

Global Distributors Collective



Wholesalers for beneficial products: the missing link for impact at the last mile

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This material has been funded by UK aid from the UK government via the Transforming Energy Access platform; however, the views expressed do not necessarily reflect the UK government's official policies.



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The Global Distributors Collective (GDC) is a collective of last mile distributors around the world, dedicated to supporting distributors to reach millions of underserved customers with life-changing products, and to developing the last mile distribution sector as a whole. The GDC has more than 150 members in 58 countries who have jointly helped over 33 million people benefit from beneficial products such as off-grid solar lights and systems, improved cooking solutions and water filters. The GDC's ambition is to make last mile distribution the first priority, so that life-changing products can be made affordable and available to all. Visit www.globaldistributorscollective.org to learn more.

The GDC is hosted by international development organisation Practical Action, with activities delivered in consortium with implementing partners Bopinc and Hystra.



This report was written by **Hystra**, on behalf of the GDC. Hystra is a global consulting firm specialised in designing and implementing sustainable, scalable business strategies with a social and environmental impact. Since its creation in 2009, Hystra has worked on over 250 projects in more than 40 countries, serving large corporations, inclusive businesses, social investors, and public and private donors to support business models that change the lives of low-income communities across the globe. Visit www.hystra.com to learn more.



Sollatek Electronics (Kenya) Ltd has been a regional leader in supplying clean reliable on and off grid energy solutions in East Africa since 1985. Sollatek operates as a wholesale and last mile distribution outfit selling its products through a region-wide network of distributors, sales agents and partners. Sollatek Solar Division supplies complete turnkey solar systems and ancillary equipment including solar energy systems, solar modules, charge controllers, batteries, solar home systems and portable lanterns. Over the last ten years, Sollatek has sold over 800,000 solar lanterns and solar home systems in East Africa. Visit www.sollatek.co.ke to learn more.

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Report layout by: Re-emerging World

We would like to thank all organisations, including members of the Global Distributors Collective, who agreed to be interviewed for this report, as well as the Sollatek Kenya team for their partnership on this project.

Disclaimer: The Global Distributors Collective maintains neutrality regarding products, suppliers and service providers. The views expressed in this report do not represent an endorsement of any particular organisation.

List of acronyms

- **B2B** – Business to Business
- **B2C** – Business to Customer
- **GDC** – Global Distributors Collective
- **ISM** – Initial Screening Method
- **LMD** – Last Mile Distributor
- **MFI** – MicroFinance Institution
- **MOQ** – Minimum Order Quantity
- **NGO** – Non-Governmental Organisation
- **Non-QV** – Non-Quality-Verified
- **ODM** – Original Design Manufacturer
- **OGS** – Off-grid solar
- **PAYGO** – Pay As You Go
- **PnP** – Plug and Play
- **QV** – Quality-Verified
- **RRP** – Recommended Retail Price
- **SHS** – Solar Home Systems
- **Wp** – Watt-peak

Key definitions

- **Last mile distributors:** organisations that sell life-changing products to last mile customers - customers who are underserved by the mainstream private sector, because they are low income or live in remote areas, or both.
- **Pico-solar products:** products that have a solar panel rated 10 Watt-peak (Wp) or lower and enable up to Tier One Electricity Access¹.
- **Plug and play (PnP):** PnP solar home systems (SHS) comprise an all-in-one packaged kit. These have LED lights for multiple rooms (as many as 10, depending on size), a solar panel with power rating up to 100 Wp for small SHS and higher for large SHS, and a rechargeable battery. These systems may include assorted energy-efficient appliances, including mobile charging stations, radios, fans, televisions, and, in some higher-end systems, refrigerators².
- **(Non-) Quality-verified (QV/non-QV):** products that are (or are not) compliant with the Lighting Global Quality Standards
- **Retailers:** points-of-sale not specialised in beneficial products. These can either be informal; e.g. small electronics shops, or supermarkets.
- **Solar home systems:** SHS have a solar panel rated 11 Wp and higher and include both home lighting systems and large systems which can power appliances³.
- **Sweet spot products:** Products that can be sold on cash to customers at 25-50 per cent cheaper than leading QV products with similar specifications (e.g. battery size, panel size, number of light points, etc.), a valid two-year warranty, and which meet the international quality standards (i.e. VeraSol Quality Standards)
- **VeraSol quality standards:** standards that set a baseline for off-grid lighting product quality, durability, truth-in-advertising, warranty, and lumen maintenance⁴.

1. Products enabling 'Tier One' access, according to the SEforAll Multi-tier Framework for Energy Access, have a minimum of 3 Wp in power capacity, giving at least four hours of light per day and one hour of light per evening. ESMAP (2015), "Beyond Connections, Energy Access Redefined", Technical Report 008/15.

2. Based on the Lighting Global definition given in 2020, Vivid Economics and Open Capital Advisors (2020), "Off-grid solar market trends report 2020".

3. Idem.

4. In June 2020 the International Electrotechnical Commission (IEC) published quality standards for pico-solar products and solar home system kits under the designation IEC TS 62257-9-8. The new IEC standards are based on and will replace the Lighting Global Quality Standards. Product testing for this study was carried out according to the methodology described in IEC TS 62257-9-5:2016 and test results were assessed for compliance with the VeraSol (previously Lighting Global) Quality Standards for pico-solar products.

Scope and limitations

The findings in this report are based on a pilot within the off-grid solar (OGS) sector; specifically entry-level, pico-solar products and plug and play solar home systems (SHS) of <15W, that are sold on cash. We focused on entry-level products as these are the products most widely sold by the Global Distributors Collective's (GDC) smaller members, who typically face greater procurement challenges due to their inability to leverage economies of scale.

PAYGO-enabled products were taken out of scope. This was due to issues around inter-operability of PAYGO software⁵ (that LMDs report are now largely resolved), limiting the number of potential business-to-business (B2B) customers for any given product; and the fact that research suggested there was a less obvious opportunity for PAYGO-enabled products in the price-quality sweet spot.

The last mile distributors (LMDs)⁶ interviewed for this research are all members of the GDC. The interviewees typically sell around 300-1000 units of OGS products per year, offering consumer financing and warranties, and have an annual sales revenue of <\$100k USD. As such, the learnings outlined in this report are particular to LMDs of a similar size, who have not yet reached the threshold whereby they can leverage economies of scale to efficiently import products from abroad.

Lastly, the findings in this report primarily draw from a pilot conducted in Kenya. Kenya was chosen for this pilot because that is where the GDC was able to identify a well-placed implementation partner for this pilot, i.e. Sollatek Kenya.

5. Based on research conducted at the outset of this initiative in 2019.

6. Most direct quotes are based on interviews with five GDC members who were actively engaged by Sollatek over the course of the pilot detailed in this report. Overall findings are based on interviews with around a dozen GDC members between 2019-2022. Interviews explored both key procurement challenges faced by LMDs as well as feedback on their participation in the pilot, where applicable.

Executive summary

Last mile distributors (LMDs) of beneficial products, such as off-grid solar (OGS) products, are key to unlocking the potential impact of these products. LMDs typically serve low-income customers, and to effectively serve their risk-averse customer base, they need to build quality-assured, low-risk value propositions, which entails distributing quality products backed by warranties, after-sales support, and reliable customer service.

LMDs of OGS products – in particular standalone products, like pico-solar lanterns and plug and play (PnP) solar home systems (SHS) – often face challenges in identifying and procuring the products that are best-suited to their – and their customers’ – needs. Indeed, most OGS markets have limited choice of in-country stock of quality products readily available. As a result:

- Many LMDs have to import products from abroad. LMDs that are small and unable to benefit from economies of scale face multiple challenges throughout the value chain, including Minimum Order Quantities (MOQs) that are higher than what they need; three-to-four-month lead times, placing a significant burden on LMDs’ working capital requirements; and limited in-country marketing and aftersales support. This ultimately means LMDs incur higher costs per product that they have no choice but to reflect in their prices.
- Procuring products from in-country suppliers is far less time-consuming and costly than managing an importation from abroad. It is also easier to build a good relationship with a supplier who has a local presence. However, if LMDs limit themselves to products available in-country, they are typically stuck between two non-optimal options: purchasing the few available quality-verified (QV) products, known to be high quality but carrying a relative price premium, and non-quality-verified (non-QV) products, sold at more affordable price-points yet lacking in quality assurance.

In theory, these challenges mean there is a real opportunity for a wholesale model to centralise demand and import a portfolio of quality products in bulk. This would leverage economies of scale, provide a more favourable supplier service to LMDs, and enable them to access and sell a broader range of quality products to last mile customers. Yet, to date, most organisations well-placed to play the wholesale role⁷ have not entered the pico-solar lantern and PnP SHS. This is because many are typically unfamiliar with the PnP OGS market (and more generally, with markets of beneficial products that require a push to sell). For these players, entering these markets entails investing in:

- (1) Understanding end-user demand patterns (particularly challenging given most importers/wholesalers do not have existing links with end-users) to inform sourcing decisions
- (2) Identifying and building relationships with trustworthy suppliers for this unknown market
- (3) Identifying likely business-to-business (B2B) customers (such as LMDs, NGOs, etc.) and developing more hands-on processes to serve them than pure import/ wholesale would require.

