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IOM Mozambique Shelter Recovery Strategy

Quarterly revision: December 2019





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Description

The strategy provides the framework for post-cyclone shelter and settlement programming for IOM Mozambique in the recovery phase as a continuation to IOM emergency programming in response to the cyclone Idai and Kenneth in March and April 2019. It is intended for internal use by IOM to inform IOM's overall programming in Mozambique, as the post-cyclone response transitions from emergency to recovery, and provides the overall framework for project design and development, and for interaction with the government of Mozambique, donors, and other partners. As such, this strategy is one integral part of IOM's comprehensive multi-sectoral approach to continued support to cyclone-affected communities in Mozambique. It is in full alignment with both the Government of Mozambique strategy (PREPOC and PALPOC), and with the Shelter Cluster national strategy.

Review/Update Period

This strategy was developed on the 13th September and is revised quarterly. The first review took place in mid-December. The next scheduled review will take place in February.

Acronyms and Key Terms

- AGD – Age-Gender-Diversity
- BBS – Build Back Safer
- CCCM – Camp Coordination and Camp Management
- CSEB – Compressed Stabilized Earth Bricks
- DRF – Disaster Recovery Framework
- GREPOC – Government of Mozambique's Reconstruction Cabinet
- IOM – International Organization for Migration
- PDNA – Post-Disaster Needs Assessment
- PREPOC – Programa de Reconstrucao e Recuperacao Pos Ciclones (In English: DRF)
- PALPOC – Plano de Alojamento pos Ciclones (Post Cyclones Housing Plan)



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Overview summary

The Shelter recovery strategy addresses the post-cyclone shelter and settlement programming within its recovery phase after cyclone Idai and Kenneth in March and April 2019. The Shelter Recovery Strategy is one integral part of *IOM's Recovery and resilience framework* to ensure continued support to cyclone-affected communities in Mozambique by using a multisectoral lens, and full alignment with both the Government of Mozambique strategy (PREPOC and PALPOC and Shelter Cluster national recovery strategy. The strategy does not encompass nor detail the humanitarian response provided by IOM through the stockpiling of Shelter/NFI items and the rapid Shelter/NFI response elements and related community engagement to address mobility trends and protracted humanitarian needs, both in response to natural disasters and conflict situations.

The main objective of the shelter recovery strategy is to support cyclone-affected households and communities in the process to *safer, sustainable and dignified shelter and housing* during the recovery phase, to **(a)** provide access to key materials designed to repair, retrofit and upgrade a range of self-built shelters and houses; **(b)** increase the ability to use knowledge of build-back-safer building materials, construction techniques and maintenance and upgrade methods, for recovery and durable shelter solutions; **(c)** support the safe development of neighborhood shared spaces, through working with communities to select, design and install a range of local-level physical site interventions

Beneficiary selection is based on two main factors: the extent of damage to the house, and the socio-economic and protection vulnerabilities, considering those outlined in the PALPOC.

The array of shelter options are aligned with the recovery strategy developed by the Government and the Shelter Cluster, the range of shelter interventions will mainly focus on: **(1)** Partial and/or total reconstruction of housing; **(2)** Reinforcement of housing (retrofitting); **(3)** Integrated and resilient human Settlements recovery.

The IOM's shelter response will continue to be integrated with, and heavily supported by, the IOM **CCCM** department, currently working in Sofala and Manica provinces, as well as in Capo Delgado and Nampula and using a multisectoral approach with protection and health components.

The geographic Targeting is Sofala and Manica provinces for Idai-affected households, and Cabo Delgado and Nampula provinces for Kenneth-affected households.



I. Strategy Objectives

Shelter Recovery Main Strategy Objective

Support cyclone-affected households and communities in the process of their post-emergency pathways to safer, sustainable and dignified shelter and housing during the recovery phase, in their selected locations.

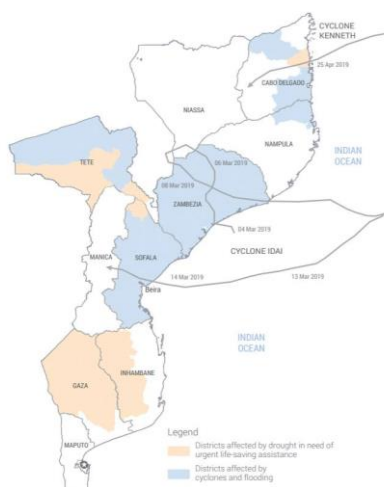
Shelter Recovery Specific Objectives

1. Provide access to key materials designed to reconstruct, repair, retrofit and upgrade a range of self-built shelters and houses, to make them safer and more disaster resistant.
2. Increase the ability to use knowledge of build-back-safer building materials, construction techniques and maintenance and upgrade methods, for recovery and for durable shelter solutions.
3. Enable construction material production and processing to increase access to quality and affordable materials that increase housing resilience while creating employment opportunities.
4. Support the safe development of neighborhood shared spaces, through working with communities to select, design and install a range of local-level physical site interventions – that are more resilient to natural hazards.

