

Annex 1 - Call For Innovative Partnerships

KEY CHALLENGES AND OPPORTUNITIES

The Project: IOM, in partnership with NORCAP and supported by Innovation Norway, aims to unlock energy access across five resettlement sites in Sofala Province. This project will develop and implement an approach which tackles demand, supply, and ecosystem challenges across the household, community and productive use levels. The key challenges and opportunities below have been generated through energy, market and financial assessments, two market dialogue sessions, and a series of co-design workshops with IDPs.

DEMAND

Challenges	Ability and/or willingness-to-pay of IDPs coupled with adequate access to and understanding of financial services.	Low Quality Energy Systems and Services Previous experience of low-quality energy systems and services - especially solar (no after-sale services, and lack of repair options).	Expectation Management Communities influenced by past experience with the free distribution mechanisms (solar lanterns & clay cookstoves).
			Productive Uses of Energy IDP mindset: energy access must unlock pathways for income generation.

Opportunities	TRAINING - Development of tools and resources to develop financial literacy (including accounting), engage entrepreneurs, operate/maintain energy systems, and capacity share on potential transformative energy systems and services.
	FINANCIAL SUPPORT - Development a range of financial support mechanisms for individuals and entrepreneurs.
	CO-DESIGN - Enable community choice on which energy products fit their wants, needs, and aspirations in alignment with seasonal variations in income (across household, community, and productive use levels).
	MOBILE PHONE USE - High mobile phone usage (limited smart phones and connectivity in some sites) enables democratized technological solutions.

SUPPLY

Challenges	Data. Lack of good quality data on economic potential of remote areas to develop productive uses or marginalized groups to afford products and services.	Over-incentivised Energy Markets across Mozambique combined with no renewable energy markets in the resettlement sites.	(Pre-)Financing CapEx of quality energy systems and services.
			Integration of systems and services between adjacent host communities and displaced communities in resettlement sites.
	Opportunities <p>PARTNERSHIPS TO DERISK - Building partnerships and utilize blended finance mechanisms to reach a wider customer base.</p> <p>SUPPLY SIDE FINANCIAL SUPPORT - Propose innovative and flexible financing mechanisms that can support high quality (following minimum international standards) energy systems and services (such as post-sales support, quality assurances, integrated monitoring).</p> <p>MARKET COORDINATION - Better coordinate off-grid energy access programmes in Mozambique to reduce duplicated efforts.</p>		

ECOSYSTEM

Challenges	Primarily reliance on agriculture in resettlement sites resulting in limited opportunities for diversifying income.	Limited integration between different market actors and segments i.e. financial institutions, private sector, humanitarian organizations, and IDPs.	Marginalization of IDP Voice – limited opportunities to input into decision-making processes.
	Opportunities <p>INNOVATIVE PARTNERSHIPS - Create new modes of partnership that reach across the energy sub-sectors, transforming energy systems across the household, community and productive use levels.</p> <p>IOM AS A GATEKEEPER - Work with IOM to unlock the ecosystem for partners through sharing market intelligence, data, and contextual knowledge.</p> <p>MICRO-ECONOMIC DEVELOPMENT - Develop a range of micro-business opportunities linked to modern, sustainable and reliable energy access.</p>		

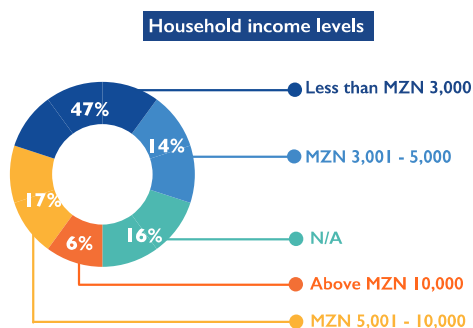
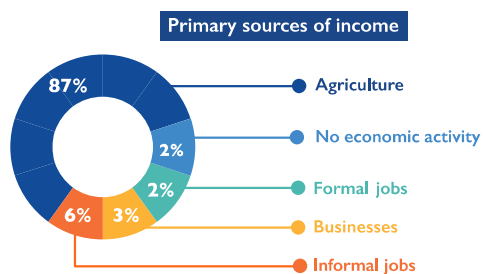
NEW APPROACH TO BUILDING A PARTICIPATORY AND INCLUSIVE MARKETPLACE FOR SUSTAINABLE ENERGY SOLUTIONS