The Global Distributors Collective (GDC) set out to explore what it would take to set up a sustainable wholesale model for standalone OGS products. In partnership with established wholesaler Sollatek Kenya⁸, the GDC launched a pilot in Kenya, running multiple activities to tackle the three challenges outlined above, as seen in Figure 1.

This report summarises the key insights and learnings drawn from the GDC/Sollatek pilot. The report’s objective is to inform the sector on the key success criteria and support needed to launch a wholesale model for quality-assured beneficial products, in the OGS sector and potentially beyond.

7. This would include any players with experience and assets in importation and logistics in Africa; the ability to stock a multi-brand portfolio of products; and willingness to sell to other distributors. For instance, traditional wholesalers and logistics players, particularly those with some experience of working in the solar sector, albeit with e.g. component-based systems; LMDs with a narrow market focus and willing to sell to non-competing distributors; a corporate players with interests in off-grid energy, like Total, able to leverage their vast importation and logistics network.

8. Referred to hereon as “Sollatek”; not to be confused with electronics manufacturer Sollatek UK

Key challenges	Piloted solutions
Understand customer demand patterns to inform sourcing decisions	<ul style="list-style-type: none"> • Conduct survey to identify best-selling non-QV products • Run quality testing on these products to develop shortlist
Identify and build relationships with trustworthy suppliers	<ul style="list-style-type: none"> • Run 'mini market tests' to collect consumer feedback on how to optimise market-fit of shortlisted products • Run due diligence on shortlisted manufacturers
Identify likely B2B customers and develop well-adapted offerings to meet their needs	<ul style="list-style-type: none"> • Conduct mapping of LMDs in Kenya selling in-scope products on cash • Set up new marketing and aftersales offering on imported products

Figure 1: Overview of challenges faced by potential wholesaler players entering the Pico-solar lantern and PNP SHS market and solutions piloted by the GDC and Sollatek

Key insights

Quality-focused wholesalers can unlock a sweet spot offer, bringing value to all players across the value-chain

- The wholesale model enables LMDs to access a broader choice of quality/affordable products, as well as reduce their working capital requirements and time invested in sourcing and procuring products that meet their consumers' needs
- Manufacturers can unlock new export opportunities, including by improving their product-market fit thanks to wholesalers' field testing
- In so doing, wholesalers can capture a largely under-served new market of "key accounts", such as LMDs, for quality-assured products.

However, setting up such a model can be time and cost-intensive even for established wholesalers in the solar sector, due to additional sourcing costs and time, as well as the need to build a dedicated marketing and sales strategy. More specifically, wholesalers can face:

- Higher sourcing costs due to running additional quality testing and market surveys to mitigate the risk of poor-quality products and unproven demand
- Longer delays on importation, due to building new supplier relationships and working with less experienced manufacturers
- Upfront investment and organisational stretch, to set up and run a dedicated sales and marketing strategy.

While the potential impact of wholesale models throughout the value chain is clear, the challenges for well-suited players to take on such a role are also significant. To make this model viable, potential wholesalers need to invest in understanding and working with new suppliers, LMDs and last mile customers. This can represent a significant stretch for their organisation, ultimately requiring (financial) de-risking for their move into the OGS (and other beneficial goods) sector.

Concretely, to tackle the wholesaler challenges identified above, the following support is needed:

- **Develop improved feedback loops throughout the value chain, to help stakeholders (and in particular would-be quality wholesalers) understand end-user demand patterns, by:**
 - **Building a specialised market research facility for beneficial goods at the last mile.** There could be an opportunity for a dedicated service provider to collect data on customer demand and share insights further up the value chain, to inform product design and sourcing decisions.
 - **Facilitating distributor-led exchanges with manufacturers.** For instance, one idea discussed with off-grid solar quality assurance entity VeraSol, is to leverage their platform of quality-verified products to invite distributors to propose requests for new product specifications, based on feedback from the field, and enable manufacturers who have produced certified products in the past to engage directly.
- **Identify and build relationships with trustworthy suppliers, by:**
 - **Verifying quality at the manufacturer level, rather than at the product level.** One option is to connect wholesalers with dedicated service providers able to conduct due diligence on manufacturers in manufacturing hubs, to verify the likelihood that manufacturers can consistently deliver on their quality promise.
 - **Building a quality certification program at the manufacturer-level – rather than at the product-level.** This would remove the need to quality-test every new product, thus helping reduce costs and enabling the quality-assured sector to more quickly respond to changes in consumer demand⁹.
 - **Leveraging existing platforms and product databases, such as the one developed by Verasol, to include more information on manufacturers, such as the countries in which they sell products.**
 - **Supporting less experienced manufacturers to navigate the exportation process,** so wholesalers do not have to take on that burden.
- **Identify B2B customers and develop more hands-on processes to serve them, by:**
 - **Conducting comprehensive country-by-country mappings of players distributing beneficial goods,** to help wholesalers identify new leads.
 - **Funding technical assistance to help wholesalers adapt their value proposition and operational model** (e.g., sales incentives, training, marketing materials and payment terms) to quality focused organisations, like LMDs.

We hope that the insights of this pilot will both equip actors that are well-placed to become quality wholesalers to do so, and enable the broader ecosystem to better understand what it would take – and what role they could play – in developing such models. We hope that this can contribute to bringing greater efficiency to beneficial product value chains, and ultimately, providing greater access and choice of beneficial products to LMDs and to their last mile customers.

9. A report recently published by VeraSol and written by EED on quality in the OGS market came to a similar recommendation. EED (2021), Quality in the off-grid solar market: An assessment of the consumer experience in Kenya.

Context and objectives

Last mile distributors (LMDs) of beneficial products such as OGS products, improved cooking solutions and water filters are key to unlocking the potential impact of these products. They enable access for people in underserved areas, creating local demand which helps to build sustainable markets. For more mature product categories, such as OGS, LMDs also play a key role in helping to “unbundle” the sector¹⁰ and drive competition –thereby expanding consumer choice.

Most LMDs are organisations typically serving low-income customers (75% of customers served by members of the Global Distributors Collective (GDC) live below the poverty line on <\$3.20 USD a day¹¹). To effectively serve their risk-averse customer base, LMDs typically need to build quality-assured, low-risk value propositions, which entails distributing quality products backed by warranties, after-sales support, and reliable customer service. These are also the traits that LMDs look for in their own suppliers. As Dorothy Otieno, Managing Director of GDC member Nyalore Impact, explained: *“the most important thing for us in a supplier is our ability to build a trusting relationship with them; to know that not only do they have quality products, but they will support us if things go wrong.”*

However, LMDs of OGS products often face challenges in identifying and procuring the products that are best-suited to their – and their customers’ – needs. Overcoming this challenge was explored in the first of this two-part report series: [“Finding the sweet spot: Identifying affordable quality solar products for the last mile”](#).

As most OGS markets do not yet have in-country stock of quality products readily available, many LMDs have to import products directly from abroad. LMDs that are small and unable to benefit from economies of scale face multiple challenges throughout the value chain, which are detailed below in Figure 2 (for more information please see Appendix 1). This ultimately means LMDs incur higher costs per product that they have no choice but to reflect in their prices. These challenges include:

- **Product and manufacturer selection:** LMDs struggle to identify quality-assured products that can be sold at affordable prices for the last mile and which also enable them to develop a differentiated offer compared to the largest premium players. This is due to the difficulty in identifying and building a trusting relationship with lesser-known manufacturers.
- **Payment:** Many manufacturers have Minimum Order Quantities (MOQs) that are higher than LMDs’ needs, and manufacturers often offer no or limited credit periods (at least for smaller or initial orders). This can place a significant burden on LMDs’ working capital requirements and cashflow management.
- **Transport:** Ship-freight can entail a three-to-four-month lead time between placing an order and receiving it. This puts further pressure on LMDs’ working capital requirements and limits their ability to quickly respond to changes in demand.
- **Customs:** LMDs experience significant hassle in overseeing the importation process due to complex and inconsistently applied tax and customs regulation, which can be subject to overnight changes. While this is true for all players importing products, it can be particularly draining for smaller players, who have more limited resources to manage such processes.
- **Manufacturer relationship (including sales, marketing, and after-sales support):** Building and managing relationships with new suppliers abroad further adds to the burden and costs incurred by LMDs; especially when the manufacturer lacks the local presence and expertise to support LMDs on marketing, sales and after-sales.

10. Defined as moving from a sector primarily led by a few, vertically-integrated players to a sector with many, more specialised, players across the value chain. See Global Distributors Collective (2019), ‘Last Mile Distribution: State of the sector report’ for more information.

11. Self-reported data from GDC members during the GDC 2021 member survey, which was undertaken between November 2021 and February 2022.

