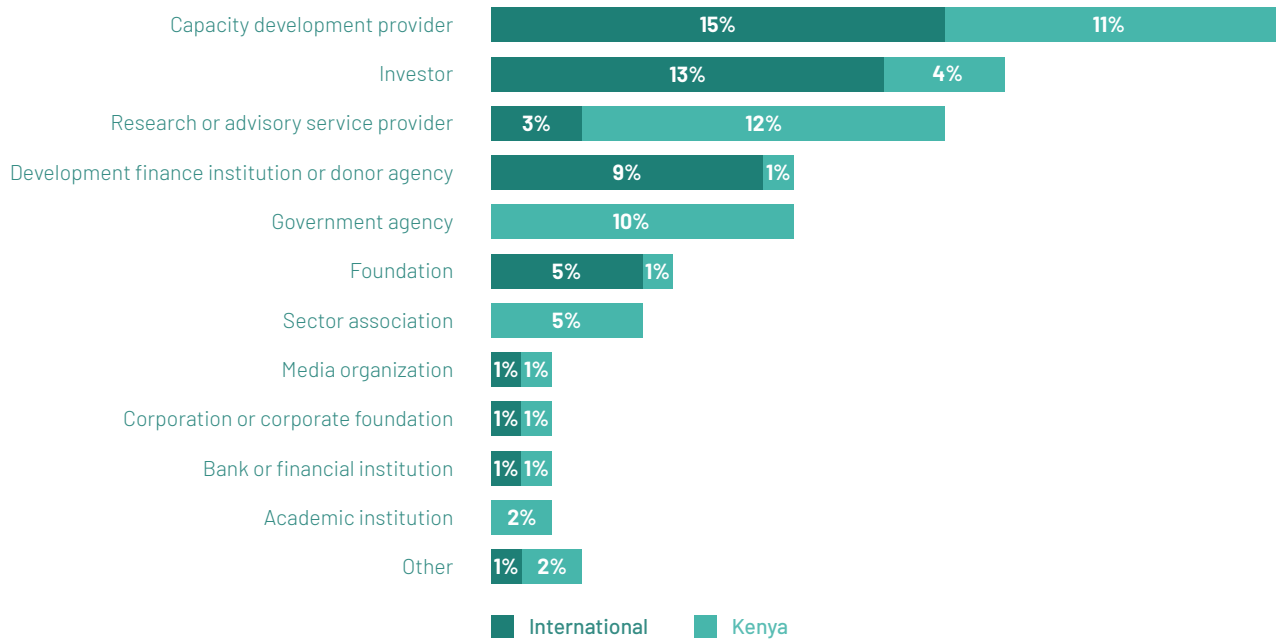
Capacity development providers and investors are the most common types of organizations supporting green entrepreneurs in Kenya. **The green entrepreneurial ecosystem in Kenya is heavily influenced by international players,** with about half of the organizations being headquartered outside of Kenya, most commonly in Europe or

7 Kyalo, D. et al. 2023. *Entrepreneurial Ecosystem Snapshot: Green Entrepreneurship in Kenya*. Aspen Network of Development Entrepreneurs.



the United States. Over 90% of Kenyan-based support organizations are headquartered in Nairobi, and most are fairly young, with about two-thirds of the organizations having started focusing on the green economy in the last ten years. Notably, the majority of organizations offering direct technical and financial support are headquartered internationally (Figure 3), including 70% of financial support providers.

Figure 3: Support organization type by headquarters location



Source: Intermediary data (N=165)



ECOSYSTEM CHALLENGES AND OPPORTUNITIES

- **Limited access to finance.** Nearly 90% of surveyed support organizations reported that limited access to finance is the primary challenge facing green entrepreneurs in Kenya. This is driven by a number of factors, including low investor confidence in and familiarity with green business models, predominantly international funding sources, limited climate financing directed to adaptation and resilience efforts,⁸ and a limited number of investment-ready business models due to underdeveloped financial and accounting practices among SGBs. Ecosystem actors should work together to improve investment readiness and develop case studies to help investors navigate a fairly new business environment.
- **Insufficient SME-specific policy support.** Stakeholders pointed to the need for further government intervention to increase the competitiveness of green SGBs through tax exemptions, subsidies, reduction of licensing fees, simpler registration processes, and more clarity on how the government will leverage the private sector to meet its goals at the national and local levels. Support organizations, such as network organizations and conveners, can play a key role in expressing those specific needs, in a concerted way, to policymakers.
- **Lack of collaboration around best practices.** An increase in the number of green accelerators was listed by surveyed support organizations as the second greatest improvement in the ecosystem in the past three years. However, interviewed stakeholders feel there is a lack of clarity on best practices, with some sharing concerns about a high rate of duplication of business ideas and limited new solutions, as well as a lack of tools to assess impact and identify high potential enterprises.
- **Lack of dedicated support for women and locally led green enterprises.** The data and interviews compiled for this report show that most investment and services are made available to SGBs led by men, with preference shown for those with ties to expatriates, based in Nairobi.
- **Talent recruitment and retention.** The specialized local workforce prepared to operate green technologies is scarce, which therefore puts pressure on jobs in green sectors, such as renewable energy technicians, machinery operators, and battery maintenance staff. SGBs often depend on costly and insufficiency support from consultants and related expertise from abroad. Capacity development providers can support SGBs in talent recruitment and retention, though currently less than one third offer this service.
- **Limited local awareness of the importance of sustainable practices.** Limited consumer demand for green products and services curtails market expansion opportunities for green enterprises. However, support organizations noted an increased awareness of the need to transition to a green economy as a key area of improvement in recent years, likely reflecting the many policy shifts within the Kenyan government. There is an opportunity to build on this positive momentum through awareness campaigns, particularly by the government, which can play a role in sensitizing consumers and increasing the uptake of environmentally friendly products.