It is expected that as a result of the programming implemented under this strategy, cyclone affected households will have greater access to safe and dignified shelter, housing and neighbourhoods; these target communities will have increased resilience, and increased ability to incorporate build-back-safer elements into their ongoing housing and neighbourhood construction in the future.

II. Context: 2019 Cyclones Impact and response

2019 Cyclones impact: Idai and Kenneth



Cyclone Idai tracked across the provinces of Zambesia, Sofala, Manica and Tete between the 15th and the 21st of March 2019, with winds up to 180-220km/h and severe localised flooding. On 25th April 2019, **Cyclone Kenneth** made landfall in Cabo Delgado province, causing widespread damages. The overall estimated



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damages are valued at about USD 3 billion¹ by the World Bank. The joint post disaster need assessment (PDNA) published on May 2019, listed Idai-affected population numbers as 240,000 shelters damaged or destroyed, directly affecting a population of 13.5 million people in the provinces of Sofala, Manica, Zambezia and Tete. The total number of shelters damaged or destroyed by Cyclone Kenneth stood at approximately 45,000 in Nampula and Cabo Delgado, with a total cost of damage estimated at 100M USD. The impact of the cyclones was widespread.

Some areas in the path of Idai in Manica, Sofala, Tete and Zambezia remained flooded and inaccessible until mid-May, in many areas important crops were lost, as well as stocks of seeds and farming materials. The massive levels of displacement, as well as the follow-on cholera epidemic also caused severe disruption. Whilst most markets in Beira urban area regained at least some functionality by mid-April, rural areas faced more physical barriers to reconnecting their economies, and have generally been slower to recover. With the initial spontaneous displacements caused by the cyclones, the integration of a permanent resettlement-site approach into the response, and the more general economic disruption, it is difficult to predict as yet what eventual effect the cyclones and the responses will have on urbanization and population movements more generally.

Impacts across Cabo Delgado were less in number, as compared to those in Manica and Sofala, yet pre-existing poverty and under-development led to severe impacts in specific areas. Communities in the districts of Macomia, Ibo (islands), Quissanga were hit hardest by the cyclone, while other districts to the South of the province were severely affected in specific areas by flooding. Additionally, the situation in Macomia district – which suffered the most housing losses across the province – was further complicated by displacement from armed attacks which started in 2017, with thousands of IDP families living in the areas which were then devastated by the cyclone. The month of November only, has reported at least 19 attacks in northern Cabo Delgado.

In the Province of Nampula, two districts in the far North, Memba and Erati were severely affected by flooding that destroyed several critical bridges effectively cutting off dozens of communities.

2019 Cyclones Response

Idai Response

In March 2019, the Cyclone Idai impact was declared a Level 3 emergency, and a full range of humanitarian clusters were activated, including the Shelter Cluster, under the co-coordination of IOM and IFRC. The high profile of the emergency meant that not only was there an initial presence of many experienced shelter actors, but also interventions from new organisations, or from organisations whose traditional mandates have been in other sectors. A significant amount of the Idai-response distributions to remote areas in April were effected with support from short-term deployments of teams from the military of various countries.

The initial Shelter Cluster strategy for Idai concentrated upon the distribution of emergency shelter materials (plastic sheeting and fixings, household NFIs, and tents where appropriate). Although the Shelter Cluster strategy outlined an option for targeted distributions, for the most part partners continued blanket-distribution methodologies, for most or all of the first phase. As a result, by September 2019, the total number of households supported by partners through the Shelter Cluster rose to 243,000 for both emergency shelter and NFI response -

¹ <http://documents.worldbank.org/curated/en/727131568020768626/pdf/Project-Information-Documents-Mozambique-Cyclone-Idai-Kenneth-Emergency-Recovery-and-Resilience-Project-P171040.pdf>



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151,873 for shelter support only, with IOM accounting for 42,500 households in Idai affected areas – including 25,000 for shelter response only- and another 36,000 households for the Kenneth response for both shelter and NFI support. The IOM response was made either through direct implementation, or through providing materials to other partners via an international shelter materials pipeline. Although funding levels and international procurement of shelter materials presented some challenges, the larger constraint upon the rate of distribution of emergency shelter materials, has been the limits of the front-line capacities of the various implementing agencies.

At the same time, it has been noted that an increasing number of households have been able to start their own housing repairs and reconstruction (and more generally, early recovery) independent of the support of humanitarian actors. However, these efforts have for the most part resulted in housing or shelter which does not have any improved resistance to high winds or flooding, and overall those households also remain extremely vulnerable to new shocks. Therefore, since May 2019, across Sofala and Manica IOM has implemented a ‘second phase’ programme, distributing kits of materials intended for safe shelter and housing repairs and upgrades. To date, IOM has supported near to 5,000 households with this approach. During the same period, other shelter actors have also explored or piloted projects which through in-kind distribution or the use of vouchers, provide access to a wider range of shelter materials, in order the better support the recovery process. Nevertheless, it remains the case that these programmes to date have reached only a small percentage of those who had initially lost housing in the cyclones, and that the overwhelming response to date remains at the level of direct distribution of emergency items.