Key Findings on Energy Access in Resettlement sites in Central Mozambique

Introduction

With support from Innovation Norway, the International Organization for Migration (IOM) and NORCAP have partnered to find new solutions to bridge the gap between the demand for sustainable energy solutions in displacement settings and the supply of products and services from the private sector. As part of this initiative, an energy assessment was conducted in five off-grid resettlement sites in the Sofala Province of Mozambique. The following sections present the findings of the assessment:

Socio-Economic Overview



Financial Services and Mobile Phone

85% of the households have at least one mobile phone. Yet, only 12% have access to internet services via their mobile phone. Access to financial services in the resettlement sites is comparable to the national average: **47% of internally displaced persons (IDPs) have never accessed any financial services**; 51% of the households use mobile money for payments, making this the most commonly used financial service; 7% of IDPs have been members of saving and lending groups.

Household Energy Access

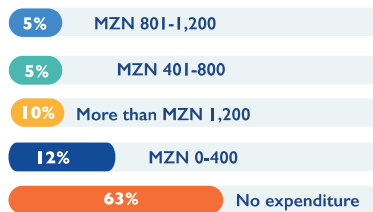
a. Energy for Cooking

Firewood and charcoal are the main energy sources for cooking. **86%** of households use **firewood** while the rest cooks with charcoal.

These fuels are burned in inefficient and polluting **three-stone fire stoves**, locally fabricated metallic stoves, and clay stoves by **85%**, **13%** and **2%** of households, respectively. The monthly expenditure on cooking fuel varies among the sites with the average distribution shown below.

Firewood collection is mostly performed by women and young girls who spend an **average 2.5 hours** per day on this activity. Firewood collection often exposes them to gender-based violence as they have to walk for long distances.

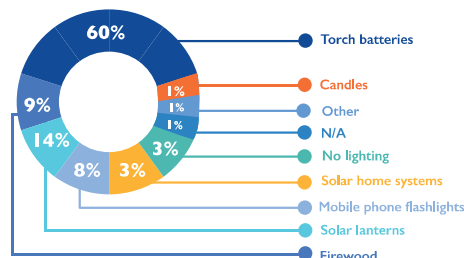
Monthly expenditure on cooking fuel



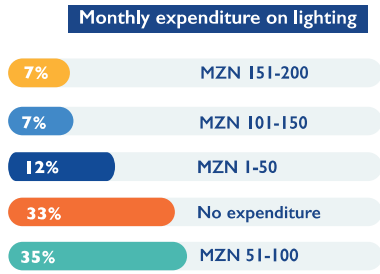
b. Energy for Lighting

The energy sources for lighting are diverse in the resettlement as shown in the figure below.

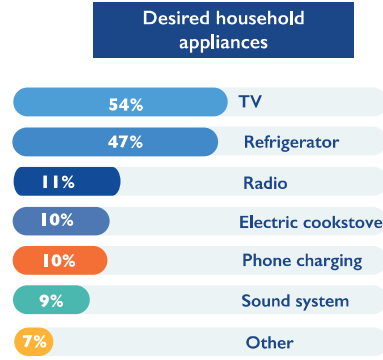
Primary sources of lighting



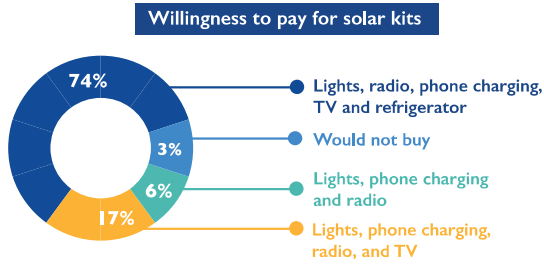
The figure below shows the monthly expenditure for lighting.