8 In 2018, climate mitigation accounted for approximately 80% (approx. Ksh. 194 billion or US \$1.6 billion) of total climate financing in Kenya. Source: Odhengo, P. et al. 2021. [The Landscape of Climate Finance in Kenya](#). Climate Policy Initiative.



KEY INSIGHTS BY SECTOR

Table 3 compares the market opportunity and levels of funding, policy, and accelerator/incubator support for each green sector in Kenya. This information is specific to ventures operating within the SGB segment, meaning they are typically formalized, already have at least five employees, and are seeking growth capital. A brief description of the methodology used to determine the level of support for each sector is given below, with more detail available in the full report.

- Market opportunity:** Calculated using either an identified government set target or relevant SDG indicator to be achieved by 2030. The market opportunity covers the gap between 2022 (i.e., baseline) and 2030 (i.e., endline) and provides a cumulative figure for the period assuming a constant growth rate to reach 2030 targets.
- Funding support:** Based on the availability of funding for each key area of business activity identified within each sector. The authors searched for four types of key financiers: development finance institutions (DFIs), foundations, commercial banks, and private investors such as venture capitalists or impact investors.
- Policy support:** Based on the extent to which the government's strategies and policies aimed to promote the private sector, entrepreneurial, and SGB activities.
- Accelerator/incubator support:** Measures the number of identified accelerators and incubators targeting each green sector in Kenya. This information was pulled from the intermediary data collected for this report through ANDE's Entrepreneurial Ecosystem Snapshot methodology.

The market opportunity and levels of support were categorized as high, medium, or low for each sector *relative* to the other sectors.

Table 2: Definitions of categories used in the analysis

MARKET OPPORTUNITY	FUNDING SUPPORT	POLICY SUPPORT	ACCELERATOR/ INCUBATOR SUPPORT
SMALL (< US \$1 billion)	LOW (Financiers provide support to none of the key areas of business activity)	LOW (Policy/strategies promote entrepreneurial activity in none of the key areas of business activity)	LOW (< 10 accelerators/incubators work in sector)
MEDIUM (US \$1 – 15 billion)	MEDIUM (Financiers provide support to some key areas of business activity)	MEDIUM (Policy/strategies promote entrepreneurial activity in some key areas of business activity)	MEDIUM (11–19 accelerators/incubators work in sector)
LARGE (> US \$15 billion)	HIGH (Financiers provide support to all key areas of business activity)	HIGH (Policy/strategies promote entrepreneurial activity in all key areas of business activity)	HIGH (20+ accelerators/incubators work in sector)


Table 3: Overview of market opportunity and support levels by sector

SECTOR GROUP	SECTOR	MARKET OPPORTUNITY	FUNDING SUPPORT	POLICY SUPPORT	ACCELERATOR/ INCUBATOR SUPPORT
Low-Carbon Energy	Energy Efficiency & Storage	MEDIUM	MEDIUM	MEDIUM	HIGH
	Renewable Energy	SMALL	HIGH	HIGH	MEDIUM
	Cleaner Fuels	MEDIUM	MEDIUM	HIGH	MEDIUM
Land and Ocean Management	Sustainable Agriculture & Aquaculture	LARGE	HIGH	HIGH	HIGH
	Sustainable Forestry	MEDIUM	MEDIUM	MEDIUM	MEDIUM
	Ecotourism	N/A	LOW	LOW	LOW
Transportation	Sustainable Transportation	SMALL	LOW	MEDIUM	MEDIUM
Water and Waste Management	Water Management	LARGE	MEDIUM	MEDIUM	MEDIUM
	Waste Management & Circular Economy	LARGE	MEDIUM	MEDIUM	MEDIUM
Built Environment	Green Buildings	MEDIUM	MEDIUM	MEDIUM	LOW
	Disaster Management	N/A	LOW	LOW	LOW

Note: Market opportunity is not estimated for ecotourism and disaster management due to lack of SGB activity.