IOM’s shelter response in Beira to date has been closely integrated with, and heavily supported by the programming by IOM’s CCCM department. In large part, this has been due to the CCCM presence in short-term accommodation centres during the first months of the response, and a phasing through to the site-planning and flood analysis in 43 sites, and initial plot clearing and demarcation in 14 resettlement sites and 6 sites with drainage work undertaken together with site management support in 46 resettlement sites (intended by the government for permanent relocation of populations previously living in high-risk areas) across four provinces. As part of this effort, CCCM has also coordinated the implementation of a large number of emergency shelter solutions for those newly arriving in the resettlement sites, amongst the wider range of camp management services which it has provided.

Kenneth response

In regard to Kenneth cyclone affected families, IOM and it’s implementing partners, IOM has provided shelter and NFI assistance in the first phase of the emergency to over 36,000 families. In addition, IOM has planned and been working on actions for the early recovery, which include three key intervention lines:

- Firstly, with an initial target of 1,870 vulnerable households, the support for Housing upgrades with the provision of construction materials, technical and labour support to ensure key construction upgrades such as bracings, improved roof connections, plastering of walls.
- Secondly, with an initial target of 2,346 vulnerable households, IOM has been supporting the reconstruction of safer Pau Pique and Coral stone houses with build back better elements with the provision of construction materials, technical and labour support.
- Initiating sawmill workshops to exploit the timber resource within fallen trees in cyclone-impacted communities.
- And lastly, the immediate support (emergency shelter and other NFIs) to an initial target of 1,250 displaced households affected due to the insecurity.



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An initial drop-off in the numbers of active shelter partners between May and August 2019 has played a part in the slowing of the response, and has reduced the landscape of actors who are intending to remain operational for the next-phase of shelter and recovery interventions into 2020. However, a further significant drop in the number of organisations present, and their capacities, is anticipated by the end of the year 2019, with a high degree of uncertainty about the capacities of long-term development actors to respond to that gap.

III. Shelter recovery strategy: Scenario Analysis

There is much evidence that the cyclone-affected populations have been very dynamic in re-starting their own livelihoods, and to the degree possible, in initiating repair or reconstruction of their own housing. In many cases, this has been aided through the re-use of rubble or other discarded construction materials, or (in rural areas) through the harvesting of local natural materials used for housing and shelter. However, it is clear that there are many households who have not had the resources to start the recovery process, and who remain in very vulnerable emergency shelter, whether self-built or using materials provided by humanitarian organisations.

Existing shelter vulnerabilities and response harmonization

For Sofala, Manica and Nampula, two groups stand out in particular in this regard:

- Firstly, those who have moved to the resettlement sites, but without any further access to resources,
- Secondly, marginalised households in non-formalised and generally under-supported neighbourhoods in urban areas.

For Cabo Delgado, the groups that stand out include:

- Those marginalized households in rural communities (inland and in the islands) that lost their homes and are still now living in makeshift tents and rubble, and,
- Secondly, those individuals that have been affected both by the cyclone and most recently by the armed attacks and have had to displace to other cyclone affected districts such as Macomia, Ibo and Quissanga, amongst others.

Generally, the trend is towards a greater inequality of shelter and housing conditions, as time progresses. An example of this is the number of permanent resettlement sites where some households have already been able to construct themselves basic houses from concrete blocks, whilst other households in the same site stay sheltered in the remains of their first tent or plastic sheeting. **In peri urban neighbourhoods in Beira** the situation is particularly worrying. Block houses require technically sound intervention. Roof repositioning has been the main action undertaken by residents, but many houses suffered major damages to walls, compromising the structural integrity of the building. Combined with uncertain livelihood opportunities, and with the need of remaining at home to secure the little that remained, many families are facing increased vulnerability. On a regional level, there is also some anecdotal evidence to suggest that overall self-recovery has taken more steps forwards in urban areas where the local markets have significantly recovered, or in the most rural areas, where more households are able to harvest natural materials. This may imply that provincial smaller cities and towns may be falling in between the cracks, with limited access to natural materials, and at the same time continued physical distance from functioning, large-capacity markets. Further assessment will be necessary to confirm this analysis.

Best-case scenario

In a best-case scenario, the middle of 2020 will see across-the-board but incomplete upgrading of shelters and housing.



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- During this period, humanitarian shelter-recovery efforts including further distributions of construction materials, or pilot projects for permanent (including “core”) housing may have accounted for a further few thousand interventions. At the same time, even in a best-case scenario, there is little likelihood that the majority of most-vulnerable cyclone-affected households will have been touched by any of these responses, or will have continued their own shelter recovery in ways which are disaster-resistant and sustainable.
- In general, and previous to any other action, the Gabinete de Reconstrucao expressed the necessity to re-assess housing damage. This is especially valid considering the challenges set out above. The objective would be to prioritise shelter recovery targeting; to better understand who has reconstructed themselves already, and out of them, whose homes remain at risk and vulnerable – in need of retrofitting / upgrades, and who has not been able to start rebuilding at all. Ideally, this would be a universal household damage needs assessment that would capture the needs and gaps across all affected provinces. Previous post-disaster reconstruction plans in other countries which suffered from major natural disasters, have been informed by such assessments (Haiti, Nepal, Pakistan, etc.) and DTM capacities in country should be able to inform these shelter assessments.
- The Government of Mozambique, with the support of the World Bank and other partners, is looking to initiate a larger-scale programme of construction of complete permanent houses, starting from June 2020, as outlined in the PREPOC and PALPOC. However, according to all scenario projections, even hypothetically with adequate amounts of funding and a full clarification of the government structures and legal frameworks, it remains the case that some intended beneficiary households would have to wait for years for their turn to receive a house, with the strong assumption being that many of those would continue their own self-recovery repair and reconstruction activities in the meantime, but doing so largely without the technical knowledge to make their efforts truly safe or sustainable.

