



Impact Report

Letter from the C.E.O.



In 2003 I was introduced to Pay-as-You-Go solar while interning for an off-grid energy distributor in South Africa. It's incredible to see how much the sector has developed in the past twenty years and the number of people who have gained access to not just lighting, but also to products that change their quality of life, like phone charging and television, as well as products that boost their incomes, like solar water pumping. For a long time, energy access and climate change were seen as separate problems, but increasingly we are seeing them converge as climate resilience becomes an immediate need.

At the front lines of climate resilience is the ability to control irrigation in the face of extreme heat and drought. We were excited to announce our investment in SunCulture, a market leader in solar water pumping and, our first in the productive use appliance space. We've also continued to invest in solar home system companies, which bring reliable electricity to areas that might be cut off from the grid whenever there is extreme weather.

In keeping with our focus on resilience and the just energy transition, we have updated our lending vehicle's name, previously Nithio FI, to further align with its mission and impact. FAIR, the Facility for Adaptation, Inclusion, and Resilience, powered by Nithio, focuses on deploying capital to scale sustainable household energy technologies.

Reflecting back on 2023, it has been a tough year. The latest models show the window is closing on a 1.5 degree pathway being possible, which means we need to be thinking seriously about global resilience. Weather events this year showed the human impact of climate change as people endured punishing heat or were forced from their homes by flood. On top of that, inflation and currency depreciation has squeezed household incomes and hurt companies' bottom lines.

The challenges this year have just reinforced Nithio's conviction that we need to continue to support companies that bring life-changing products to households across Africa. While we hope to see some easing in the macroeconomic environment in 2024, we know we have a long road ahead to ensuring a just energy transition. Yet, we remain confident that Nithio's platform is ideally suited to meet these challenges head on. We are optimistic about the year ahead and look forward to doing our part to enable the future we want to see.

Best,

A handwritten signature in blue ink that reads "Kate Steel". The signature is stylized and cursive.

Kate Steel
Co-founder & CEO

Facility for Adaptation, Inclusion, and Resilience

FAIR's Financials

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Investments

\$27.25M

Loan commitments

\$36.5M

Committed capital

FAIR's Impact

400,282

People with improved energy access

1,155,991

Metric tons of CO₂e avoided

12,103

People using products to support enterprises

16,482

People with access to clean cooking

115,595

Systems deployed

Catalyzing Inclusive Financing

The Time is Now: Building Climate Resilience

To date, 2023 has been one of the hottest years of all time, alongside unprecedented rainfall, flooding, and drought. Africa is the most affected of all regions in the world by droughts and the second most affected by floods, with at least 215 million people impacted over the last decade.¹ In addition, 49% of Africa's working-age population is employed in agriculture, the most climate-sensitive sector.²

The need to build climate resilience across the continent through continued investment is more urgent now than ever. The African Development Bank has stated, "True climate justice suggests that Africa is owed almost 10 times as much as the global climate finance that it has received in recent years.³ It is time to address the inequities in global climate flows and ensure the most vulnerable communities

receive the much-needed resources and investment to build climate resilience.

There are products that improve energy access, enable communities to withstand climate shocks, improve food and water security, and create jobs – and they operate without a grid connection and replace carbon-intensive alternatives. These include solar home systems for lighting and phone charging, appliances like fans and clean cooking technologies, and large equipment like solar water pumps or cold storage for farming and businesses. We see a critical avenue to building resilience is direct investment in companies distributing these products to allow them to scale their operations and reach more people.



Driving Impact: Nithio's Climate Vulnerability Index

Nithio's Climate Vulnerability Index (CVI) is a critical tool to inform and scale investment in a world increasingly affected by climate change by highlighting both climate risks and impact potential. This index is a geospatial measurement tool that assesses the susceptibility of communities to the compounding effects of extreme weather conditions and socioeconomic disadvantages.

Climate change exacerbates household risks, such as water and food insecurity, health issues driven by air pollution and heat, income instability, and interrupted communication. Therefore, it is important to understand where most vulnerable communities are located and how best to support them.