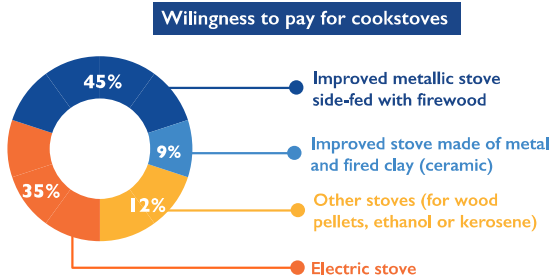
Households have expressed aspirations to acquire new appliances, and a majority desires a **TV (54%)** and/or a **refrigerator (47%)** as seen the figure below.



Willingness to Pay for Clean Energy



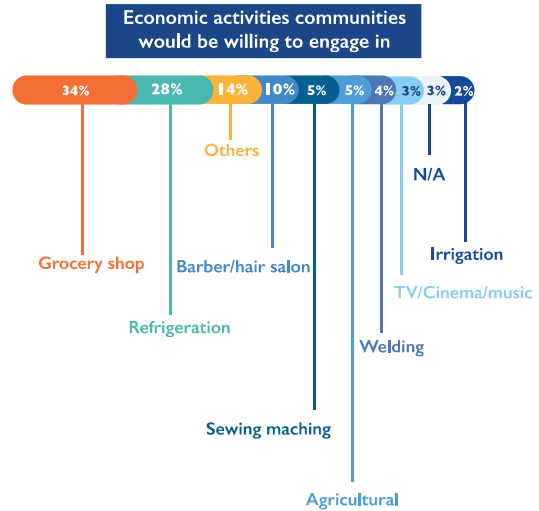
On average, households are willing to pay MZN 11,480 for the solar kit with the refrigerator; MZN 4,500 for the kit with TV and MZN 1,810 for a kit with the radio. The preferred payment method is **pay-as-you-go (PAYGO)** for a period of **3 years** for 99% of the households.



Households are willing to pay on average MZN 418 for the metallic side-feeder stove and MZN 1,838 for an electric stove. About 48% of households prefer **cash/upfront payment method** while 33% prefer 6-month instalment, 13% 1-year instalment and 6% 2-year instalment payment.

Productive Uses of Energy

Various **small-scale informal businesses** operate in the sites, such as **grocery shops** (first necessity items), **barber shops, bars/cafés, and milling stations**. The productive uses of energy are limited to lighting after dark, phone charging services and hair cutting mostly powered by solar systems, and milling powered by diesel generators. In addition, some refrigeration of drinks takes place thanks to obsolete fridges and ice packs purchased in the nearby markets. The solar components are usually purchased separately (i.e. panels, inverter, battery, appliances) in the nearby town and assembled by the local entrepreneurs themselves without much external technical support.



Off-grid Energy Market in Mozambique

The off-grid energy market in Mozambique is in its nascent stage. It is **characterized by several market development funds** offering various types of financing ranging from **result-based financing, catalytic grants, technical assistance** for the development of the market for mini-grids, solar home systems, improved cookstoves and productive uses of energy. These initiatives are led by both the government agencies under the Ministry of Energy and international development agencies. The market is mainly dominated by international energy companies with more local companies slowly getting into the space.