Worst-case scenario

A worse-case scenario envisages not only a more severe drop-off of capacities amongst humanitarian actors and a lack of response by development actors with shelter and housing capacities, but also a recurrence of the high winds and flooding, to at least some degree, during the rainy seasons in the last quarter of 2019 and the first and second quarters of 2020.

Positioning of this Strategy

In line and support to the Government of Mozambique (PREPOC/PALPOC)

This strategy is fully consistent with that outlined in the relevant PREPOC and PALPOC documents. In particular, it shares the following aspects:

- The integrated approach, and clearly stated rights-based focus
- It is included within the range of options for permanent and partial housing technical interventions, namely, within options A, B, C and D of the four PALPOC options:
 - A. Partial reconstruction of housing*
 - B. Total Housing reconstruction*
 - C. Reinforcement of housing (Retrofitting)*
 - D. Integrated and resilient human Settlements recovery*



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- The connections between housing construction and repair and land-tenure, in particular with regards to registration for DUAT and other documentation, and the relationships between the tenure formalisation processes outlined, and housing support options
- The flexibility to work with communities to assess and engage with market-based approaches to shelter and housing solutions.

Together with the Shelter Cluster Recovery Strategy

This strategy is also fully consistent with both the strategic objectives, and the list of technical interventions described in the [Shelter Cluster Shelter Recovery Strategy October 2019](#) update covering the period from December 2019 to May 2020. In particular, this strategy closely aligns with the second and third of the three Shelter Cluster strategy objectives:

- 2. Families can improve their shelters (safe, covered living space) to provide at appropriate level of safety, security, privacy and dignity.*
- 3. Affected communities have better access to community and public services and are more resilient to future disasters*

This strategy also assumes the same rights-based approach as outlined in the Shelter Cluster strategy. This strategy follows the Shelter Cluster strategy in insisting that any physical intervention should be assessed in terms of its performance (essentially, to what degree does the intervention support and improve a process towards long-term, safe and dignified shelter), rather than just in terms of the physical qualities or dimensions of materials.

Of the seven categories of recognized shelter recovery interventions listed in the Shelter Cluster strategy, the IOM strategy is phasing out of the distribution of Emergency Shelter Kits (Option 1), and will focus more reconstruction of more resilient houses, following and improving vernacular architecture where possible. IOM will also incremental, process-based interventions of repair, upgrade and retrofitting, as well as neighbourhood level interventions, which interpret Options 2, 4a, 4b, 5 and 7 of the Shelter Cluster strategy.

This strategy is developed in awareness of a humanitarian-actors landscape which is both rapidly changing, but in ways which point generally to a downwards trend in capacities, and a reduced number of partners overall, as well as the handover in 2020, from the Shelter Cluster to the Government of Mozambique GREPOC. This strategy will continue to monitor the emergence of programming from long-term development actors, especially after the first quarter of 2020, and in light of the currently very low levels of clarity in this regard. Regular engagement with other partners through appropriate forums and channels will continue, to map any changes in how those partners position themselves vis-à-vis the different main housing interventions options categories outlined within PALPOC, and to what degree those partners are for instance choosing to focus upon full permanent housing construction or repair options.

IOM Mozambique Recovery and Resilience Strategy

Lastly, this strategy shares the same overall multi-sectoral recovery and resilience strategy for all IOM Mozambique programming, as outlined towards the head of this document. This strategy is positioned to be complementary to the separate strategy documents from the other IOM Mozambique departments responding to the cyclones and is an integral part of the overall IOM country recovery programme. This strategy is also intended to guide all possible synergies with IOM's non-cyclone programming in Mozambique.



IV. Geographic Targeting

The PALPOC strategy lists seven provinces as having been affected by the two cyclones, of which the following have the most individual districts affected:

- *Idai*: Sofala, Manica, Tete
- *Kenneth*: Cabo Delgado and Nampula

Within the outline of geographical needs provided in the PALPOC documents, IOM will target specific communities, based on the following criteria, and based upon further analysis of needs trends, and the further programming intentions of other partners.

Sofala province, with the large urban areas of Beira and Dondo, and the much larger absolute numbers of need, will contain a significant percentage of IOM's shelter recovery activities, with more precise targeting to be undertaken to identify the correct balance between vulnerable neighbourhoods within densely-populated urban areas, and the resettlement sites and the peri-urban areas which are their nearest hosts.

Elsewhere in Sofala, dependent upon further analysis of the recovery gaps and delays, the complex geographic areas with significant provincial towns, and newly associated resettlement sites (e.g. in Buzi district) will be targeted, based upon the size of populations in need, the growing but shock-vulnerable interdependence of the towns and resettlement sites, monitoring of future population movements between new resettlement sites and locations of origin, and the levels of self-recovery.