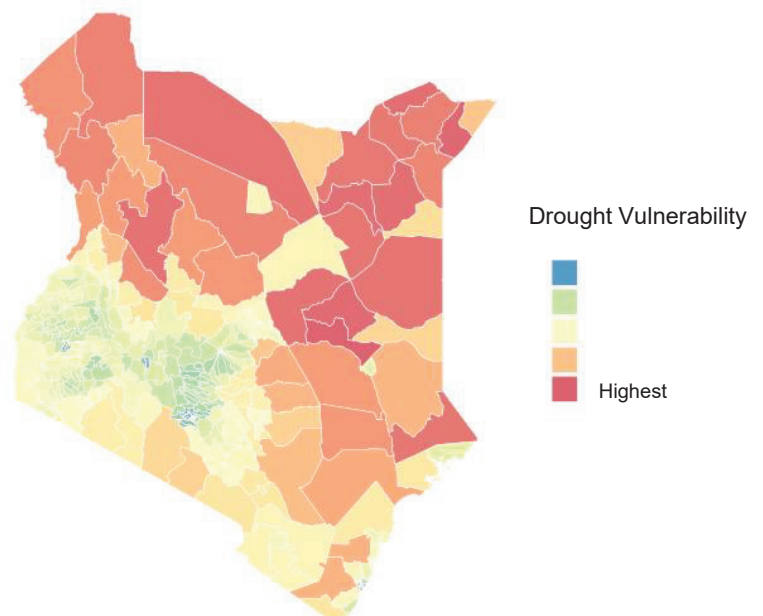
The goal of the Climate Vulnerability Index is to:

- Leverage the index to better understand Nithio's own impact.
- Help investors, grantmakers, and banks understand how their capital allocations reach climate - vulnerable communities.

Nithio's CVI considers various dimensions of vulnerability, such as the risk of drought, flooding, and extreme heat. To calculate these risks, the index uses data on projected climate scenarios predicted using the highly-respected General Circulation Models (GCMs) and Shared Socioeconomic Pathways. As poverty makes resilience to climate change even more challenging, the index also layers each climate dimension with community-level data on socioeconomic factors, such as wealth levels, access to financial services, and dependence on agricultural-related jobs. This combined view helps us identify the areas that are truly most at risk.

Zooming into Kenya, Nithio's CVI takeaways include:

- Nearly 12% (6 million people) of the population live in areas with the highest vulnerability to drought-oriented climate change. Balambala, Lafey, and Lagdera in the northern part of the country are among the most vulnerable areas.
- Currently, only 3% of households in Nithio's portfolio live in these areas.
- Populations in the most vulnerable areas do not have access to products that would help them adapt to climate change.
- We see a correlation with areas that may be considered non-commercially viable due to economic, security, and logistical challenges.
- This highlights the need for targeted catalytic funding to address these underlying challenges and incentivize companies to reach these areas and vulnerable customers.



Nithio Announces FAIR: Investing for Impact

New Name, Same Mission

As Nithio grows and expands its offerings, we have updated the name of our lending vehicle, previously Nithio FI, to provide clarity and stay true to Nithio's values and mission for our lending impact.

FAIR, the Facility for Adaptation, Inclusion, and Resilience, exemplifies Nithio's commitment to financing products that improve households' quality of life and ability to adapt to the ever-changing realities of climate change.

It also highlights our focus on ensuring no one is left behind. FAIR is a blended-finance, open-ended facility, providing investors, ranging from Development Finance institutions to family offices, impact investors, and commercial investors, access to a diversified portfolio with strong impact outcomes and financial returns.

The Facility is unique in that it is powered by Nithio's Risk Analytics Engine, which provides a standardized credit risk assessment for each company's underlying portfolio and customers,

enabling Nithio to forecast cash flows and determine repayment risk accurately. The Engine informs our due diligence, portfolio monitoring, and impact tracking.