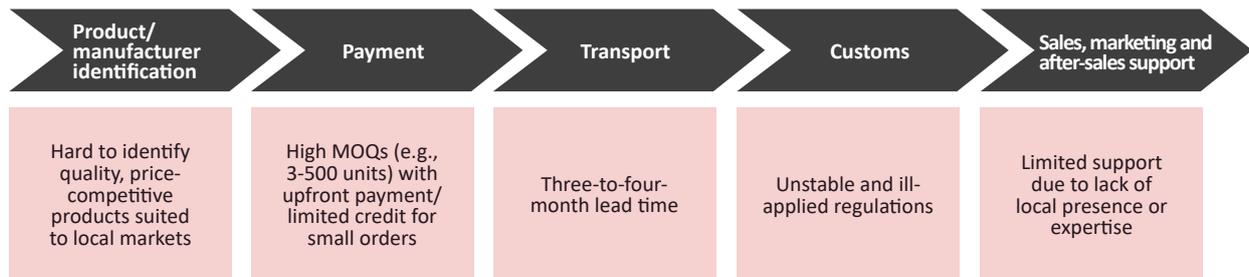
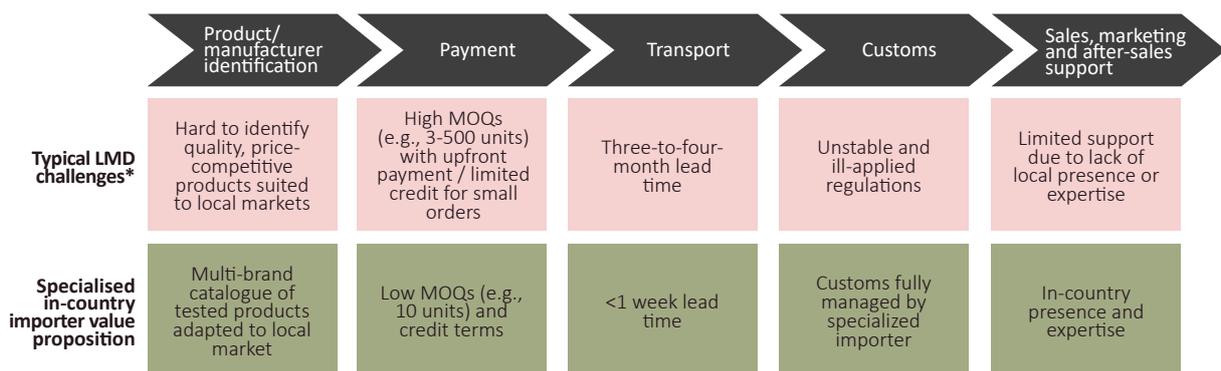


Figure 2: Common challenges experienced by small-to-medium off grid solar LMDs importing from abroad

Procuring products from in-country suppliers is far less time-consuming and costly than managing an importation from abroad. It is also easier to build a good relationship with a supplier who has a local presence. **However, if LMDs limit themselves to products available in-country, they are typically stuck between two non-optimal options:**

- (1) Quality-verified (QV) products, with (generally) strong brand awareness and after-sales support. Those available for purchase in-country are often supplied by vertically integrated organisations which have their own, local distribution networks¹². As multiple GDC members told us, this means LMDs find themselves competing directly with their supplier for end consumers' business. In addition, QV products often carry premium price-points compared to other products available in the market¹³.
- (2) Non-quality-verified (non-QV) products, which are sold at more affordable prices and which were estimated in early 2020 to account for 70 per cent of pico-solar products sold globally¹⁴. Very little is known about this segment of the market – often referred to as the 'grey market' – but evidence suggests that it includes significant variation of product quality¹⁵, including for best-selling products. LMDs are therefore both unwilling to take on the risk of supplying non-QV products that could fail them and their customers, and unable to compete with non-QV products' competitive price-points, making it difficult for them to develop sustainable business models¹⁶.

In theory, these challenges mean there is a real **opportunity for centralisation of demand, by importing a portfolio of quality products in bulk**. This would leverage economies of scale, provide a more favourable supplier service to LMDs, and enable them to access and sell a broader range of quality products to last mile customers. Figure 3 below summarizes the expected benefits of this pilot for LMDs: an in-country wholesaler could in principle address most of the challenges faced by LMDs when looking to import new products.



* For a small-to-medium sized LMD able to order e.g., 1k units/year

Figure 3: Overview of an in-country wholesaler value proposition, tackling LMD procurement challenges

12. There are some exceptions to this – for instance, OGS specialist manufacturer Omnivoltaic set up their own in-country stock facility in Kenya in 2020, offering smaller distributors the chance to purchase at MOQs of around 50 units, rather than 500 units as is typically the case when importing directly from China. Biolite have also created in-country stock in Kenya, as they have developed sufficient sales volumes in Kenya and nearby geographies to justify the investment.

13. Global Distributors Collective (2020). "Finding the sweet spot: identifying affordable quality solar products for the last mile", pages 8-9.

14. Vivid Economics and Open Capital Advisors (2020), OGS market trends report 2020.

15. For instance, in 2017 Lighting Global tested 17 top-selling non-QV solar products in five domestic markets across Africa and South Asia, and all products failed to meet the (then-called) Lighting Global Quality Standards; 84 per cent of these failed due to one or more deficiencies affecting product durability. Lighting Global (2018), Quality Matters, Technical Notes Issue 27. The GDC's "Finding the sweet spot" report (2020) had similar findings.

16. Over 90% of GDC members surveyed in 2022 selling OGS products report that their products meet the VeraSol Quality Standards.

The GDC is not the first to recognise the opportunity for centralised purchasing in the sector. Several pioneering pilots have been launched in recent years, which offer key lessons that help to improve the sector’s understanding of the potential for centralised purchasing to address LMD procurement challenges, as shown in Box 1.

Caveat: *as mentioned in the report’s scope, the potential efficiency gains for an LMD of a centralised purchasing model is dependent on the volumes that an LMD is able to sell. For an LMD with the capacity to import greater volumes, it could prove more cost-effective to import directly from China rather than pay the premium price of an in-country supplier. Indeed, Omnivoltaic advise their customers able to order a full container of products to go via their China office, as their in-country supply carries a premium. Similarly, Biolite, a company selling off-grid solar products and improved cookstove solutions recommends for LMDs ordering a full container of products to import directly from China, whereas LMDs ordering half a container or less would be better off buying the products in-country.*

BOX 1 – Centralised purchasing models: pilots and lessons learned for the future¹⁷

To date, centralised purchasing models have aggregated demand - either by creating in-country stock based on demand estimates (wholesaling model) or by securing orders from LMDs ahead of time (aggregation model). These models show the appetite for centralised purchasing, as well as the obstacles still to be overcome in order to reach scale. Examples include:

- **Wholesale model, led by a public body:** In Liberia, a local government agency imported a large quantity of OGS products to help unlock the market, by creating in-country stock. However, the market was too small to absorb such volumes. The products’ batteries discharged and newer, more competitive, products emerged – rendering the stock a stranded asset.
- **Aggregation model:**
 - **Led by a large-scale importer:** In a number of African markets, Total Access to Energy Solutions (TATES) has offered an end-to-end importation service to LMDs, including possible provision of credit, freight and customs clearance. This has worked quite well for larger LMDs able to order a full container, who are ready to outsource such wholesale services at a premium. However, offering this kind of service to an aggregated group of smaller LMDs poses a number of operational risks for the importer. Selling to multiple buyers can easily become complex to coordinate and administer, due to logistical challenges in aggregating demand from multiple players, which further increases the cost of the service. After placing an order, smaller LMDs may also be perceived as more likely to default on payment. It could therefore be difficult for a commercial player to justify aggregated purchasing by small LMDs without receiving de-risking funding, e.g., from a public or private donor.
 - **Led by LMDs:**
 - In Uganda, SENDEA, an innovative cooperative of five local LMDs, developed a cost-sharing initiative with support from Stiftung Solarenergie. Together, the LMDs ordered an aggregated container of high-quality products from a manufacturer in China. This gave all five LMDs access to competitive stock that would otherwise have been inaccessible to them, given their low individual volumes. However, the initiative did not find a sustainable model. This was primarily due to challenges in sharing the financial risk of the import across the LMDs, and the need to avoid charging a premium so high that it would make the initiative unaffordable for the smaller LMDs.
 - When Covid-19 hit, and rural areas in India were not receiving key personal protection equipment, Frontier Markets - a rural e-commerce company distributing products through local women - created the “Rural Access Coalition” with other LMDs serving complementary areas. Together,

17. As outlined in an article by the GDC published in 2019: “Centralised purchasing: a game-changer for last mile distribution?”, Inclusive Business.

they were able to purchase masks and hydro alcoholic gel in bulk, at a much better price than they would have been able to secure individually. They also managed to raise donor funding, with an attractive offer to penetrate a much larger area than would have been possible, had they been operating alone. As Frontier Markets took the lead in coordinating this effort, the other LMDs involved paid Frontier Markets a margin on the goods procured, to enable the model to be sustained over time.

Based on these pilots, three key success factors emerged for an LMD-led aggregation model:

1. A concentration of non-competing LMDs in the same importation region (i.e. covered by the same tax regulation and served by the same port)¹⁸
2. A lead LMD willing and able to take on the coordination role, and compensated financially for its value-add
3. Trust and transparency between partnering LMDs, particularly on financials, in order to build the financing model together.

Another relevant and ongoing pilot in aggregation of demand includes a centralised platform for PV components, being led by Crossboundary and Odyssey. They have recently concluded a trial run of the platform, with lessons learned due to be shared in the first quarter of 2022.

See box 1 for more on this looking to create in-country stock of quality products are also starting to show compelling evidence for the efficiency gains that such a change in cashflow management can yield. For instance, OGS manufacturer Omnivoltaic is one of a few suppliers without business-to-consumer (B2C) sales agents who recently created an in-country stock facility in Kenya. According to Andy Gao (Sales Director at Omnivoltaic), the availability of in-country stock enabled one of the LMDs they work with, who previously purchased stock directly from China, to transition from three orders per year of 300-400 units each, to a monthly order of around 200 units. This doubled their annual sales from 900-1200 units to over 2000 units, thanks to efficiency gains in cashflow management.