In Manica, the same approach will be taken as in the provincial areas in Sofala outlined in the paragraph directly above, with the exception that all interventions will be adapted to take into account both the comparatively small size of many of the resettlement sites, the further distance from large markets supplying construction materials, and the different range of locally used construction materials. **In the more rural areas of Manica**, as well as in affected areas of Tete, IOM will continue to monitor for significant gaps in either partner-supported shelter recovery or self-recovery, mindful of the fact that for many dispersed rural communities, common housing types constructed out of 'non-permanent' natural materials, may make any appropriate support fall closer to environmental husbandry programming rather than shelter programming per se.

In Cabo Delgado, the strategy will focus on the areas worst affected by the cyclone Kenneth. These include: Mucojo coastal area of Macomia district, Matemo and Ibo islands, Macomia Sede and specific locations in Quissanga district.

In Nampula, the focus will be on the two districts worst affected by the cyclone induced flooding, namely Momba and Erati districts. It should be noted that unlike affected areas in Sofala, Manica and Cabo Delgado, these areas in Nampula received relatively little attention or support in the post-crisis response: both districts have been left behind, though IOM has managed a distribution of goods to over 30,000 people in the most isolated communities.

V. Shelter/Housing Vulnerability Analysis

By September 2019, it has become clear that whilst a number of households, including a minority who have recently relocated into new resettlement sites, have been able to complete the reconstruction of permanent housing using



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concrete blocks, at the other extreme there are households still living in their first tents or under plastic sheeting and other recovered materials. As these increasing extremes of shelter and housing inequality have a number of vulnerabilities as contributory causes, the IOM shelter recovery strategy follows a beneficiary targeting principle which combines global 'standard' vulnerability criteria, with 'shelter vulnerability' informed by the local context.

Given the severe levels of poverty, rapid urbanization, and limited access to education and healthcare overall in Mozambique, a majority of families affected by the cyclones could be seen as being deeply vulnerable according to standard global categorization (including age-gender-diversity/AGD). For the purposes of this shelter recovery strategy, IOM will combine these categories with a second layer of analysis, based on 'shelter vulnerability'. 'Shelter vulnerability recognizes that households may face a range of barriers to accessing safe, dignified and sustainable shelter and housing. Some of these barriers may be directly related to the global standard categories, but other factors which can have a negative impact upon a household's shelter recovery can include; lack of secure tenure, repeated displacement over short intervals, lack of access to technical know-how, or lack of access to physical construction labour support. Other significant factors can include occupying a shelter which is of such low quality (or a house of such large-scale and/or dangerous damage levels) that the higher costs of the materials necessary for any useful intervention becomes prohibitive.

In the post-cyclones context in Mozambique, a number of **shelter vulnerability criteria** will inform the targeting of both communities and individual households for the IOM shelter recovery strategy:

- Households who have been newly or repeatedly displaced, including but not limited to those in new resettlement sites
- Households in urban and peri-urban areas who are situated in neighbourhoods with high levels of informal tenure and a general lack of documented proof of tenure
- Households and communities where there is a clearly identified structural barrier to recovery and reconstruction, e.g. chronically disrupted or non-existent local markets for construction materials
- Households who, despite clear evidence of need, have not received emergency shelter support thus far, or where the emergency shelter materials have seriously degraded since the first installation, and have not been replaced
- Households who prior to the cyclones had already been displaced because of armed conflict (in Cabo Delgado)
- Households who, for other categories of reasons to be agreed upon by the IOM Shelter department, are experiencing localized insurmountable barriers to initiating repair and reconstruction.

VI. Technical Analysis

Stress and damages

As well as ensuring more sustainable access to safe, private and dignified shelter, the IOM shelter recovery strategy holds as one of its central aims, the improvement of the shelters and houses in terms of resistance to future high winds and flooding.

The main types of impact or stress upon small housing in Mozambique are generally:

Flooding

- a) Horizontal impact, on lower walls and foundations from initial rapid water movement
- b) Horizontal impact, on lower walls and foundations from subsequent receding water movement
- c) Erosion of foundations from longer-standing water



- d) Impact damage from debris being carried by the water at high speeds

Cyclones and high winds

- a) Horizontal force against walls and other vertical surfaces
- b) Uplift pushing on the underside of roof edges, verandas, or other surfaces with horizontal exposure
- c) Suction force impacting mainly surfaces on the opposite side of any building structures from the main direction of the wind
- d) Impact damage from debris being carried by the wind at high speeds

Under exposure to the impacts of these two hazards, the **most common causes of damage or destruction of housing** in Mozambique has been recorded as:

1. **Removal of roofs, by high wind forces.** This has been the most common type of damage, regardless of housing type. For the majority of small, self-built houses, the underlying cause for this is the lack of any sort of integrated, well-connected ring (of wood or other materials) connecting the roof and the walls, the lack of strength in the materials used to connect roofing sheets to the supporting trusses, and the lack of a well-structured truss system supporting the roofing sheets. The common use of a mix of different materials in one single roof also complicates any efforts to strengthen the whole.
2. **Collapse of walls due to high-wind impacts.** In extreme circumstances, even stronger walls will collapse under high wind, and the impact of flying debris remains unpredictable. However, in the Mozambican context, other key factors have been seen as contributory to the collapse of walls in local self-built housing types. Firstly, many of the different housing types are built with poor quality cement mortar (in between concrete blocks, or in between wooden wattle). In rural areas, non-stabilised earth mortars can have an even more severe effect. Secondly, due to the incremental nature of the self-build process, where one wall at a time maybe constructed, replaced or upgraded with better materials, many houses do not have any real connections between the walls at adjoining corners, leaving each wall essentially standing along against the wind's force.
3. **Collapse of walls and entire houses due to flood impacts.** For housing types using either blocks or cement-rendered wattle and daub, this collapse is often caused by the direct undermining of very shallow foundations. For more rural housing types which rely upon wooden poles for their vertical strength, the collapse can follow when the poles are no longer held fast within the earth, whether the house has been built on a raised earth plinth or not. In all cases, the vulnerability to wall collapse is increased by the instability of the overall structure due to the lack of integrated binding of the roof to the walls.
4. **Loss of external additions to houses.** Across all the geographic areas targeted by this strategy, many households continue to add external structures either adjacent to, or directly against, the main house. These external structures may include kitchens, storage areas, structures for livestock, or latrine and shower blocks. In almost all cases, they are built of materials that are less robust than the main house structure, and may have been completely destroyed and removed by the cyclone and/or flooding.

A common thread through all the above damage types lies in the lack of well-bound, well integrated structures, often due to the incremental approach to construction and upgrading, as well as a generally low quality of materials. The lack of a single overall structural design, and an observed tendency for families to invest in the materials for outer shells rather than structural frames, also adds to the challenges for build-back-safer interventions. In addition, consideration that roofs elements, doors and windows are the most expensive parts in a house which must be considered for lower income households.



Reference: DTM vulnerability and risk assessment in Idai affected areas_ December 2019

Materials supply analysis

In the course of operations IOM has identified critical supply chain constraints and limits to key building materials used in cyclone affected districts. These include:

- i) Cut timber, used for roofing elements, reinforcements and roof plates (robust timbers placed on top of walls enabling adequate connection to roof structure) and joinery framing (door and window frames).
- ii) Construction blocks for wall elements that use locally available soils. Supply is limited and quality of blocks poor – mostly sand-cement production. A cost-effective alternative that makes more use of local earth, combined with small quantities of sand and cement known as Compressed Stabilised Earth Block (CSEB) technology would be an appropriate option and it requires technical assistance and initial investment.
- iii) Production of lime using locally available coral rock – from “ragstone” inland quarries (as opposed to live coral from reefs); a traditional practice to produce lime in mortars and renders. Improvements in lime kiln construction and burning combined with materials research to improve lime-based mortars would generate a new market for high quality material.

Technical Intervention Analysis

IOM’s distribution of light repair and improvement kits, between May and August 2019 has demonstrated that a broadening of materials to those which were specifically intended for disaster-risk-reduction, and which would have some positive effect upon the structural strength of the shelters or houses, have been positively implemented by beneficiaries, and as such acts as the starting point for one strand of the next phase of interventions outlined in this strategy, below. Above all, the rationale for choosing that repair kit methodology, and for the selection of the items themselves, remains valid: to give targeted beneficiaries access to a range of materials whose use is generally locally understood, which are already familiar and available otherwise on local markets, which can be useful for the repair and reconstruction of a range of common local self-built housing types, and which can make contributions to the build-back-safer aspect of repair and reconstruction.

To a greater or lesser degree, this process of designing and selecting intervention options has been echoed in the PALPOC, where the following general categories of support are included for selection by partners:

- A. Partial reconstruction of housing*
- B. Total Housing reconstruction*
- C. Reinforcement of housing (Retrofitting)*
- D. Integrated and resilient human Settlements recovery*

IOM has interpreted these PALPOC guidelines with some more detail on how they might be operationalized in programmes, as set out below:

1. Partial repair or reconstruction of damaged houses, with an emphasis upon the integration of build-back-safer materials and techniques

Through community consultation processes, a palette of materials would be developed, to be provided either as kits (of an expanded form, with greater variety of items compared with the current phase’s lightweight repair kits) to improve sheltering units into resilient housing, or as a menu from which individual households could choose a



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selection based upon their own needs, up to a maximum combined cost. With the second option, IOM will explore the possibilities of vouchers, materials fairs, or materials banks, but may choose to include the direct distribution of some items uniformly to each beneficiary, if these items are seen as being particularly essential to build-back-safer aspects. Each of these interventions would be priced at 400-500 USD per household for interventions for light damages, although there may be options for smaller variants closer to 250 USD per unit, and with the intention that all the items could be successfully installed by the beneficiaries themselves, with light technical assistance, and within one- or two-days' work. The intervention targets light to medium damage to housing through the full or partial replacement of roofing structures, the improvement of roof-wall connection, reinforcement of doors and window, the elevation of the floor, among other structural self-reconstruction support with the provision of technical assistance.