With this clear understanding of credit risk, Nithio, via FAIR, finances not only large, international companies but also small, local distributors, where we are oftentimes the first international investment they receive. For example, Nithio has invested in Solargen which serves the Somalia-Kenya border.

Through FAIR, Nithio invests in consumer-focused climate solutions that provide end-users with new and improved energy access. Products such as solar home systems and solar productive use appliances, like solar water pumping, improve health, education, and safety outcomes, support users to start or scale their businesses, increase access to information, and enable adaptation to future climate shocks.

FAIR's Portfolio











FAIR's Impact

	KENYA	NIGERIA	UGANDA	TOTALS
People with improved energy access	110,680	270,419	19,183	400,282
MTF Tier 1*	38,720	186,365	17,752	242,837
MTF Tier 2**	71,960	84,054	1,431	157,445
Metric tons of CO₂e avoided	106,005	1,044,829	5,157	1,155,991
People using products to support enterprise	4,417	7,530	156	12,103
Women	1,486	3,983	48	5,517
Men	2,815	3,529	108	6,452
Unknown	116	18	0	134
People with access to clean cooking	16,482	0	0	16,482

* At least 3 W, at least 12 Wh, and lighting of 1,000 lhmr per day.

** At least 50 W, at least 200 Wh, and Electrical lighting, air circulation, television, and phone charging are possible.

	KENYA	NIGERIA	UGANDA	TOTALS
Systems deployed	31,952	79,078	4,565	115,595
Women	12,030	31,959	1,739	45,728
Men	19,251	46,618	2,801	68,670
Unknown	671	501	25	1,197

Climate Vulnerability***

% households w/ High Vulnerability - Drought	6.73%
% households w/ High Vulnerability - Extreme Heat	1.36%
% households w/ High Vulnerability - Flooding	6.73%
% households w/ High Vulnerability - Overall	7.55%

***Climate Vulnerability: % of system owner households that fall in the 80% of high vulnerability for specific climate shocks (such as drought or flood)

Portfolio Growth

Harnessing Energy Access: Financing Productive Use

In the Fall of 2022, Nithio and CLASP, supported by the Global Energy Alliance for People and Planet, launched the Productive Use Appliance Financing Facility (PUAFF) to make productive use appliances (PUAs) more affordable to consumers and companies in emerging markets.

The work is critical – access to affordable and energy-efficient PUA has been proven to increase the demand for energy while accelerating the developmental impacts of electrification by creating jobs, enhancing productivity, and lowering carbon emissions. As the sector is in its early stages, there is a significant need for market support and concessional capital to scale these companies. For example, small and medium-sized agribusinesses in emerging markets only receive 15% of financing, as the majority goes towards mature agriculture companies, leaving a \$106 billion financing gap to support their working capital needs.⁴

Throughout 2023, Nithio and CLASP began their impactful work of providing grants, technical assistance, and loans to PUAs working in Africa.

For example, Nithio, via FAIR, financed SunCulture, an industry leader in solar irrigation and farming technology solutions.

Nithio's investment enables SunCulture to finance inventory and receivables for its Kenyan subsidiary across its productive-use renewable energy products, related appliances, and irrigation equipment. This allows SunCulture to reach more customers, especially smallholder farmers who need affordable and reliable access to energy and water for their livelihoods.

This year, PUAFF, through CLASP, also awarded grant funds to 18 PUA companies across Africa that will impact over 500,000 people. To date, Nithio has pre-screened over 30 PUA companies, 87% of which are small, local companies.



Financing the Spectrum: Industry Leaders and Local Operators

Nithio's Risk Analytics Engine enables us to lend to not only international industry leaders but also small, local distributors that reach last-mile customers. Nithio is proud to support market leaders such as M-Kopa and SunKing, who reach millions of households around the world. We look forward to being an ongoing partner for their working capital needs as they continue to deliver impact.