Key Take-aways



- Displaced communities have similar income levels compared to the national average and mostly depend on **agriculture** as their main source of income.
- Access to financial services is limited and mostly consists of **mobile payments** facilitated by the high penetration of **mobile phones**.
- Access to clean, affordable, and sustainable energy is low in the resettlement sites; polluting and **unsustainable energy sources** and technologies are predominant at both the household and business levels.
- **No** trade of **clean energy** technologies was observed in the resettlement site areas.
- **Ability to pay** for cleaner energy solutions is **low** when comparing the current energy expenditures and market prices. This is partially due to the reliance on firewood, which is usually a free resource.
- **Potential** for productive use of energy exists to improve the **livelihoods** of the displaced populations.
- To date, most of the humanitarian organizations' efforts to improve access to clean energy in Mozambique and globally have not been geared towards **market creation**, but mostly consisted of distribution and donation during emergencies.

➤ The energy **market** in Mozambique is diverse and **developing** with a mix of players drawn from government, private sector and development agencies offering various services ranging from finance to technical assistance – creating an **enabling environment** for **the sector to grow and thrive**.

Opportunities



As the current humanitarian solutions and delivery models are not fit-for-purpose to address the identified challenges, this project offers a platform to pilot new ways of working:

- Many market incentives exist, with some specifically addressing resettlement sites (e.g. result-based financing), yet we still see little market development in these areas. This means **alternative de-risking/risk-transfer mechanisms** need to be further developed to encourage actors to address these energy access gaps, building upon the existing programs.
- There is an opportunity for humanitarian organizations to **innovate on how they engage and partner** with the private sector and other stakeholders to build markets for clean energy products in displacement settings.
- Energy solutions exist but there is a need to improve access to **end-user financing, technology and training, capacity building** and **market linkages** in line with the current **regulations**.



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INFORMATION ON MACHONJOVA, METUCHIRA, NDEDJA, MUDA NUNES AND SAVANE RESETTLEMENT SITES, SOFALA PROVINCE (MOZAMBIQUE)

Information contained within this document was extracted from an extensive needs assessment conducted by IOM Mozambique in 5 resettlement sites across the Sofala Province



Figure 1: Machonjova resettlement site © IOM 2022

BASIC SITE DATA ON HOUSEHOLDS AND INFRASTRUCTURE

Table 1: Resettlement Site Basic Data (Displacement Tracking Matrix (DTM) - Multi-Sectoral Location Assessment (MSLA) Round 22 (February-March 2022¹))

Name of Resettlement Site	Number of Households	Total number of IDP individuals	District	GPS coordinate		Accessibility	IDP Locality of Origin
				Latitude	Longitude		
Machonjova	512	2,259	Buzi	-19.791069	33.950051	220 km from Beira Accessible via 62-km National Road (N1) from Inchope-Mutindiri followed by 30 km unpaved road	Grudja
Metuchira	596	3,143	Nhamatanda	-19.174	34.217	107 km from Beira Accessible via N6 National Road followed by 12-km unpaved road from Nhamatanda town	Metuchira
Ndedja	605	3,025	Nhamatanda	-19.351	34.372	90 km from Beira Adjacent to Beira-Chimoio N6 National Road	Lamengo or Chirassiqua
Muda Nunes	207	1,035	Nhamatanda	-19.368965	34.407327	81 km from Beira Accessible via N6 National Road followed by 1.5-km unpaved road	Tica Sede
Savane	313	1,117	Dondo	-19.405	34.707	60 km from Beira Accessible from Dondo by 21-km N82 National Road	Chaimite

Table 2: Availability of community infrastructure and basic services in the resettlement sites. (Green: available in the site, Red: not available).

Site Name	Primary School	Secondary School	Healthcare Centre	Water Points*	Communal Sanitation Facilities	Community Centre	Market	Football Field
Machonjova	Green	Red	Red	Green	Red	Red	Green	*In the host community
Savane	Red	Red	* Tent/mobile structure	Green	*1 next to the market	Red	Green	Green
Muda Nunes	Green	Red	Red	Green	Red	Red	*Scattered in the site	Green
Ndedja	Green	Red	*With a solar system	Green	Red	*Only for women	Green	Red
Metuchira	Red	Red	Red	Green	Red	Red	*In the host community	Red

* Water points are either supplied by manual pumps and/or solar-powered systems.