2. Total housing reconstruction

IOM in coordination with the provincial and district authorities, the GREPOC and the affected communities, will conduct household level damage and vulnerability assessments in the most affected districts where high numbers of houses report to be totally destroyed and were, because of high levels of "extreme vulnerability", households have not been yet able to rebuild a house and are either living with a neighbor or living between the rubble or makeshift tents. Increasing more their vulnerability with the upcoming monsoon season. Once extreme vulnerable households are identified and verified, IOM will engage communities in the reconstruction of houses, including incentivizing and creating job opportunities around the construction of houses. Firstly, by orienting communities in the key resilient housing principles for construction and later by organizing the communities and local artisans in working groups for the construction works. IOM will provide construction materials, local specialized labour (carpenters and masons) and technical advice and supervision by engineers. The beneficiaries may provide labor and salvage materials from their destroyed homes. The intervention combines the constructive technique characteristic with technological solutions and "conventional" building materials, resulting in a mix-material housing typology for rural areas and in a conventional housing typology in urban and periurban areas, combining affordability and accessibility to building materials. The total housing recovery reconstruction can be incremental to ensure safe shelter and phasing in construction and is paired with initiatives generating greater access to materials and generating incomes deriving from shelter activities. Each of these interventions are estimated at a cost of USD 660 for Pau Pique type houses to USD 1,000 for Coral stone or block houses in the Ibo islands (Cabo Delgado); the timeframe for construction will be of 3-7 days respectively. Other more shelter solutions such as CSEB houses are tested in those communities where soil is adequate, markets are limited and access is challenging.

3. Upgrading of lightweight shelters, particularly in resettlement sites.

IOM will conduct further assessments in resettlement sites and affected rural communities, in order to gauge the extent to which meaningful upgrades can be made to the lowest-quality shelters. Once it has been determined (in conjunction with CCCM or other relevant actors in the sites) that those low-quality shelters are indeed the primary shelters for the households concerned, a number of options may be offered to the beneficiary households within the maximum per-unit price range. These options may include (but not be limited to) the wood poles and fixings necessary to create a first stable frame for subsequent infill using locally harvested materials, raised foundation plinths for shelters in low-lying areas, or improved, more durable outer-surface coverings for the shelter. Other options may include kits to expand the indoor covered space of smaller shelters, or the installation or upgrading of shower or latrine structures. Each of these interventions would be priced at 300-500 USD per household (subject to price review), and with the intention that all the items could be successfully installed by the beneficiaries themselves with labour support provided, and within one- or two-days' work. Interventions in resettlement sites are thought as holistic and integrated, paired with the CCCM/Site improvement work undertaken on the ground,



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sound site planning and access to other services using a multisectoral lens and creating income-generating activities through shelter and site improvements activities.

4. Disaster-risk-reduction knowledge transfer and training.

IOM will consult with targeted communities, as well as with local organisations with an already existing capacity for technical training in the community, to devise a palette of knowledge-transfer channels, ranging from community trainings, trainings targeting key craftspeople in each community, matching communities with the capacities of local technical schools or colleges, or the development of technical guidance literature. The topics of the trainings will not only include the usage of the materials being provided through this recovery strategy, but will also extend towards all aspects of incremental but permanent housing construction, in order to increase sustainability and long-term impact. To the degree possible, opportunities will also be investigated for training-of-trainers. The duration of such activities will vary with the target group, as will the costing per activity.

5. Neighbourhood improvement options.

On a community level, either in pre-existing neighbourhoods or else in new resettlement sites, small grants will be made available, either through community groups or local contractors (depending upon the project scope, and the achievable level of community engagement) to conduct improvements in a range of public or shared spaces within the neighbourhood. These small-scale projects will be selected through community consultation processes which lead to a prioritisation of interventions which are both important and relatively easy to achieve within the time-frame of the project, as well as fitting in the general price-range given in this strategy. During the project selection process, emphasis will be put on projects which can increase the safe access to the spaces for all members of the community, including women and children. Typical interventions may include improved lighting, improved communal sanitation facilities, localized drainage, or improved security and access for women's spaces or child-friendly spaces, although the range of possible projects should not be limited to these. These interventions will come in a mix of two price ranges, of 500 USD or 1000 USD, depending upon the nature of the project. Community consultation periods may vary, but the construction period for each should not exceed more than seven days in general.

The estimates of the price bands for all the different intervention types outlined in this strategy are based upon comparisons with related intervention categories in both the Shelter Cluster Recovery Strategy, and the PALPOC, as well as IOM's procurement experience with the lightweight repair kits, and upon recent market assessments in September 2019. (As a concrete comparison: the estimated amount of 300-400 USD per unit for the housing repair items below, is within the middle of the range of costs banded by the Shelter Cluster Recovery Strategy estimates of 85-335 USD, and the PDNA/PALPOC estimate 500-650 USD).

In line with the current draft of the PALPOC, IOM will continue to seek to the degree possible and appropriate, to engage with local markets as part of the intervention methodologies chosen. Given the fact that historically, the use of cash for emergency response and recovery has remained outside the comfort zone of the Government of Mozambique, IOM has monitored the progress of other organisations which are piloting voucher approaches, in order to better understand the strengths and weaknesses of such approaches in the local context, and the willingness of all related actors (including the private sector) to engage with such approaches.