Nithio also fills a key market gap by financing smaller, local distributors. Nithio seeks to scale with these companies, providing technical assistance through support from partners such as FSD Africa Investments and, if possible, providing follow-on investments. For example, Nithio initially invested in Winock, which enabled them to attract new equity, positioning Nithio to be able to provide a larger second loan.

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SunKing is glad to partner with Nithio in its mission to power brighter lives in the sub-Saharan African region. Nithio has been a pioneer in AI-driven investments in the off-grid solar sector and we believe our partnership is a testament to our portfolio quality and robustness.

-**Krishna Swaroop**
SunKing Chief Financial Officer

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Exploring Clean Cooking Financing: Partnership with Clean Cooking Alliance & UNCDF

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CCA and UNCDF are excited to partner with Nithio to explore the potential of blended financing for clean cooking, leveraging Nithio's unique data-driven approach to standardize risk and incorporate carbon credits, expanding opportunities for access to investment for clean cooking solutions.

-**Teresa Le**
UNCDF

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Nithio continues to apply its analytical capabilities to other energy and impact sectors, including clean cooking. This year, Nithio received funding from the Clean Cooking Alliance and the United Nations Capital Development Fund to adjust its credit risk assessments and forecasting models with sector-specific data. Nithio is also evaluating tailored financing structures to meet clean cooking companies' needs. This work was previously supported by the Shell Foundation.

Diversity, Equity & Inclusion

Nithio's core values are collaboration, commitment, growth, adaptability, and making an impact. As we continue to grow, we expand and adapt our business to ensure we maintain a clear focus on diversity, equity, and inclusion.

Diversity:

We are dedicated to building a top-tier global team with diversity in thought, background, and expertise.

- We actively seek diverse talent pools and primarily recruit in-market.
- We carefully craft job postings that use inclusive language and highlight our commitment to diversity to encourage candidates to apply, regardless of gender, race, age, or background.
- To minimize unconscious biases, our interview panels are intentionally diverse with team members from various backgrounds and experiences to ensure a well-rounded evaluation of candidates.

Equity:

Nithio hires the top talent, growing our in-market team and providing hands-on support for colleagues to grow and succeed.

- Each team member is supported to create a tailored professional development action plan to build their skill set.
- Nithio also has robust manager training to support colleagues as they continue to develop in the company.

Inclusion:

As a global team, we have continued building opportunities for our team to connect and professionally develop.

- Annual in-person team retreat to share learnings, feedback, and team-building in person.
- Nithio's affinity groups provide a platform for employees to connect, helping to create a sense of belonging and fostering inclusion.
- We are committed to offering equal opportunities for career advancement. Our promotion processes are transparent and merit-based, ensuring that individuals from underrepresented groups have a clear path to leadership roles.

Our Team

WOMEN

COMPANY

42%

EXECUTIVE
MANAGEMENT

40%

BOARD

80%

PEOPLE OF COLOR

COMPANY

62%

EXECUTIVE
MANAGEMENT

20%

BOARD

60%

Looking to 2024

As we continue on our mission, Nithio is excited to expand its impact, leveraging both its risk analytics and asset management expertise to develop innovative financing and climate solutions.

Incentivizing Equitable Energy Access: Gender-Lens Financing

Nithio recognizes that energy access has clear gender-related benefits, including improving women's quality of life, health, safety, livelihoods, and economic mobility. However, Nithio has found that nearly 60% of solar home system and solar productive use buyers across our portfolio companies are men. While this is a better balance than what we reported last year, where over 68% of sales were to men, there is still progress to be made in overcoming gender inequities in energy access.

Nithio is dedicated to scaling energy access equitably. We plan to launch data-driven Gender-Lens Financing that incentivizes solar companies to prioritize women customers. Powered by our Risk Analytics Engine, Nithio will provide a discounted interest rate for solar companies based on their percentage of women customers. We seek to collaborate with investors with strong mission alignment to support this approach and ensure women are not left behind.



Ensuring Continuity and Scaling the Market: Nithio's SOLAR (Servicer of Last Resort) Solution

Currently, the sector lacks a way to ensure that if solar energy companies fail, customers aren't left without power and their payments on the systems continue to hold value. A back-up servicer provides continuity of service and access to clean energy for the company's customers and unlocks the potential for off-balance sheet receivables financing.