Drawing on lessons from these pilots, as presented in Figure 3, the GDC set out to explore the potential role and viability of wholesale model run by a dedicated commercial player, which is largely untested in the field of quality beneficial goods sold by LMDs.

Overview of feasibility research and piloted activities

Based on feasibility research conducted by the GDC in 2019-20, one of the main reasons these wholesale models have not emerged organically is that existing importers and wholesalers with relevant expertise and assets, and the ability to carry a multi-product portfolio, are unfamiliar with beneficial product markets like pico-solar lanterns and PnP SHS. To enter these markets, these players need to invest in:

- (1) Understanding demand patterns to inform sourcing decisions, which is particularly challenging given most importers and/or wholesalers do not have existing links with potential customers for these products
- (2) Identifying and building relationships with trustworthy suppliers operating in this relatively unknown market
- (3) Identifying business-to-business (B2B) customers and developing more hands-on processes to serve them

18. The exact number will depend on the volumes each off-LMD is able to purchase and MOQs at which bulk-purchasing discounts come into force (typically 1 container, but varies significantly by product category), with aggregation costs and risks obviously increasing the higher the number of LMDs involved.

Between 2019 and 2021, the GDC investigated how to tackle these three challenges and what it would take to set up a sustainable wholesale model for beneficial products; with the end-goal to unlock the supply of affordable, quality OGS products for LMDs. In partnership with wholesaler Sollatek Kenya, we launched a pilot across multiple regions in Kenya; leveraging Sollatek’s existing wholesale assets and expertise. Before our pilot, Sollatek – which has been operating in Kenya since 1985 - stocked a catalogue of over 80 products, primarily in electronics (such as fridge guards) and component-based OGS systems; as well as two to three leading brands of quality-assured PnP lanterns and SHS. They typically imported two to three containers a month, delivered products across Kenya within one week, offered low MOQs of around 10 units, and offered a 30 days’ credit period to customers that had paid for orders upfront¹⁹.

However, Sollatek have increasingly found it harder to drive sales volumes with these leading brands, due to increased competition from cheaper brands in the market. As such, in addition to their existing offering, the GDC and Sollatek sought to expand Sollatek’s capability to sell pico-solar lanterns and PnP SHS through the activities outlined in Figure 4 (for more information please see Appendix 2):

Key challenges	Piloted solutions
Understand customer demand patterns to inform sourcing decisions	<ul style="list-style-type: none"> • Conduct survey to identify best-selling non-QV products • Run quality testing on these products to develop shortlist • Run ‘mini market tests’ to collect consumer feedback on how to optimise market-fit of shortlisted products
Identify and build relationships with trustworthy suppliers	<ul style="list-style-type: none"> • Run due diligence on shortlisted manufacturers
Identify likely B2B customers and develop well-adapted offerings to meet their needs	<ul style="list-style-type: none"> • Conduct mapping of LMDs in Kenya selling in-scope products on cash • Set up new marketing and aftersales offering on imported products

Figure 4: Overview of challenges faced by potential wholesaler players entering the Pico-solar lantern and PNP SHS market and solutions piloted by the GDC and Sollatek

This report summarises the key insights and learnings drawn from the GDC/Sollatek pilot. The report’s objective is to inform the sector on the key success criteria and support needed to launch a wholesale model for quality-assured beneficial products, in the OGS sector and potentially beyond. We hope this will both equip actors that are well-placed to play the wholesaler role to do so, and enable the broader ecosystem to better understand what it would take – and what role they could play – in developing such models. Ultimately, the goal of this initiative is to help bring greater efficiency to beneficial product value chains, and to provide greater access and choice of beneficial products to last mile customers.

19. Based on information shared by Sollatek.

BOX 2 – “What could possibly go wrong?”

Over the course of the GDC/Sollatek pilot, the global Covid-19 pandemic pushed timelines back, prevented international travel and meant markets across the world faced volatility and uncertainty. This pilot – like many others – faced the consequences of these events, including:

- Delays: including a five-month delay in starting, due to the breakout of the pandemic in March 2020; and a six-month delay in the full container of products arriving in Kenya, due to global electronics supply chain disruptions.
- Higher costs: supply chain disruptions led to a significant increase in costs for OGS products imported into Kenya, while at the same time the Kenyan government introduced an import duty and dropped the VAT exemption for stand-alone solar products in 2020²⁰. The timing of the pilot meant that Sollatek’s products were competing with legacy products imported before these new policies were introduced.
- Team challenges: due to global travel restrictions, onboarding and in-person support to the Sollatek sales teams and pilot project manager was sub-optimal.

In this report, we have tried to exclude challenges that are external to the model we have piloted; but it is not always possible to clearly distinguish between the two. Learnings and insights should be read within this wider context.

20. This was reintroduced in July 2021, but only for certain components (e.g., bulbs, cables and accessories) (Finance Act 2021, Sollatek interpretation).

Key insights

1. Quality-focused wholesalers can unlock a sweet spot offer, bringing value to all players across the value-chain

As part of this pilot, Sollatek imported 4000 units of two products: 3200 units of a pico-lantern with a 2Wp panel and mobile phone charging and 600 units of an entry-level solar home system with a 12Wp, two to three light points and a USB port²¹. At the time of writing this report, after 5-6 months of sales, Sollatek had sold 10-15 per cent of the first product and 100 per cent of the second to a mix of LMDs, microfinance institutions (MFIs), non-governmental organisations (NGOs) and more traditional retailers (see more below on the split). Sollatek is also considering re-ordering, or looking into, additional products identified via the pilot.

The section below considers what we learnt through this process – both about the opportunity itself, and on the very real challenges that seizing this opportunity poses.

1.1 The wholesale model enables LMDs to access a broader choice of quality/affordable products, as well as reduce their working capital requirements and time invested in sourcing and procuring products that meet their consumers' needs

A key value-add that LMDs mentioned regarding Sollatek's offer was access to a broader choice of quality products. As mentioned earlier, most QV products available in-country are supplied by vertically integrated players, many of which compete directly with LMDs for sales at the last mile. Sollatek, on the other hand, typically sells mainly B2B and thus does not compete with LMDs. Enabling access to a broader choice of products in-country allows LMDs to carve out differentiated offerings for their customers, thus ultimately enabling last mile populations to access greater choice and driving competition in the market. Grace Opere, Business Development Officer for Renewable Energies activities at GDC member Rafode, told us: *"We have decided to stop stocking one of the more well-known brands because it is too difficult to compete with [the supplier's] own agents out there, so we are happy to see these new products that Sollatek is bringing in and which our customers seem to really like"*.

Sollatek's offer can also help reduce LMDs' working capital requirements and optimise cashflow management. As mentioned above, LMDs importing from China to Sub-Saharan Africa typically face a three-to-four-month lead time between placing and receiving an order, which then typically takes at least three months to sell (varying greatly per LMD). This means LMDs need at least six months of working capital. For the products imported in the pilot, with MOQs of 300-500 units, this would amount to a minimum of \$8,000 to 10,000 USD in landed costs alone, excluding financing costs, duties, and logistics and warehousing costs. During the pilot, Sollatek was able to offer MOQs of 5-10 units delivered within <1 week, meaning an LMD could choose to procure in batches of 50 or 100 units, recovering the cost in e.g., 1 month (thus significantly reducing working capital requirements and the corresponding cost of financing).

21. The pico-solar product was put through a full Initial Screening Method (ISM) testing as part of the initial phase of this pilot, as described in the GDC's "Finding the sweet spot" report (2020). Based on the feedback from the ISM testing, the product was tweaked to correct the elements that fell short of the Verasol quality standards and put through full Pre-export Verification Of Conformity PVOC testing, as per Kenyan importation requirements. The solar-home-system carried Verasol quality certification at the time of importation.

BOX 3 – Do products in the price-quality sweet spot exist?

In “[Finding the sweet spot: identifying affordable quality solar products for the last mile](#)”, we showed that in theory quality solar lanterns could be sold at 25-35 per cent cheaper than the average leading QV products in the Kenyan market today with similar specifications; and 40-55 per cent cheaper for SHS with two-to-four light points.

This pilot was an opportunity to test this hypothesis in practice. As seen in Figure 6, Sollatek was able to sell a SHS with a recommended retail price (RRP) that is 35-40 per cent lower than a comparable product from a leading QV brand. However, the solar lantern imported by Sollatek was just 10-15 per cent more price-competitive than comparable QV products available in-country.

This suggests there is indeed a great opportunity for both LMDs and their end-customers to access products even better suited to their needs than what is currently available in-country, particularly for SHS.

1.2 Manufacturers can also unlock new export opportunities, including by improving their product-market fit thanks to wholesalers’ field testing

As mentioned on page 11, lesser-known quality manufacturers can struggle to identify and establish trust with distributors. Wholesalers can overcome this trust barrier by leveraging their own quality-testing, local brand equity and in-country after-sales and warranty provision to reassure distributors²³. Grace Opere, Business Development Officer for Renewable Energies activities at GDC member Rafode, told us: *“Normally we only choose products certified by Lighting Global from manufacturers we know, as that gives us assurance on the products’ quality. With this project, even though one of the products is not certified, we are reassured by the fact Sollatek has checked it themselves and will offer 2 year warranty on it”*.