¹ <https://displacement.iom.int/datasets/central-mozambique-multi-sectorial-location-assessment-dataset-round-22-public-dataset>

MAP OF RESETTLEMENT SITES AND TYPICAL HOUSING TYPES

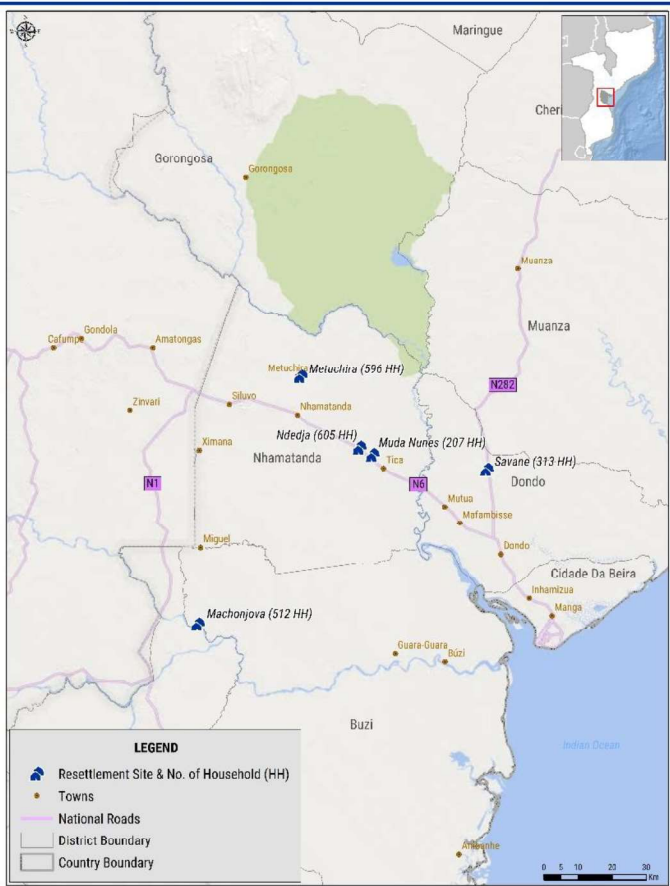


Figure 2: Map of the selected resettlement sites in Sofala Province



Figure 3: House with flat metal roofing with brick/concrete walls © IOM 2022



Figure 4: House with tarpaulin roofing with mud and stick walls © IOM 2022



Figure 5: House with flat metal roof with mud and stick walls © IOM 2022



Figure 6: House with grass roof with mud and stick wall © IOM 2022

SITE DESCRIPTIONS

Machonjova is the sixth largest resettlement site in Búzi district, with 2,259 internally displaced people (IDPs) divided into 512 households. Machonjova is located in the Grudja locality and was opened on 25th of May 2020. The resettlement site is accessible through the national road number 1 (N1). The N1 road is highly degraded along the 62 km separating Inchope to Mutindiri locality. After traveling an additional 30 km from Mutindiri, the site can be accessed via an unpaved road that can be difficult during the rainy season. The distance from Beira is 220 km and can take up to 5 hours by car.

