



**MAHLAHLE**

ASSOCIAÇÃO PARA A PROMOÇÃO E DESENVOLVIMENTO DA MULHER

**PROJECTO DE RECUPERAÇÃO DE EMERGÊNCIA E RESILIÊNCIA  
PÓS- CICLONE IDAI E KENNETH - CRRP (P171040)  
SUBVENÇÃO N. D519 – MZ**

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INCUBÊNCIA: SERVIÇOS DE CONSULTORIA POR MAHLAHLE PARA  
APOIAR A RECUPERAÇÃO DE 3515 HABITAÇÕES NO DISTRITO DO  
BÚZI**

**STRATEGY FOR MANAGING LOGISTICS AND  
CONSTRUCTION MATERIAL, STORING  
MATERIAL AT DISTRICT LEVEL, AND LOCAL  
MARKET CAPACITY. INCLUDING STRATEGY  
FOR LOCAL DISPOSAL CONSTRUCTION  
MATERIAL WASTE AND MAHLAHLE LOCAL  
OFFICE**

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## **I. SUMMARY**

On March 2019, Mozambique was severely hit by two tropical cyclones, namely Cyclone Idai in the central Provinces of Mozambique and Cyclone Kenneth in the northern Province of Cabo Delgado. The Cyclone Idai which made landfall as a category four Cyclone near Beira City, with strong winds (180 – 220km per hour) and heavy rain (more than 200mm in 24 hours) across the Provinces of Sofala, Manica, Zambezia, Tete and Inhambane has caused more severe devastation in the Province of Sofala with more impact on the city of Beira and the districts of Búzi, Dondo and Nhamatada. The weather system's impact was particularly devastating as it came strong winds. The impact of the cyclone and flooding caused loss of life, widespread destruction to both infrastructure and shelters, as well as disruption of essential services, markets and livelihoods. At least 190,000 households will need support to rebuild their homes. Most of the houses are built with inadequate materials, predominantly adobe, wooden sticks, and bamboo. They do not follow resilience standards and do not withstand strong winds. The resilient reconstruction of housing plays a key role for poverty reduction, especially with regards to vulnerable families living below the poverty line in informal housing.

The needs for assistance in the housing recovery process in the affected areas exceed the available resources by far and only 15,000 households to be identified through Housing Survey will be benefited from the housing grant to be provided by Government under the WB-financed Cyclone Idai and Kenneth Emergency Recovery and Resilience Project (CERRP).

The Government of Mozambique (GoM) (hereinafter called "Borrower") has received financing from the International Development Association (IDA) (the "Bank") in the form of a "grant" (hereinafter called "grant" toward the cost of the Cyclone Idai and Kenneth Emergency Recovery and Resilience Project (P171040). The Post-cyclone Idai Reconstruction Office, as one of the implementing agencies of the Project intends to apply a portion of the proceeds of this grant to eligible payments under the contract for which this Request for Proposals is issued. Payments by the Bank will be made only at the request of the Government of Mozambique and upon approval by the Bank, and will be subject, in all respects, to the terms and conditions of the financing agreement. The financing agreement prohibits a withdrawal from the grant account for the purpose of any payment to persons or entities, or for any import of goods, if such payment or import, to the knowledge of the Bank, is prohibited by a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations. No party other than the Borrower shall derive any rights from the financing agreement or have any claims to the proceeds of the grant.

The project interventions, under sub-component 1 – Housing, will be implemented through the implementing partner. For this purpose, Mahlahle was selected to be a partner of implementation to support the rehabilitation and reconstruction of 3515 houses in Buzi district, in Sofala Province.

## 2. INTRODUCTION

MAHLAHLE, an Association for the Promotion and Development of Women, is a non-profit Mozambican Non-Governmental Organization founded in 1997, with special focus on the field of implementation of community development projects, prioritizing women, children and other vulnerable groups in society.

The vision of the MAHLAHLE is a Mozambique in which all its inhabitants live a dignified life, are resilient to disasters and particularly appreciate the social roles of children, girls and women (the most vulnerable groups). The development of rural communities is one of the main institutional goals. This is to be achieved by strengthening civil society organizations, knowledge transfer, capacity building in the field of disaster prevention and disaster management, thus promoting the participation of children, girls and women in social processes. The organization's underlying values include dignity, impartiality, independence, respect for victims, gender equality, transparency and accountability.

In order to ensure the resilience and good standards, the housing recovery will be implemented in multiple layers of supervision and quality assurance and will enhance community engagement, leadership, ownership and empowerment. The housing recovery will strictly follow the standards and technical recommendations which are critical in ensuring the resilience and Building Back Better (BBB) principles. It is modeled to ensure that the houses which were damaged or destroyed are rehabilitated and recognizes the incremental needs of housing.