Wholesalers are also more likely to be able to meet MOQs, pooling demand from multiple distributors who would struggle alone. As one ODM manufacturer told us: *“A lot of potential African customers struggle to place an order because they don’t have the funding to meet our MOQs. We can offer 60 days credit to customers, but only if they first pay for 1-2 orders upfront and can import a full container”*. Indeed, thanks to the GDC/Sollatek pilot, one manufacturer exported a product to Kenya for the first time.

Lastly, the manufacturers also introduced multiple tweaks to their products to help improve their quality and attractiveness to the market, based on the quality reports and market feedback received, including replacing a reading light with a standard bulb and adding information stickers to the product.

22. As per VeraSol’s recent report, brand is one of the strongest indicators for end-consumers of a product’s quality. VeraSol and EED Advisory (2021) ‘Quality in the off-grid solar market: An assessment of the consumer experience in Kenya’.

1.3 In so doing, wholesalers can capture a largely under-served new market of “key accounts” for quality-assured products

Organisations that are also primarily focused on selling beneficial products, like OGS, can drive much more significant volumes than non-specialised retailers that wholesalers often serve. In this pilot, retailers typically ordered just 3-10 units per month. By contrast, organisations like LMDs and MFIs typically requested between 20-100 units on the first order alone and reported that they could sell around 100 units/month for their best-selling solar products²³. Indeed, as seen in Figure 5, LMDs, NGOs and MFIs account for 86% of the units sold during the GDC/Sollatek pilot despite representing just 17% of organisations that Sollatek sold these products to.

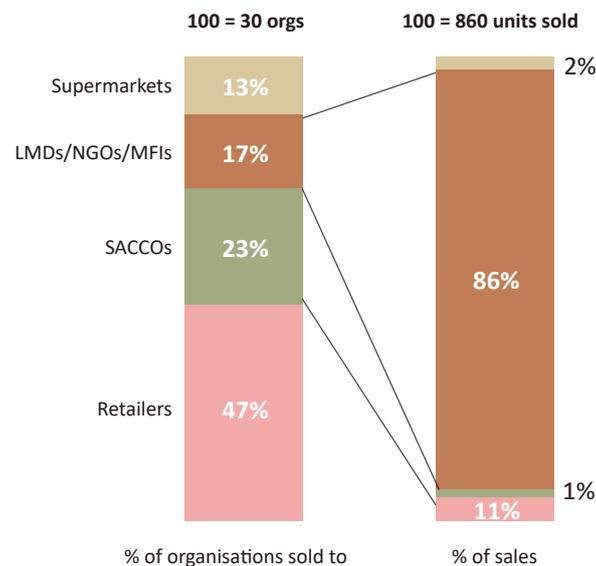


Figure 5: Breakdown of organisations sold to and sales volumes for pilot products²⁴ (by segment, Aug 2021 - Jan 2022)

Over the past few decades, Sollatek has positioned itself as a reliable supplier of quality products and built its brand and operations accordingly, making them ideally suited to meet the needs of quality-focused players. For instance, all new products selected by Sollatek (including outside of the pilot) are tested in their workshop against international standard, and each product batch is also put through quality testing. Sollatek also offers multi-year warranties on all its products and have invested in building an after-sales support network across the country, working with loyal distributors to act as drop-off centres for faulty products, that Sollatek then deals with. These are the type of assets that organisations serving low-income consumers, like LMDs, value most.

As Natalie Balck, Head of Projects and Partnerships at Sollatek, explains: ***“For the past five years, retailers have been the bread and butter for solar lanterns for us, and I really thought they were still going to be the ones pushing the volumes of these new products we imported. This project showed us that this is no longer happening; there are so many cheap alternatives now that volumes per retailer have dropped from around twenty per month to just three to five, if that. We now have a much clearer understanding of what type of customers we should be targeting, including LMDs, and we have to make sure we’re focusing our attention and sales approach on them”.***

23. Interviews with 3 GDC members and 1 MFI engaged with the pilot.

24. Based on Sollatek sales data. SACCOS are defined as small-scale local savings cooperatives. LMDs/NGOs/MFIs are defined as organisations primarily serving low-income and/or last-mile consumers, mostly offering some type of consumer financing and includes a corporate check-off system (taking monthly payments from employee salaries to cover the cost of products sold). This is limited to B2B sales, i.e., excludes sales direct to end-consumers (n=7) who bought directly from Sollatek HQ. Of note, most of the volumes came from 1 NGO who had received donor-funding. However, LMDs and other organisations offering consumer financing to users all ordered 10-50 units in the first order to test consumer demand, and reported that “following consumer feedback, we would purchase up to 100 in the next order” (including GDC members Rafode and Econome).

BOX 4 – The sweet spot offer is not valuable for everyone

Informal retailers²⁵ selling solar products often focus almost exclusively on price, making it difficult for wholesalers focused on quality offerings - like Sollatek - to compete.

Of all retailers approached by Sollatek agents to pitch the imported OGS products, over 90% said they were not interested in Sollatek sweet spot offer, primarily because the price was too high. This is unsurprising, given these retailers are able to procure products at significantly lower prices from informal suppliers: for instance, the entry-level sweet spot SHS sold by Sollatek as part of this pilot has a recommended retail price (RRP) that is 2 times higher than the RRP at which electronics retailers are able to sell a comparable non-QV product in the broader Kisumu area, as seen in Figure 6. One such retailer mentioned that, despite the fact their supplier offers no warranties or after-sales support services, the price justifies procuring their products: *“Price is king. Even though we have a very good relationship with Sollatek, I just can’t take a product that is so much more expensive than what I can find elsewhere in the market”*. Sollatek’s sales agents echoed this sentiment, reporting that it had become much harder in recent years to push their quality products (including standard, non-OGS electronics) to retailers.

As shown in multiple reports²⁶, many of these cheaper products however fail to meet the minimum quality standards and thus risk negatively impacting consumers’ trust in the long run. Creating greater access to quality products at more competitive prices via models such as the one piloted with Sollatek helps tackle this issue, accelerating the development of the sweet spot segment that has so far been largely underserved due to the challenges outlined in this report. That said, ultimately greater enforcement of regulation on product quality standards will be key to tackling this issue and ensuring consumer confidence is not undermined. As the implementation of mandatory standards becomes more common²⁷, it is possible to link tax exemptions to quality certification to try to level the playing field.

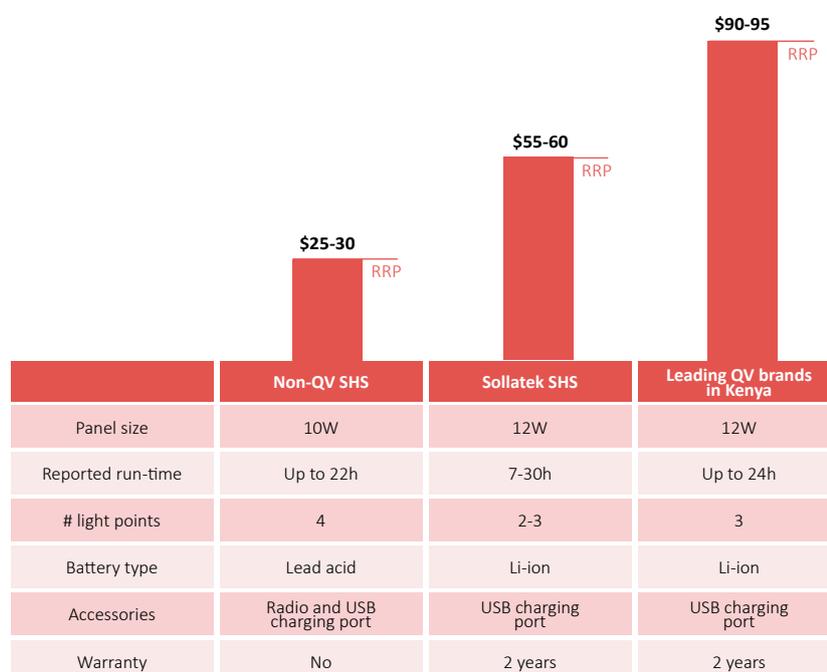


Figure 6: Price-comparison of three SHS with comparable specifications sold in Kisumu area²⁸

25. Retailers are defined here as points-of-sale not specialised in beneficial products. These can either be informal; e.g. small electronics shops, or supermarkets. Retailers interviewed were in the broad Nairobi and Kisumu area; further research is needed to confirm if these findings are also applicable to retailers in highly remote regions.

26. Including the GDC’s “Finding the sweet spot” report (2020) and VeraSol’s “Quality Matters” report (2018).

27. 9 countries have now introduced mandatory quality standards for off-grid solar products, thanks to efforts by organisations like VeraSol, but regulation remains a challenge.

28. Comparison of products is illustrative only, as specifications do not perfectly match and are self-reported. All figures are in \$ USD. This is based on the products that served as a point of comparison for the informal retailers to whom the Sollatek SHS was pitched. Source: Sollatek data and interviews with informal retailers in Kisumu, Kenya (November 2021).