The environment getting to the resettlement site resembles a savannah, with lots of green grass, bushes and low to medium-sized trees around 3 meters tall. It also has fields of corn and other crops in proximity to the site. Traders in Machonjova can source their goods from Inchope (about 90 km), the closest market hub where most goods can be found at current market prices, or in Mutindiri market, which is closer but smaller and still distant (30 km). In both cases, the lack of transportation from the resettlement to the market hubs makes the activity challenging. During the harvesting season, local goods such as vegetables and fruits are sold in the local market on-site. Agriculture and fishery are the main activities in which the IDP community engages in, providing both livelihood and sustain basic food needs. Most of the IDPs have their farms or plots of land (called “*machamba*”) near the riverbanks (2 km away), and a small portion still owns farming land in their place of origin (in Grudja). It takes less than an hour for the majority of the community to reach their farming land. In addition to the market, a primary school built with resilient materials can be found on the way to the resettlement site where most children attend classes. However, IDPs in Machonjova do not have access to a healthcare facility on-site and are forced to walk great distances (around 10 km) to get medical assistance in Grudja locality. After suffering from floods and food insecurity, people have been resettled from the Grudja locality, around 10 km away, to Machonjova. IDPs in Machonjova are currently located in a slightly higher altitude compared to where they used to live, decreasing their vulnerability to floodings. With that set up, the IDPs in Machonjova do not share the resettlement site with a host community. The resettlement site, as well as the market, do not have access to electricity. Therefore, there are no visible electricity distribution lines on the way to the resettlement site apart from the entrance to the main road in Mutindiri. Furthermore, the resettlement site lacks site planning. Hence, the houses are randomly distributed around the area, and one has to pass through the IDPs yard to get access to the different parts of the resettlement site. The entry to the resettlement site is announced by a signboard that shows the name of the resettlement site and the organizations that have assisted the IDPs since the establishment of the site.

In terms of activities, IOM has Displacement Tracking Matrix (DTM)² enumerators that conduct Multi-Sectoral Location Assessments (MSLA) on a regular basis. Moreover, IOM used to have camp management and camp coordination activists conducting activities in the resettlement site till end of May 2022. Moreover, during the agricultural seasons between 2019-2021, an intergovernmental organization (IGO) supported the community in agricultural practices' improvement through distribution of improved seeds and farm tools via e-voucher distribution mechanism.

Metuchira is the most populated resettlement site in Nhamatanda district in Sofala, with 3,143 IDPs corresponding to 39% of Nhamatanda's total IDP population, which represents 596 households. Most IDPs living in the resettlement site have been forced to move to Metuchira due to Cyclone Idai, while the others moved due to floods and tropical storm Chalane (December 2020). Metuchira is located right beside the Metuchira locality (see figure below). It was opened on 13 April 2019, a month after Cyclone Idai struck Mozambique on 4 March 2019. The resettlement site can be accessed from Beira thanks to the national road number 6 (N6) via a 107 km paved road to reach Nhamatanda village and an additional 12 km unpaved road that gives access to the settlement. The complete trip from Beira is made in two and a half hours by car. The landscape in Metuchira is characterized by the limited existence of green areas. It is uncommon to find trees, and only grass surrounds the settlement. Besides, most of the green areas are used by the IDPs to delimit the plots of their household property. The resettlement site has benefited from a site planning process, and all plots are well aligned and defined, thus contributing to a reduced amount of wild grass growing around the settlement. In contrast, there is no visible site planning in the adjacent host community, separated by the resettlement site by a single road. Metuchira's host community has access to electricity from the national utility grid. An electricity distribution/transmission line comes from Nhamatanda village, ending just before the resettlement site surroundings. The IDP community does not have access to a public health centre at the resettlement site and has to share health facilities located around four kilometers from the resettlement site with the host community. Access to the health facility is difficult as it is far from

² The Displacement Tracking Matrix <https://dtm.iom.int/>

the resettlement site and challenging to access whenever the river flow increases. There is minimal commercial activity at the resettlement site due to the existence of a more developed market inside the host community. Thus, the IDPs share the same market with the host community as customers and traders, located within walking distance of the resettlement site. Agriculture and fishery are the main activities that the IDPs are engaged in, although they must walk 1-2 hours to reach their farming plots, as the resettled community does not own land in the surrounding area; therefore, they have to walk 8 to 16 km from the settlement to where they used to live. The settlement is located near the Metuchira river. Nevertheless, it is strategically placed on a higher land increasing its resilience to future flooding events.