MAHLAHLE will fully follow the safe and resilient construction instruction and guidance standards proposed by the Post-Cyclone Safe Housing Reconstruction Manual, "PALPOC" and technical guidance from the project team, GREPOC and UN Habitat for reconstruction.

Mahlahle will assume a community-based-partnership approach to ensure full participation and appropriation of activities based on the transfer of knowledge to the local level through building the capacity of key stakeholders in decentralized and participatory planning. Project activities are aimed at providing alternative income sources and linkage to local and national markets; this will strengthen the capacity of communities to respond with resilience to the adversity of climate thereby contributing to a better response to the recovery process.

As a result of the implementation of the reconstruction activities, MAHLAHLE will be called to implement actions to mitigate all issues and challenges related to the following activities:

- Identify shops that provide certificated construction materials.
- Manage all the logistics of construction of 3.515 houses.
- Purchase construction materials from local shops previously certified by the Project, in accordance with the provisions of the Housing Reconstruction Manual.
- Waste and debris management.

### **3. STRATEGY FOR MANAGING LOGISTICS AND CONSTRUCTION MATERIAL, STORING MATERIAL AT DISTRICT LEVEL, AND LOCAL MARKET CAPACITY**

This strategy is intended to reduce risks related to logistics and construction material, storing material at district level, and local market capacity.

#### **3.1. Identify shops that provide certificated construction materials**

Following the procurement procedures established in the Housing Reconstruction Manual, MAHLAHLE launched an expression of interest to identify and create a database of potential qualified construction materials and services suppliers.

The procedures described herein allow MAHLAHLE to simplified procurement procedure, that is, the procurement of goods through tendering by requesting for quotations should be applied any times when is necessary construction materials. This is a method based on comparing the prices presented in valid quotations received from different bidders, and the number of quotations varies according to the Estimated Cost. The evaluation of the quotations submitted by each bidder will be strictly based on the Request for Quotations document and compliance with the practices of legality, morality, impersonality, equality amongst bidders, disclosure of documents, administrative equity, non-splitting of contracts, binding nature of the invitation to tender and objective judgement.

It is fundamental to clarify that MAHLAHLE will requests a higher number of quotations in order to ensure that at least three (3) quotations are received for purchases up to USD 200,000 and five (5) quotations for purchases above USD 200,000.

MAHLAHLE organized a prequalification process to establish a database of suppliers for each material needed on the job. This prequalification essentially aims to verify the eligibility and quality of the materials that are available in the markets of Beira and Buzi mainly. The prequalification exercise carried out by MAHLAHLE is valid for three months. After this period, MAHLAHLE will carry out a new prequalification to identify potential suppliers for the next batch of deliveries, corresponding to three months. The three-month deadline is to promote greater competitiveness, transparency and participation of more suppliers who are eligible to be used in the next three months.

As established in the construction manual, chapter 14 of acquisitions, MAHLAHLE will conduct its acquisition process in this contract, based on the procedures defined in the construction manual and whenever applicable, including the procedures of good practices acceptable by the World Bank.

After prequalification, and after approval of the typology of the house, MAHLAHLE presents the list of materials and the acquisition plan to the Housing Specialist at GREPOC, for approval. Only after this approval of the list of materials and the acquisition plan for these materials, MAHLAHLE, launches the request for quotation addressed to all prequalified suppliers, to present their quotations in a sealed envelope within a period of between 2 and 15 days, according to the agreement. with the quantities and specifications of the materials. At the end of the term, requests for quotations are opened by an appointed panel, in the presence of suppliers, with the voluntary participation of UN Habitat. A quotation opening act

must be drawn up and signed by all participants in the room where the quotations are opened. The presence of suppliers or their representatives is not mandatory, as long as their quotes have been entered in a sealed envelope.

Then, within a maximum period of 3 days, the panel carries out a detailed comparative analysis of the price of each material in each quotation, and in case of doubt, it checks the material to assess its quality, in cases where the price variation exceeds 50% between the lowest and highest price. However, the panel draws up its conclusion, always considering the lowest price and quality for each material and supplier.

From this exercise, several suppliers for different types of materials will always be identified.

Finally, MAHLAHLE organizes the entire process, including a checklist table of steps, procedures and evidence of competitiveness, transparency and participation of the largest number of eligible suppliers. This process must be forwarded to GREPOC, the attention of the Housing Specialist and with the knowledge of the Procurement Specialist and the Project Coordinator, for the approval and validation of the acquisition process, and subsequent payment to suppliers.