2. However, setting up such a model can be time and cost-intensive even for established wholesalers in the solar sector, due to additional sourcing costs and importation delays, as well as the need to build a dedicated marketing and sales strategy

2.1 Higher sourcing costs due to running additional quality testing and market surveys to mitigate the risk of poor-quality products and unproven demand

As mentioned earlier in this report, wholesalers need to invest time and money to better understand customer demand for beneficial goods like OGS, as well as confirm that a product meets the minimum quality standards needed for the wholesaler to be confident in adding it to their portfolio²⁹. To tackle this, as part of the GDC and Sollatek pilot, we ran three research activities to help inform Sollatek's sourcing decisions: (1) a country-wide survey of non-QV best-selling products already in Kenya, followed by (2) quality testing with VeraSol, using the Initial Screening Method (ISM)³⁰, for the top-performing 18 products and (3) a mini market test importing 10-20 samples of two to three products and collecting B2B and B2C feedback on product features and pricing. (see Appendix 2 for more detail on these activities).

These activities helped Sollatek identify a handful of products at competitive ex works (EXW)³¹ pricing that could meet the Verasol quality standards that it would not have otherwise been able to identify. The additional sourcing costs from conducting these exercises was roughly equivalent to the margin Sollatek would make from selling around 1 container of the solar lanterns imported for the pilot³². Given the fast-moving nature of R&D in beneficial product sectors, this exercise would need to be frequently repeated (i.e., the costs could not necessarily be spread across further sourcing decisions in the future), meaning these costs can be hard to justify for a wholesaler. These additional tests and product tweaks can also add up to 6 months to the procurement process, as even in-country ISM quality testing can take 2-3 months end-to-end, and manufacturers reported that running a new product line to integrate the requested tweaks could add an additional 2-3 months to their lead times³³. This significantly hinders a wholesalers' ability to quickly respond to consumer demand, once they have invested in understanding it.

BOX 5 – In hindsight, what would Sollatek have done differently in sourcing sweet spot OGS products?

- Expand the shortlist of products. It is likely that some of the top choices will drop out, due to manufacturers discontinuing some products, changing prices or tweaking the design; especially for beneficial products that are less established in the market.
- Collect consumer feedback on multiple products within the same product category, to get more robust insights.
- Invest in a dedicated resource to lead on product sourcing, to ensure that this can be given the attention it requires, and so existing staff are not over-burdened

29. This could either refer to the legal quality requirements for a given country, or the quality standards that enable the wholesaler to attach its own branding and warranty claims to the product.

30. Testing was carried out by the University of Nairobi Lighting Laboratory (UoN-LL), housed at the Institute for Nuclear Science & Technology at the University of Nairobi. UoN-LL is a member of the Lighting Global Lab Network and is approved to conduct tests for Lighting Global. The shortlisted products were subjected to quality tests that are part of the Initial Screening Method (ISM), described in the International Electrotechnical Commission (IEC) publication IEC TS 62257-9-5. For more information, please visit <https://verasol.org/solutions/test-methods>

31. Manufacturer pricing prior to transportation.

32. Based on the cost of market surveys and ISM quality testing for one to two products in Kenya conducted as part of the pilot, and Sollatek data on their product margins.

33. Of note, this is the timeframe shared by two manufacturers in the pilot, but can vary by manufacturer and tweak required.

2.2 Longer delays on importation, due to building new supplier relationships and working with less experienced manufacturers

The standard challenges of importing products from Asia into Africa can be difficult for any wholesaler (e.g., shipment delays, customs disputes, navigating complex import regulations, etc). These challenges are reinforced when establishing new manufacturer relationships, as would likely be the case for most wholesalers looking to build a portfolio of OGS products. This often entails negotiation of supplier terms, which typically includes upfront payment for first-time orders; as well as other unforeseen teething issues. For example, in the GDC/Sollatek pilot, the China-based manufacturer did not recognise the Sollatek business e-mail operator and was thus initially unable to receive e-mails from Sollatek’s logistics manager.

In addition, working with smaller or less experienced manufacturers, as may be the case for wholesalers looking to bring in new products to the market, entails additional challenges. For instance, manufacturers unaccustomed to exporting to Low-to-Middle Income Countries (LMICs) may be unaware of the bureaucracy required. One of this pilot’s manufacturers was exporting products to Kenya for the first time, lacked the correct export certification, and was unaware of pre-export quality checks that were required by the Kenyan government - all of which led to delays. During the mini-market test, this same manufacturer was forced to ship – rather than air-freight – the 100 samples required for field testing, due to not having the proper documentation to fly lithium-ion batteries (which their solar products contained). Less-experienced manufacturers may also lack the contacts and expertise to secure competitive pricing from third-party service providers, e.g., for freight – as Imran, Logistics Manager at Sollatek, explained: *“Both of the manufacturers we worked with did not have strong networks in East Africa, meaning the quotes they got for local charges, such as inspection fees, were twice as high as expected. We had to support them to get in touch with the right people in our network, and managed to get the price back to normal, but lost time in all these back-and-forths”*.

Finally, on this pilot we chose to run ethical due diligence on the manufacturers to ensure the sweet spot products are not competitive at the cost of ethical integrity (comparing results with the industry standard), which can add up to \$400-500 USD per manufacturer.

All of these factors add to the time-investment, and often costs, faced by wholesalers wanting to work with new and less-experienced manufacturers.

2.3 Upfront investment and organisational stretch, to set up a dedicated sales and marketing strategy

A targeted sales strategy and support systems are required to incentivise and enable agents to sell to new customer segments (such as LMDs) more attracted by sweet spot offerings.

During the pilot, Sollatek’s field sales agents were given a list of new potential leads, based on a mapping of GDC members in Kenya who could potentially be interested in the newly imported products (as summarised by organization-type, in Figure 7). However, in the first few months of sales, agents (understandably) prioritised customers on their existing routes - most of which were retailers. The agents found very limited success with these organisations, and soon started to lose motivation.

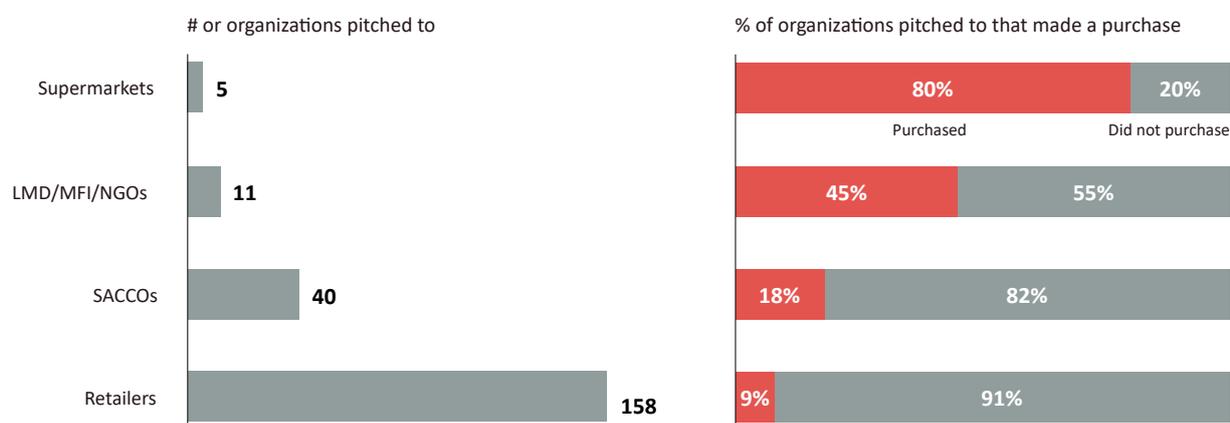


Figure 7: Organisations pitched to and converted³⁴ (by segment, Aug 2021-Jan 2022)

34. Based on Sollatek sales data.

After an intervention from senior management, the agents more proactively engaged LMDs but still struggled to get traction and secure sales. Part of this was likely due to LMDs' loyalty to their existing suppliers with whom they had been working for many years and established attractive supplier terms, like credit periods. Others were only open to considering PAYGO-enabled products, which Sollatek had not imported for the pilot project³⁵.

However, Sollatek's sales strategy and materials also contributed to inhibiting agents from closing sales with LMDs, for three reasons:

- (1) The existing agent incentive structure – with monthly sales targets - is adapted to the needs and sales cycles of Sollatek's existing customer base. While a retailer already within the Sollatek network will typically place an order for the coming month during the visit from a Sollatek agent, a LMD will likely need multiple visits to build the relationship, ensure multiple internal stakeholders have tested the product, and so on. This can be particularly time-intensive for wholesalers' agents, as impact-driven organisations' head offices are not typically located in the same area as other retailers; meaning agents must make specific travel plans to visit them. As John and Boniface, Sollatek agents in the greater Nairobi area, said: *"It takes me two hours each way to visit this MFI on the bus, and often they make me wait because they don't know me yet, or ask me to come back to talk to someone else in the team and run a follow-up. It's hard for me to spend so much time building this relationship before getting close to securing a sale and hit my targets"*. **Building longer-term targets, and setting bonuses linked to customer types – or setting up a separate, dedicated salesforce with adequate training and incentive schemes to serve this different segment – could encourage repeat, long-term engagement and support the longer sales cycles that LMDs and other similar organisations typically require.**
- (2) The existing payment terms for Sollatek's new customers, which required that at least two purchases be paid for upfront in order to access a credit-based offering, are designed for players stocking products with proven demand. However, in a model built on importing relatively inaccessible OGS sweet spot products, potential new customers (such as LMDs) typically expect some level of credit-based offering, to enable them to test out the products in the market. For instance, all LMDs who showed an interest in the products Sollatek imported reported they wanted to collect their own consumer feedback on the products before committing to a larger order. As a compromise, **Sollatek changed its policy such that all GDC members newly engaged were eligible to place orders with a 30 day post-dated cheque**, and thus test out the products without having to pay upfront.
- (3) As seen in Figure 8, Sollatek's existing pitching materials and approach focus primarily on selling the features of the new products. However, due to LMDs' priority of establishing a trusted and supportive relationship with their supplier, it would be more compelling to **focus the pitch on Sollatek's long-standing reputation, the quality-testing and consumer feedback surveys conducted on the imported products, and the marketing, payment and after-sales support services that they offer**. After initially not showing interest in the imported products, upon hearing about the 'full service package' that Sollatek was offering, GDC member Mwangaza told us: *"it makes a big difference to us, to know that Sollatek has tested these products and is offering a two year warranty in-country"* and proceeded to place an order of the pilot products.