The following other issues are being currently assessed in order to determine the extent and the locations in which market-based approaches can be used:



1. **The availability of key build-back-safety items on the local markets.** Recent market surveys (September 2019) have indicated that items such as hurricane strapping, umbrella bolts, and galvanised binding wire of varied thicknesses, are not available, for instance.
2. **The ability of the local markets to supply other key materials** which are currently available, at the scale necessary for large implementation.
3. **The consistency in necessary minimum quality** for many items is not assured. Given the fact that a number of standard construction items (nails, bolts, roofing sheets) are imported from other countries, whilst others (wood poles, concrete blocks) are produced locally but in small, informally run workshops, quality control may prove to be a complex undertaking.
4. **Distance from local markets.** This concern may continue to be particularly acute in provincial towns, where, as mentioned elsewhere in this strategy, there is a risk of ‘falling in between two stools’, in as much as being at a significant road distance from larger urban markets, but also being at a distance from the harvesting of local natural materials.
5. **The environmental impact** of ceding sourcing of materials entirely to the beneficiaries, rather than being able to continue full control over the sources.

Under many of the more likely scenarios, IOM may use a hybrid approach, seeking to **use vouchers for some materials**, but still relying upon direct distribution for other materials where quality or availability has come into question. IOM will also seek for more localized solutions such as the use of Corda de pneu (tire wire instead of nylon ropes or galvanized binding wire), which is widely known and used traditionally in the rural areas. Another solution to be soon tested in Pemba is the establishment of a “Carpinteria” that will prepare and treat wood from the thousands of coconut trees that were felled by the cyclone. And CSEB bricks will be introduced where markets and access is challenging.

VII. Strategic Target for IOM Reconstruction & Retrofitting activities

Target

IOM’s target for shelter recovery is set out below, including orientational geographic coverage:

Provinces	Reconstruction # of HHs	Retrofitting / Upgrade to Shelters # of HHs
Sofala	5,000	8,000
Manica	3,000	
Cabo Delgado	6,000	10,000
Nampula	4,000	4,000
TOTAL	18,000	22,000

Connections with IOM Programmes 2020

The shelter recovery strategy will integrate closely with any IOM CCCM programming in two key areas and by using a multisectoral lens with an integrated approach with Health, MHPSS, Protection programming and DTM for shelter assessments.

- **Firstly**, regarding any interventions which concern support for housing, land and property rights, and for practical, household-focused support for greater security of tenure.
- **Secondly**, for any CCCM site-planning programming which involves infrastructure or other upgrades to public spaces within the resettlement sites, the range and implementation methodologies, as well as overall



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targeting, of the neighbourhoods improvement options outlined earlier in this strategy document above, will be co-managed between the Shelter and the CCCM departments.

There will be a positive exploration of ways in which the shelter recovery strategy can align with and support IOM's ongoing non-cyclone response programming in Mozambique, although it is anticipated that such opportunities may be greater in the areas affected by cyclone Kenneth, in the north of the country.

VIII. Monitoring Mechanisms and exit strategy

Monitoring

The shelter recovery strategy will necessarily need to place greater emphasis upon monitoring of outcomes, as well as technical monitoring for the specific interventions undertaken.

For the shelter materials component of the strategy, including retrofitting, reconstruction and distribution options, practical, field-based monitoring activities will be designed to gauge the degree to which build-back-safer elements are in fact being incorporated into the repairs and upgrading, and to what degree the specific materials provided by IOM have played their part. The monitoring of the knowledge-transfer and training part of the shelter recovery programme will go further than this, applying practical field-based methodologies to measure the degree to which these improved construction techniques are being used in further extensions or upgrades not directly supported with IOM materials, and to what degree members of the communities are transmitting their learnings to others.

For the neighbourhoods improvement options, the shelter department will work with CCCM and Protection colleagues, to develop both the methodologies and indicators necessary to measure the broader impacts on issues like GBV risk-mitigation, and more generally safe access to the improved neighbourhood areas for all members of the communities.

Exit Strategy

The key criteria for framing and managing the eventual exit from the shelter recovery strategy is closely tied to the outcomes outlined in this strategy. The completion of the strategy will be measured by the percentage of the targeted communities whose shelter and housing situations have improved to the point that the palette of interventions developed through this strategy are no longer needed or appropriate. This does not preclude the possibility that IOM may then decide to continue with further programming targeting cyclone-affected populations with interventions which focus more squarely on permanent housing construction. Monitoring for these strategic outcomes therefore, will encompass a wider review of the communities in the geographical areas where IOM works, as well as the specific households which have been direct beneficiaries of interventions.

To the degree possible, the process of completing the programming of this strategy will seek opportunities to integrate into other ongoing, non-cyclone response programming, in particular through the use of lessons learned from locally-appropriate construction techniques, markets engagement, and community capacity-building.

Throughout the end-phase for this strategy, IOM will develop the mechanisms necessary to re-activate if necessary, new rounds of emergency shelter responses, to any new disaster. A regular review of these mechanisms will be made in a timely manner approximately 60 days before the forecast onset of every rainy season.