A successful completed procurement process file shall contain the following documents:

- (i) Simplified plan for the procurement of materials;
- (ii) Letter requesting for quotations with a table containing the specifications of the materials to be procured attached;
- (iii) Record of invitation letters/emails dispatched;
- (iv) Record of confirmation of receipt of invitation letters by potential bidders;
- (v) Order appointing the Evaluation Panel issued by MAHLAHLE (where applicable);
- (vi) Bids / Proforma Invoices submitted by bidders;
- (vii) Signed Evaluation Report containing the recommendation for awarding the bid and a table comparing the quotes;
- (viii) Letters sent to the successful bidder awarding the contract and to the other bidders stating who has won the tender and the closing of the evaluation.
- (ix) Final invoice;
- (x) Certificate of receipt or minutes of acceptance of the goods by the MAHLAHLE;
- (xi) Receipt confirming the payment of the goods.

*A MAHLAHLE organizou um processo de pré-qualificação para estabelecer uma base de dados de fornecedores para cada material a ser necessário na obra. Esta pré-qualificação visa essencialmente verificar a elegibilidade e a qualidade dos materiais que estão disponíveis nos mercados da Beira e Buzi principalmente. O exercício de pré-qualificação realizado pela MAHLAHLE, tem a validade de três meses. Passado este período, a MAHLAHLE ira realizar uma nova pré-qualificação para identificar os potenciais fornecedores para o próximo lote de entregas, correspondente a três meses. O prazo de três meses, e para promover maior competitividade, transparência e participação de mais fornecedores que são elegíveis para serem utilizados nos próximos três meses.*

*Conforme estabelecido no Manual de construção, capítulo 14 de aquisição, a MAHLAHLE, irá conduzir o seu processo de aquisição neste contrato, com base nos procedimentos definidos no manual de construção e sempre que aplicável incluir os procedimentos de boas praticas aceitáveis pelo Banco Mundial.*

*Depois da pré qualificação, e depois de aprovada a tipologia da casa, a MAHLAHLE apresenta a lista de materiais e o plano de aquisição para a Especialista em Habitação no GREPOC, para aprovação. Somente depois desta aprovação da lista de materiais e do plano de aquisição destes materiais, e que a MAHLAHLE, lança o pedido de cotação dirigido para todos os fornecedores prequalificados, para apresentarem as sua cotações em envelope fechado num prazo entre 2 a 15 dias de acordo com as quantidades e especificações dos materiais. Fim do prazo, os pedidos de cotação são abertos por um painel indicado, na presença dos fornecedores, com a participação voluntária da UN Habitat. Uma acta de abertura das cotações deve ser redigida e assinada por todos os participantes da sala do acto de abertura das cotações. A presença dos fornecedores ou seus representantes não é obrigatória, desde que as suas cotações tenham dado entrada em envelope fechado.*

*Em seguida, num prazo máximo de 3 dias o painel faz a análise comparativa detalhada do preço de cada material em cada cotação, e em caso de dúvidas, procede a verificação do material para aferir a sua qualidade, em casos em que a variação do preço for superior a 50% entre o menor e maior preço. Contudo, o painel elabora a sua conclusão, sempre considerando o menor preço e qualidade para cada material e fornecedor.*

*Deste exercício sempre serão identificados vários fornecedores para diferentes tipos de materiais*

*Por fim, a MAHLAHLE, organiza todo o processo, incluindo uma tabela de checklist dos passos, procedimentos e evidências de competitividade, transparência e participação de maior número de fornecedores que são elegíveis. Este processo, deve ser encaminhado para o GREPOC, a atenção da Especialista de Habitação e com o conhecimento da Especialista de Procurement e o Coordenador do Projecto, para a aprovação e validação do processo de aquisição, e posterior pagamento aos fornecedores.*

### **3.2. Manage all the logistics of construction of 3.515**

After payment has been made to the suppliers of each material by GREPOC, MAHLAHLE will prepare a delivery plan with the supplier to the work site, with clear information on the place, date and quantity for delivery. MAHLAHLE will share this plan with the verification team, GREPOC and UN Habitat, for their quality monitoring and stock control. Thus, according to the delivery plan of each supplier, and after confirming the availability of stock for transport, the supplier invites MAHLAHLE to check the quality before loading and at the unloading site.

At the time of unloading and acceptance of the materials, the verification team must be present. The material will however be stored temporarily, in containers set up close to the place where the construction and/or rehabilitation activities are being carried out. In each

container will be present the general list of materials and the lists of materials to be applied in each house. Each of these lists will be identified by the name and number of the beneficiary.

On a day-to-day basis, the team of masters will request materials for a given task on the jobsite, according to the list of materials. This request will be tripled and must be approved by one of the engineers. Copies of the request in triplicate, duly signed, must be, one with the warehouse manager (of the container), another with the engineer who approved it and who is monitoring the work and the third must remain with the foreman, to submit with your house completion report.

Daily, during the mornings, the material will be placed in each house, upon request of the materials for the daily activity. At the end of each day, the engineer confirms the application of materials in each house and reports to the MIS. It should be noted that large amounts of materials will not be stored in these temporary warehouses, including aggregates and blocks.