Several conclusions can be drawn from compiling these various data sources in combination with interviews with stakeholders and insights drawn from existing literature. These are explored in depth in the full report, and highlights by sector group are shared below:

► LOW-CARBON ENERGY

Sectors under the low-carbon energy sector group – energy efficiency and storage, renewable energy, and cleaner fuel – receive a decent amount of support within Kenya’s green entrepreneurial ecosystem. **Renewable energy** has gained traction within Kenya as a promising sector for SGB activity. The adoption of renewable energy is critical for the achievement of Kenya’s NDC target of a 100% transition to clean energy by 2030, and annual growth in demand for electricity is estimated at 6.7%.⁹ Solar energy is one of the lowest cost and most effective renewable energy solutions in Kenya and has thus witnessed the emergence of several high-growth enterprises and SGBs, particularly those providing off-grid solar solutions such as solar home systems (SHS), solar mini-grid, and solar lanterns. Kenya is the market leader in SHS sales in Africa. For instance, [Powergen Renewable Energy Ltd](#), which installs solar microgrids and commercial and industrial solar, has raised US \$20.5 million in Series B funding. SGB activities in the solar energy segment are bolstered by supportive policies, including direct subsidies and investment interests from private

9 USAID. 2019. [Off-Grid Solar Market Assessment: Kenya. Power Africa Off-grid Project.](#)



investors. However, high importation costs for solar home systems components and lengthy procedures for obtaining tax exemptions could be improved with government intervention.

Energy efficiency and storage receive mixed levels of support. Kenya has championed energy efficiency in the public and private sectors since the early 2000s, and the sector draws support from DFIs, foundations, commercial banks, and private investors. In contrast, the energy storage market is still in its nascent stage, and existing energy storage policies do not present a blueprint for the private sector's engagement. The cleaner fuels sector has a high level of policy support, but that has not translated into the required increases in support from funders and capacity development providers. Kenya is highly dependent on petroleum fuels to meet its domestic consumption needs in the transport, residential, manufacturing, and commercial sectors.¹⁰ Biofuels such as biogas, biodiesel, bioethanol, briquettes, and pellets are produced locally. Biogas is the most promising business segment ahead of bioethanol and biodiesel as the government presents a clearer target for biogas production. This sector needs a boost from both policy and the funding landscape focusing on bioethanol and biodiesel.

► LAND AND OCEAN MANAGEMENT

Widely varying levels of support are given to the sectors in the land and ocean management sector group.

Sustainable agriculture and aquaculture stands out as a sector with significant traction and opportunities for SGB activity in the Kenyan market. This is not surprising, given agriculture's role as the backbone of Kenya's economy, having contributed up to 22% of the country's GDP in 2021.¹¹ The government has formulated various policies aimed at promoting sustainable agriculture. A significant number of investors have also taken an interest in the sector, such as Kenya Climate Ventures (KCV), which directs roughly 65% of its portfolio into sustainable agriculture. An entrepreneurial venture in the sector that have achieved scale is [Apollo Agriculture](#), which uses satellite data to assess crop health and offers mobile technology for credit assessments and raised US \$40 million Series B funding in 2022. Examples of green ventures in the SGB range are [BIOSORRA](#), which provides affordable sustainable fertilizers, and [Grey Edge Monitoring](#), which uses soil sensors and drone technology to consult farmers on ways to improve yields and reduce crop waste. However, the sector still faces challenges regarding the lack of scalable business models, which can be addressed by both open-minded funders and increased investment readiness among capacity development providers.

SGB activity in the **sustainable forestry** sector remains low. Government support is limited outside the honey industry and bamboo planting. A high proportion of the funding available for the sector stems from DFIs. The current state of the sustainable forestry sector calls for the government to expand the scope of its support to different types of trees and various types of funders (i.e., private investors and commercial banks) to provide financial support for existing businesses in the sector.

Although tourism is a pillar of the Kenyan economy and many eco-rated facilities exist, most businesses in the **ecotourism** sector tend to be smaller than SGBs. Financiers and capacity development providers need to assist small ecotourism businesses to achieve financial sustainability in the long term and contribute to the local economy. The lack of clear government targets, policies, or incentives also makes the sector less appealing to potential investors than other sectors.

10 EPRA. 2019. [Energy and Petroleum Statistics Report 2019](#).

11 [Kenya National Bureau of Statistics. Economic Survey 2022](#). Accessed 11 February 2023.