35. See 'Scope and Limitations' for further explanation on this.

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SOLLATEK SF-8 SOLAR LANTERN WITH PHONE CHARGING

- 2W Solar Panel
- 3.7V/2200mAH Li-ion battery
- USB mobile phone charging port
- 3 Light setting modes
- Between 6 – 17 hours of light on full charge
- Waterproof and shock proof
- 2 year warranty with in-country support

SOLLATEK VEK-8L SOLAR HOME SYSTEM FOR MULTIPLE ROOMS

- 12W Solar Panel + 5 m cable
- 16,000mAH Li-ion battery
- 2 x USB mobile phone charging ports
- 2- 3 lamps & optional radio
- Between 7 – 30 hours of light on full charge
- Waterproof and shock proof
- 2 year warranty with in-country support

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Figure 8: Sollatek marketing flyer for imported sweet spot products

Sweet spot products require tailored marketing approaches, at every level of the value chain, focused on building LMDs' capabilities and reassuring them on quality-assurance.

When Sollatek normally introduces a new product into their catalogue, they promote it online and via additional on-the-ground 'activators', who help Sollatek's customers market products to their own customers. As part of this pilot, Sollatek also recruited three established online influencers covering three key regions, to promote the new sweet spot products online, and signpost potential customers to organisations stocking the products.

However, these "lean mass marketing" approaches had limited success in converting sales. This is because a) they were not wide-reaching enough to convince a critical mass of customers to benefit or convince retailers (and making them more wide-reaching would add significant cost, making it harder maintain price-competitiveness), and b) these did not benefit LMDs either, who typically already have a captive audience in a particular region or segment.

Rather, based on feedback from impact-led organisations, investments most likely to secure their orders would include:

- Running technical "training of trainers" sessions to build LMDs' own sales agents' capabilities; while also delivering product demos for LMDs' customers, to help generate demand. Fortunately, wholesalers are typically better placed (and more experienced) to deliver these kinds of support than to engage in product marketing. Dorothy Otieno, Managing Director of GDC member Nyalore Impact, told us that: *"our agents' technical education is very critical, so we would want Sollatek's agents to be able to support on ensuring they are equipped on the products' technical information and how to pitch that to our customers"*.
- Reassuring LMDs on the quality-assurance of the offering, including providing high-quality customer service - both before and after the sale. For instance, VEP, an MFI distributing solar products from numerous suppliers, told us that one of the determining factors in their relationship with suppliers is how quickly they respond to VEP's queries: *"if you have somebody reply to you within a couple of hours and get products delivered to you within a day, that really makes a difference. It means we can rely on them"*. When it comes to after-sales, the need for product replacements and repairs is reduced when investments in quality checks are made upstream. For example, for Sollatek, repairs and replacements typically represent just one or two per cent of products sold. Despite this, it is critical for wholesalers to build a sophisticated enough after-sales offer to reassure LMDs and their customers that if something does go wrong, it will be fully dealt with; while simultaneously ensuring the processes are simple enough to be consistently executed. As Natalie Balck from Sollatek explains: *"that trust is very easily and irreparably lost if we don't meet the expectations we create with our customers"*.

BOX 6 – Sales and marketing best practices for wholesalers keen to work with LMDs

- Develop an agent incentive structure that is appropriate for the order and payment cycles of LMDs – this will likely mean setting less-frequent targets than monthly.
- Focus pitching materials on the overall value proposition of the wholesaler rather than purely on product specifications – this means emphasising the quality-assurance, long-term relationship and reliability that LMDs value.
- Ensure payment terms – including for new LMD customers - are adapted for lesser-known sweet spot products, which LMDs are likely to want to test on consignment for the first month.
- Deliver product demos and “training of trainers” to support LMDs in marketing new products.
- Build a robust and consistent after-sales system to deliver a value proposition suited to what LMDs most appreciate – trustworthy and reliable service from their partners.

All of these measures require some financial investment from intermediaries such as wholesalers, as well as their commitment to better understanding LMDs as a valuable customer segment.

Most of the costs associated with tackling these challenges outlined in this section are start-up costs, such as building new supplier relationships, training Sollatek sales agents to adapt their sales strategy to LMDs and building marketing materials better suited to LMDs and other similar organisations. This would suggest that Sollatek and any other first-mover organisations could be in a unique position to capture the underserved segment looking for sweet spot offerings, like LMDs. There is one exception to this: due to frequent shifts in the OGS sector³⁶, such as customer demand patterns and tax regulation, wholesalers would also likely need to invest more continuously in resources that will allow them to stay up to date with these changes (e.g., a dedicated project manager for the OGS portfolio). More sales data³⁷ is required to confirm whether revenues over time will be sufficiently sustained to cover these additional investments for Sollatek.

BOX 7 – What’s next for Sollatek?

The sales data that Sollatek will gather over the first 6 months of 2022 will inform whether they invest to source and import more sweet spot OGS products in future. That said, they have already made changes following the pilot to work more effectively with LMDs and other similar organisations, including:

- Liaising closely with four LMDs to understand what these companies would need in order expand their portfolio of products, to help inform Sollatek’s sourcing decisions;
- Developing a marketing strategy that focusses more on Sollatek as an entity, rather than on product specifications alone;
- Developing a segmented sales strategy, which will guide the team to better serve organisations that differ from their historical client base, including LMDs, NGOs and MFIs.

“There is definitely an opportunity there, a role for someone like Sollatek to play... but it’s not low-hanging fruit. We would need patience and investment to make it happen, and we need more data points from the next months of sales to make this decision.” (Saleem Abdulla, CEO of Sollatek)

36. According to Sollatek, these shifts are more significant than in other, more mature electronics sectors they traditionally work in.

37. Given the challenging business environment and pilot delays created by the Covid-19 pandemic, at the time of publishing this report, Sollatek does not have sufficient months of sales data to conclusively determine whether revenues will be sufficiently sustained over time.

Conclusion and recommendations

The potential impact of wholesale models throughout the value chain is clear. Such players can help drive unbundling in the off-grid solar sector, leading to greater efficiencies and access to a broader choice of products for the populations set to benefit the most.

That said, as outlined above, the challenges for well-suited players to take on such a role³⁸ are also significant. To make this model viable, potential wholesalers need to invest in understanding and working with suppliers, LMDs and last mile customers in the beneficial goods market. This can represent a significant stretch for their organisations, ultimately requiring (financial) de-risking for their move into the OGS (and other beneficial goods) sector.

Concretely, to tackle the three key challenges identified at the outset of this report, the following support is needed:

- **Develop improved feedback loops throughout the value chain, to help stakeholders understand end-user demand patterns, by:**
 - **Building a specialised market research facility for beneficial goods at the last mile.** There could be an opportunity for a dedicated service provider to collect data on customer demand and share insights further up the value chain, to inform product design and sourcing decisions. LMDs are ideally placed to collect such data by leveraging field staff regularly in touch with, and trusted by, last mile consumers. For example, in our pilot, GDC member Rafode shared field staff feedback that market sellers were looking for single-bulb SHS to use in market stalls after dark, and fishermen typically look for entry-level lanterns with larger surface areas than most models offer. Systematically collecting such data could yield quality, segmented insights that would help both manufacturers and wholesalers make more informed, and thus less risky, decisions. Preliminary discussions with Sollatek and the manufacturers participating in this pilot suggest that they would be ready to pay for such insights. Some LMDs in the GDC membership – including Frontier Markets, Dharma Life and Essmart – already offer this to manufacturers, as an additional revenue stream. Other examples include CLASP (under the LEIA programme) launching a pioneering research project to help gather data on productive-energy-use (PUE) appliances in the field, directly measuring product performance together with consumer feedback to generate insight that can inform manufacturer design choice³⁹.
 - **Facilitating distributor-led exchanges with manufacturers.** For instance, one idea discussed with off-grid solar quality assurance entity VeraSol, is to leverage their platform of quality-verified products to invite distributors to propose requests for new product specifications, based on feedback from the field, and enable manufacturers who have produced certified products in the past to engage directly.
- **Identify and build relationships with trustworthy suppliers, by:**
 - **Verifying quality at the manufacturer level, rather than at the product level.** One option is to connect wholesalers with dedicated service providers in manufacturing hubs, to verify the likelihood that manufacturers can consistently deliver on their quality promise. Thanks to our pilot learnings, Sollatek has since started working with a dedicated sourcing service provider that helps do just this in China.
 - **Building a quality certification program at the manufacturer-level – rather than at the product-level.** As Natalie Balck from Sollatek suggests: *“The ideal option would be for someone like VeraSol to certify manufacturers not products - many manufacturers get just one product certified, as they can’t afford to certify their entire catalogue, so we have to invest ourselves if we want to check the*

38. This would include any players with experience and assets in importation and logistics in Africa; the ability to stock a multi-brand portfolio of products; and willingness to sell to other distributors. For instance, traditional wholesalers and logistics players, particularly those with some experience of working in the solar sector, albeit with e.g. component-based systems; LMDs with a narrow market focus and willing to sell to non-competing distributors; a corporate players with interests in off-grid energy, like Total, able to leverage their vast importation and logistics network.