Currently, an NGO supports the community with food items distribution and the construction of resilient housing for the IDPs (with sanitation facilities but no electricity connection for now) for the displaced community in the resettlement site. In addition, this NGO has expressed plans to the community to build a health center, a market and a school. Another NGO is supporting the community on water, sanitation and hygiene (WASH) related issues. During COVID-19, one NGO worked on psychological support and disability inclusion, and distributed food and health & hygiene items to disabled individuals. During the agricultural seasons in 2019-2021, an NGO was supporting the community in agricultural practices' improvement through distribution of improved seeds and farm tools via e-voucher distribution mechanism. An NGO and an NGO used to run a savings group programme but it now came to an end. IOM used to work on camp management and camp coordination activities till end of May 2022 and has conducted regular MSLA under DTM.

Ndedja. A large number of mango trees flag the entrance to the 605 households of the Ndedja resettlement site. Ndedja is adjacent to the national road number 6 (N6), which connects Beira city to the rest of the country. It takes two hours (90-kilometers) from Beira to reach the site. Most IDPs living in Ndedja have been forced to move due to Cyclone Idai (March 2019), while the others moved due to floods and tropical storm Chalane (December 2020). Before moving, some IDPs were living in the Lamengo locality, while others used to live in the Chirassiqua locality. Due to extensive site planning in Ndedja, the plots of the houses are well delineated, and most of them use small green trees/flowers to separate their properties. 250 meters of high grass divides the resettlement site into two parts, which is untouched due to a high voltage power transmission line that passes through the area. In addition, there is a low voltage power transmission line passing near the entrance of the resettlement site. However, it does not provide electric power to the resettlement site. There is a market with some stands inside the resettlement site where the IDPs buy their primary goods. Although there is no electricity in the resettlement site, the market indirectly benefits from some weak off-grid lighting during dark hours by some solar streetlamps. In addition, some shops can be found scattered inside the resettlement sites. The business owners source their goods mainly in the Lamengo locality. Some of them sell chilled soft drinks using ice blocks they buy a few kilometers away in another location with access to electricity.

IDPs in the Ndedja resettlement site benefit from health care services through a health centre that has been built inside the resettlement site. The facility has access to electricity through a solar panel system installed on the rooftop of the health centre. So far, the system can provide lighting and electricity from the plug to power TV, laptop, and low power consumption devices. The electricity in the health centre is not widely available to the community, only for those who go to the health centre seeking assistance. The solar home system in the health centre is also used to power a water pump to distribute water to the health centre. Other water collection points in the resettlement sites are dependent on manual pumps. The system can provide electricity after the sun goes down for 3 to 4 hours due to a battery system. There is a primary school in front of the health centre where most school-going children have access to basic education. The resettlement has access to a centre dedicated to women, where women have the opportunity to learn new skills and discuss any challenges they face. In addition, the IDPs have access to a protection desk.

Currently, different organizations are active on-site including IOM, humanitarian, and development organizations. An NGO supports the community with food items distribution and constructing a warehouse to support their activities linked to building resilient housing (with sanitation facilities but no electricity connection). In addition, an NGO funded the construction of a health center, which has been handed over to the Government and is managed by District level government. Another NGO provides health care services at the resettlement site health centre. One NGO is supporting IDPs in with WASH-related activities, while another NGO worked on providing psychological support and disability inclusion, and distributed food and health & hygiene items to persons with disabilities during COVID-19. During the agricultural seasons in 2019-2021, an NGO was supporting the community in agricultural practices' improvement through the distribution of improved seeds and farm tools via an e-voucher distribution mechanism. IOM is conducting MSLA under the DTM unit and used to work on camp management and camp coordination activities till end of May 2022.