► TRANSPORTATION

The **sustainable transportation** sector is an interesting case where the estimated market opportunity for SGBs (i.e., US \$897.86 million) is not large compared to other sectors but there are a high number of SGBs. However, the relatively small market opportunity for SGBs in the sector might be attributable to the relatively conservative national target for electric vehicle (EV) sales and the fact that the primary private transportation in Kenya is motorcycles which tend to be less expensive than cars. However, as the primary private transportation mode shifts from two-wheelers to three- or four-wheelers, the market opportunity for SGBs can grow. Besides that, the sector needs massive support from the government and financiers as developing EV markets requires a massive infrastructure improvement and capital that will allow the change. While 75% of the Kenyan population has access to electricity as of 2021, the reliability of the electricity supply still needs to be enhanced. Installing EV charging stations and building a network of them also requires large-scale upfront capital.

► WATER AND WASTE MANAGEMENT

Both the water management and waste management sectors require high levels of support as their market opportunities for SGBs are estimated to be high, but the stakeholders only lend medium to low levels of funding and policy support. **Water management** is essential for Kenya's transition to a green economy, particularly from a climate resilience perspective. Kenya is considered a water-scarce country,¹² and 38% of Kenyans have inadequate access to clean and safe water.¹³ This problem is exacerbated by the impacts of destructive actions such as deforestation. To address the challenge of water scarcity, Kenya aims to increase annual per capita water availability to 1,000 cubic meters¹⁴ which requires additional business activity of \$22.3 billion between 2022 and 2030 to unlock the market potential.

Waste management and the circular economy is a growing sector in Kenya's green entrepreneurial ecosystem. The sector has a very large market opportunity and high levels of SGB activity but receives only moderate levels of policy and funding support. The country requires US \$52.85 billion to achieve access to safely managed sanitation services for 47% of the population and \$1.02 billion for a 28% recycling rate, yet there is limited support for private sector activity. While many of the entrepreneurs therein tend to be informal micro and small enterprises that do not fit the SGB category, such as those operating in waste picking and sorting, there are a growing number of SGBs, such as [Vintz Plastics](#), that have ventured into plastics recycling and manufacturing with the goal of growing the circular economy. Current funding is highly dependent on DFIs as the sector has only attracted limited support from other financiers. The circular economy receives less support as it is still in its infancy stage, whereas waste management needs more policy support to unlock its potential.

The government can play a role in increasing entrepreneurial activity in these sectors by reducing the permit costs for water management service providers, simplifying the licenses and charges for waste management businesses, and regulating informal waste management services providers who offer services at lower costs but do not meet environmental standards. Commercial banks and private investors also need to make significantly more investments in both sectors. Some business models are more complex and require extra time to scale to a level where mainstream financiers can feel confident financing them. This calls for patient catalytic capital to showcase scalable models while demonstrating quantifiable impact and financial returns from investments in such sectors within the circular economy.

12 [National Climate Change Action Plan \(Kenya\) 2018-2022](#). 2018. Government of Kenya.

13 Kenya Markets Trust. 2021. [A Global Water Benchmarking Study for Kenya](#).

14 [National Climate Change Action Plan \(Kenya\) 2018-2022](#). 2018. Government of Kenya.



► BUILT ENVIRONMENT

Both sectors under the built environment sector group are led by the government through public-private partnerships and have medium (green buildings) and low (disaster management) market potential and support from various stakeholders. The majority of SGBs in the **green buildings** sector are concentrated in the supply of green construction materials, but the government still needs to develop a policy on the procurement of such materials. The funding landscape relies heavily on DFIs and donors as well as the government, which calls for more investment interest from philanthropic foundations, commercial banks, and private investors. SGB activities in the **disaster management** sector are largely limited to providing technology or consultancy services as pre- and post-disaster activities, such as disaster prevention, preparedness, and response, require central government control for the efficient use of information and swift action. As most SGBs in this sector work closely with the government authority, many challenges for SGBs arise from slow government-managed processes, such as cumbersome contracting procedures and delayed payments.

To learn more about green entrepreneurship in Kenya, please refer to these additional resources available from ANDE:



**Building the Green Economy:
Trends and Opportunities for Green Entrepreneurship in Kenya**

The full report includes detailed insights on green SGB activity in Kenya, descriptions of business segments and examples of SGBs for each green sector, and case studies of successful green SGBs.



**Entrepreneurial Ecosystem Snapshot:
Green Entrepreneurship in Kenya**

Using ANDE's Entrepreneurial Ecosystem Snapshot methodology, 176 organizations were identified that offer programs, initiatives, research, or investment targeted at green entrepreneurship in Kenya. This information is available as a filterable online directory at <https://www.kenya-ecosystem.tech>. For a thorough analysis of the data collected from these intermediaries, please read the corresponding **snapshot report**.



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