39. A report with insights on this pilot is due to be published in the first half of 2022.

quality of any of their other product ranges". As such, removing the need to quality-test every new product would help reduce costs and enable the quality-assured sector to more quickly respond to changes in consumer demand⁴⁰.

- **Leveraging existing platforms, such as VeraSol’s, to include more information on manufacturers, such as the countries in which they sell products.** The maintenance required to ensure this information would be kept current has proven a challenge in previous efforts to build such a platform. Establishing a system that incentivises manufacturers to submit their own updates, based on what is most valuable to LMDs – and thus most likely to drive sales - might help overcome this challenge.
- **Supporting less experienced manufacturers to navigate the exportation process,** so wholesalers don’t have to take on that burden. For instance, one of the manufacturers engaged as part of this pilot and exporting to Kenya for the first time has since started working with SGS Group, a dedicated laboratory which helps them to identify and manage all certifications needed to export to various African markets. VeraSol has also been supporting both manufacturers and accredited testers to navigate the Pre-export Verification Of Conformity (PVOC) requirements for exporting OGS products to many markets in Sub-Saharan Africa.
- **Identify B2B customers and develop more hands-on processes to serve them, by:**
 - **Conducting a comprehensive mapping of players distributing beneficial goods,** to help wholesalers identify new leads. For instance, Power Africa conducted a mapping of the OGS distribution sector in Kenya in 2020⁴¹.
 - **Funding technical assistance to help wholesalers adapt their value proposition and operational model** (e.g., sales incentives, training, marketing materials and payment terms) to quality-assured organisations, like LMDs.

40. A report recently published by VeraSol and written by EED on quality in the off-grid solar market came to a similar recommendation. EED (2021), Quality in the off-grid solar market: An assessment of the consumer experience in Kenya.

41. Not currently publicly available.

Appendices

Appendix 1: Overview of LMD importation challenges

- Product and manufacturer selection:** In off-grid solar, most LMDs use the [database](#) of quality-verified products developed by VeraSol as their first port of call, enabling them to filter and compare products based on their specifications. As of February 2022, VeraSol's database features over 215 products from more than 60 different brands⁴². However, the pace of shifts in demand and innovation in this sector is such that LMDs often look for products with specifications that are not readily available on this existing database. For instance, Rafode (GDC member and last mile distributor of OGS products) recently discovered that one of their customer segments – market stall sellers – wants simple, entry-level SHS with just one light point that will enable them to keep working after dark. There is currently⁴³ just one product that comes close to meeting these specifications on VeraSol's database of certified products. To find suitable alternatives (if they exist), LMDs would have to invest significant time trawling through hundreds of manufacturer portfolios.

Even for products with specifications widely available on the VeraSol database, LMDs struggle to evaluate which manufacturers will best serve their needs, because both the certification programme and database are specifically product-focussed. For instance, LMDs looking for a pico PV product with <10WP and one light point can find 44 different products listed on the Verasol database, from over a dozen manufacturers with no discernible differences. LMDs would need to reach out to over 12 manufacturers just to compare cost, let alone to assess their level of reliability and supplier terms. As a result, LMDs often default to suppliers that are better-known or whom they have an existing relationship with; meaning that lesser-known manufacturers struggle to attract LMDs, even if they have more competitive price-points. As one ODM manufacturer previously listed on the VeraSol site told us: *"We don't sell to many African countries, despite having quality, price-competitive products. The main reason is trust; we struggle to build trust in us and our products because we are not well-known"*.

Such challenges often lead to LMDs selecting products and manufacturers that are not necessarily best-placed to provide the differentiated, quality-assured, price-competitive products that would meet LMDs' and their consumers' needs.

- Payment:** Many manufacturers have MOQs of over 300-500 units. A full 40ft container of an SHS of this size would likely be between around 5-8,000 units for entry-level solar systems and solar home systems, and according to 1 manufacturer engaged in this pilot, filling less than a container can lead to an additional premium of up to 80%⁴⁴. These costs can be prohibitive for smaller LMDs, who do not typically have access to sufficient working capital to commit to such large orders. In addition, manufacturers often request 50 per cent upfront payment and 50 per cent to be paid at the manufacturer's port – at least for smaller or initial orders. However, LMDs will only recover their money months after they receive and distribute the products (especially if they are offering consumer financing), which can place a significant burden on LMDs' working capital requirements.
- Transport:** Orders from abroad are typically brought into Africa via ship-freight (as airfreight is prohibitively expensive), meaning there is a three-to-four-month lead time between placing an order and receiving it. This further exacerbates LMDs' working capital requirements (given the payment terms outlined above) and limits their ability to quickly respond to changes in demand.
- Customs:** LMDs face significant hassle in overseeing the importation process due to complex and ill-applied customs regulation which can be subject to overnight changes. When things go wrong, they can also face significant financial consequences due to importation and customs issues.

42. Database visited in January 2022.

43. Idem.

44. Comparing one pallet of 3-500 units vs one full 40 ft container.

- **Manufacturer relationship (including sales, marketing, and after-sales support):** Building and managing relationships with new suppliers abroad, contrary to suppliers that are present in-country, can be a painful and time-intensive process for LMDs, due to language barriers, slow communication, and cultural differences. Given their lack of in-country presence or knowledge, most overseas manufacturers offer limited sales and marketing support and struggle to offer quick, effective responses to after-sales issues.

Appendix 2: Overview of piloted activities

- **Ran a survey to identify best-selling products already in Kenya** – i.e., products with proven demand - by leveraging Sollatek’s agents to record LMDs’ top three best-selling solar products. We then **put a subset of these products through Initial Screening Method (ISM) testing**⁴⁵ to identify those that were of sufficient quality for Sollatek to associate its brand and warranty to. Lastly, we conducted a **targeted review of manufacturers already engaged with the quality certification programme**, to identify those that were producing products that resembled the specifications and price-points of best-selling products identified via the in-country survey⁴⁶. This culminated in a shortlist of products from four different manufacturers.
- **Ran 2 ‘mini market tests’, importing a few samples of products from the shortlisted manufacturers and collecting feedback from retailers and end-users** – again, leveraging Sollatek’s B2B sales agents across Kenya – on the products’ specifications, aesthetics and pricing. This helped to identify tweaks required to maximise the product-market fit and thus best respond to consumer demand. This also gave Sollatek a chance to build their relationship with the manufacturers on a smaller order, before committing to importing significant volumes.
- **Worked with a dedicated service provider in China to run due diligence** to both confirm the manufacturers’ ability to consistently deliver on quality and ensure they adhered to ethical standards, to further build Sollatek’s trust in the identified manufacturers.
- **Scanned potential distributors** that worked with consumers likely to be interested in the chosen OGS products, including mapping GDC members selling OGS on cash in Kenya and nearby regions.
- **Set up new after-sales and marketing support services** to help build awareness and trust in the new products imported by Sollatek. This included establishing a 24/7 customer service line to deal with after-sales requests and hiring online influencers, to help promote the products and point potential customers towards LMDs that stocked them.

45. Testing was carried out by the University of Nairobi Lighting Laboratory (UoN-LL), housed at the Institute for Nuclear Science & Technology at the University of Nairobi. UoN-LL is a member of the Lighting Global Lab Network and is approved to conduct tests for Lighting Global. The shortlisted products were subjected to the tests that are part of the Initial Screening Method (ISM), described in the International Electrotechnical Commission (IEC) publication IEC TS 62257-9-5. For more information, please visit <https://verasol.org/solutions/test-methods>

46. For more detail on this methodology, refer to GDC (2020), “Finding the sweet spot: identifying affordable quality solar products for the last mile”.

Sources

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Wholesalers for beneficial products: the missing link for impact at the last mile

Last mile distributors of off-grid solar (OGS) standalone products report finding it increasingly difficult to identify and procure quality, price-competitive products, due to challenges throughout the value chain. There is an opportunity for a wholesale model to tackle these challenges by centralising demand and importing a portfolio of quality products in bulk.

The Global Distributors Collective (GDC), in partnership with established wholesaler Sollatek Kenya, launched a pilot to explore what it would take to set up such a model. This report summarises the key insights and learnings drawn from the pilot, with the objective to inform the sector on the key success criteria and support needed to launch a wholesale model for quality-assured beneficial products, in the OGS sector and potentially beyond.

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