Muda Nunes (“Muda” for short) is the smallest of the three resettlement sites selected in Nhamatanda district as part of the assessment activity. The resettlement site hosts 1,035 internally displaced people (IDPs) organized in 207 households. Muda resettlement site was opened on 12th of May 2021 after the community suffered from floods triggered by Cyclone Eloise, which struck Beira around late January 2021. The resettlement site can be accessed from Beira by traveling 81 km through the N6 national road followed by a course of 1.5 km on unpaved road. The trip to the site can take up to 1 hour and 45 minutes by road from Beira. The site is adjacent to a large field of sugarcane and a host community which are separated from the resettlement site by an informal road. Although adjacent to a host community, Muda resettlement site is very isolated. It is difficult, if not impossible, to see the dwellings from the host community as they are around 200 m away and there is very high grass around the resettlement site. Furthermore, the resettlement site is often empty because the adults usually spend most of their day on their farms leaving the adolescents and some older children in their homes. There is no market inside the resettlement site, and the community source their main needs in the host community which is around 1.5 km away from the resettlement site. Different to other resettlement sites where there are some businesses in the backyards, in Muda only one can be found. Before being resettled in Muda, IDPs used to live 15 km away from the resettlement site, in Tica Sede. There, many relied on agriculture as their main source of income. However, now IDPs do not have farmland to cultivate nearby, hence they walk long distances to tend to their farmland, most of the time staying the entire week only returning on the weekends. The resettlement site has a primary school built with tarpaulin and wood structure where children attend classes. Additionally, the resettlement site has manual water collection points where the community has access to drinking water. Neither the water point or the school have electricity or benefit from access to lighting. Furthermore, there are no visible signs of electrification inside the site, apart from some households that use small/medium solar panels to charge flashlights, phones, or to power hi-fi equipment. Currently, only one NGO is supporting the IDPs in Ndedja in WASH-related activities. IOM is conducting MLSA under DTM and used to work on camp management and camp coordination activities till end of May 2022.

Savane is the smallest of the three resettlement sites established in Dondo district with 1,117 IDPs living in 313 households. Savane resettlement site has been established to accommodate the IDPs that suffered from Cyclone Idai in 2019. The majority of IDPs living in Savane come from the sub-urban neighbourhoods in Beira city, especially Praia Nova and Goto. The resettlement site is located 60 km away from Beira city and can be accessed by travelling for 39 km on N6 road and then turning to the N282 for some additional 21 km of unpaved road. The entire trip takes up to two hours from Beira. The way to the resettlement site is an extensive savanna with lots of greens areas. Savane resettlement site is by the side of N282. There is a market inside Savane resettlement site built with resilient material and with solar panel installed in the roof. However, there is no traders currently using the market and the solar system stopped providing electricity to the market after being damaged by Cyclone Eloise. The panel was uprooted, and the two other panels stopped working a few days later. Even though the market is not used as a hub much anymore, some IDPs trade small quantities of groceries and vegetables in their backyards. Currently, the community also shares a market with the host community in Savane locality around 3km away from the resettlement site. Before moving to the resettlement site, the IDPs used to rely on fishery and trade. Currently, the majority shifted to practice agriculture. Regarding community infrastructure, IDPs have access to drinking water through solar powered water pumps. The water fountains benefit from lighting through solar post lights. The resettlement site does not access to electricity from the national utility company although there is a power transmission line passing by the resettlement site which connects Savane locality. Nevertheless, the IDPs usually go to Savane locality to access to electricity services. The resettlement does not have a permanent health facility; however, it benefits from a mobile health brigade twice a week. There is no primary or secondary school in the resettlement site. Thus, children have to walk for more than an hour to have access education. Nevertheless, the resettlement site has a kindergarten where the parents leave their small children when going to their farms or do business. The resettlement site benefited from site planning in addition to masonry houses.

After cyclone Idai, an NGO used to provide food assistance and support with WASH-related activities. During the agricultural seasons in 2019-2021, an IGO was supporting the community in agricultural practices as in Muda Nunes. In terms of more recent activities, an IGO supported with resilient housing and market construction, and promoted livelihood opportunities within the community. IOM is conducting MLSA under DTM and used to work on camp management and camp coordination activities till end of May 2022.