Nithio's SOLAR Solution can support the market's sustainability, leveraging our Risk Analytics Engine to provide critical insights on portfolio quality and consumer behavior – including segmentation of customers by risk, forecasts of customers' repayment trajectories, and prediction of cash flows. Nithio can calculate the real value vs. the face value of a ring-fenced receivables portfolio on a discounted basis.

We aim to create an industry standard to value the existing receivables in a portfolio and ensure an accurate forecast of the real value of outstanding receivables. This accurate valuation ensures that the receivables can continue to be serviced sustainably, energy customers do not lose access to their products, and investors are repaid.

Methodology

Data Inputs

Nithio leverages its robust database, which comprises localized geospatial socioeconomic and environmental data (down to 1 sq. km), and energy customer data.

Framework

Nithio computes impact metrics in alignment with industry standards as well as carries out more contextually specific impact measurements using Nithio's proprietary Risk Analytics Engine.

Where applicable, Nithio applies the impact measurement framework for off-grid solar products developed by GOGLA⁵, including the following metrics:

- Energy access
- Kerosene replacement
- Metric tons of CO₂e emissions avoided
- Number of systems deployed
- Number of people reached with energy access
- Number of people reached with productive use assets
- Number of people using products to support enterprise

Nithio leverages its database and Risk Analytics Engine to disaggregate impact metrics by key variables such as gender and location. Tracking gendered impact is crucial because women and girls are disproportionately affected by energy poverty.

With the built-in granularity of its geospatial data, Nithio also provides impact analysis on a sub-national level, which is important as many outcomes vary based on geographical settings and contexts.

Nithio leverages its Risk Analytics Engine to enhance the precision of potential impact across the lifespan of a system. Nithio's prediction model forecasts the lifetime repayment trajectory for each household using an energy product.

Since most PAYGo products are based on pay-for-usage tokens and payment models, the pace and amount of repayment can be roughly translated into the household's energy usage and utility derived from the product.

We use this prediction output to calculate the specific household's likelihood of system loss, whether caused by default or intermittent usage for a period less than the product's full potential lifespan. This approach to discounting for system loss is a more accurate forecast of the lifetime impact of a solar home system on a household's or community's well-being.

Climate Vulnerability Index

Nithio identified key factors that are likely to contribute to climate change and extracted data from reputable climate data sources such as WorldClim and the World Bank's databases, in addition to geospatial data layers on socio-economic characteristics that make populations even more vulnerable to extreme climate conditions.

We chose the SSP5-8.5 scenario models forecasted for 2035-2064 to illustrate the near-future maximum potential impact from climate change on these populations. We then grouped the climate variables into sub-components, including drought, extreme heat, and flooding, and applied an indexing framework to establish relative vulnerability levels within each country, on a scale from 0 to 1.



Carbon Emissions Offset Assumptions

For SHS systems in East Africa, Nithio uses the kerosene replacement rate, and emissions offset multipliers researched and established by GOGLA⁶. However, for Nigeria, where medium and large-capacity SHS are most likely to be replacing diesel generator usage, we use an offset estimation for relevant systems that is based on our own research and calculations from available industry evidence.

Similarly, we have researched and applied individualized CO₂e offset estimations for productive use appliances such as solar water pumps and clean cookstoves. We will continue to expand and update these parameters as industry research evolves and new product types are added to our portfolio.



Citations

1. The Road to COP27: Making Africa's Case in the Global Climate Debate
2. The Road to COP27: Making Africa's Case in the Global Climate Debate
3. African Economic Outlook
4. In impact investing, failure is good – if we learn and share the lessons
5. Standardised Impact Metrics for the Off-Grid Solar Energy Sector,
6. Standardised Impact Metrics for the Off-Grid Solar Energy Sector
7. Image credit SunCulture (Cover page and page 9).



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