The Finance and administrative officer under the supervision of the Administration and Finance specialist will carry out the day-to-day logistics and procurement needs of the project. The project will use a 1-months logistics and procurement plan that will be revised regularly to ensure that it meets the needs of the project.

Depois de efectuado o pagamento ao/s fornecedores de cada material pelo GREPOC, a MAHLAHLE, vai preparar com o fornecedor um plano de entregas ao local da obra, com informação clara do local, data e quantidade para entrega. A MAHLAHLE ira partilhar este plano com a equipe de verificação, o GREPOC e UN Habitat, para a sua monitoria de qualidade e controle de stocks.

Assim, de acordo com o plano de entregas de cada fornecedor, e após confirmação de disponibilidade de stock para transporte, o fornecedor, convida a MAHLAHLE, para a verificação da qualidade antes do carregamento e no local de descarregamento. No momento do descarregamento e aceitação dos materiais, a equipe de verificação devera estar presente.

O material será no entanto armazenado temporariamente, em contentores montados próximo do local onde estão a ser realizadas as actividades de construção e/ou reabilitação. Em cada contentor estará presente a lista geral de materiais e as listas de materiais a ser aplicado em cada casa. Cada uma destas listas será identificada pelo nome e numero do beneficiário.

No dia a dia, a equipe de mestres fará a requisição de materiais para uma determinada tarefa na obra, conforme a lista de materiais. Esta requisição será triplicada e devera estar aprovada por um dos engenheiros. As copias da requisição triplicada, devidamente assinada, deverão estar, uma com o fiel de armazém (do contentor), outra com o engenheiro que aprovou-a e que esta a monitorar a obra e a terceira devera ficar com o mestre da obra, para apresentar com o seu relatório de conclusão da obra.

Diariamente, durante as manhas, o material será colocado em cada obra, mediante a requisição dos materiais para a atividade diária. No final de cada dia, o engenheiro confirma a aplicação dos materiais em cada obra e reporta no MIS.



De notar que não serão armazenadas grandes quantidades de materiais neste armazéns temporários, incluindo inertes e blocos.

The Finance and administrative officer under the supervision of the Administration and Finance specialist will carry out the day-to-day logistics and procurement needs of the project. The project will use a 1-months logistics and procurement plan that will be revised regularly to ensure that it meets the needs of the project.

## **4. GENERAL STRATEGY FOR LOCAL DISPOSAL CONSTRUCTION MATERIAL WASTE AND MAHLAHLE LOCAL OFFICE**

### **4.1 Situation Analysis**

#### **4.1.1. Impact of the Cyclone IDAI and reconstruction phase**

In the aftermath of Cyclone IDAI, the Government of Buzi, with strong support from private sector and affected communities has been implementing large debris clearance and removal activities. Almost two months after the cyclone, more than 100.000 m<sup>3</sup> of debris have been removed and most of the roads and public spaces have been cleared.

Some significant material recovery from the debris was taking place among the population, in particular reuse of construction material (corrugate iron, rubbles, etc.) and production of charcoal from wooden debris. Nevertheless, there is potential risk of existence of some debris resulting from demolitions for rehabilitation. However, some additional quantities will be generated by reconstruction works, and it is expected that existing waste & debris capacity from the district government will be stretched over the next months.

### **4.2. Suggestion of interventions**

#### **4.2.1.Purpose**

This strategy is intended to reduce risks related to waste and debris materials, resulting from clearance, demolition or reconstruction of houses in the community.

Waste and debris resulting from the reconstruction of houses (evolutive house, local mixed materials, and retrofitting) in the community, is considered a low risk type of debris

The general purpose of the awareness exercise is to create a common understanding of the risks and how to manage them, and at the same time to avoid creating panic or expectations in particular when MAHLAHLE in collaboration with Buzi Government decide for example to use the debris for erosion control.

The strategy covers the following axes of intervention:

- Awareness;
- Beneficiary decision
- Training;
- Safe collection and removal;
- Safe Disposal;
- Long-term recommendations.

### **4.2.1.1 Awareness for the community**

At community level, some awareness is also needed to ensure that the population is aware of the risks linked to waste and debris, and avoid best practices such as:

- Composting;
- Arts and crafts;
- Erosion control;
- Other using as per discussion with beneficiary and community.

The waste and debris awareness for the community shall include:

- Information about potential uses of construction and domestic waste and debris;
- General knowledge of the types and uses of wastes and debris;
- Information about potential income generation activities related to waste and debris management in the community.

Key target information for awareness sessions will be developed accordingly.

Visual Information, Education and Communication (IEC) material could be developed to illustrate these key messages taking into consideration the need to be culturally sensitive for the message to go through. Trained community mobilizers can support the promotion of the income generation activities related to waste and debris.

### **4.2.2. Training**

All beneficiaries interested in develop income generation activities from the waste and debris uses, will benefit from proper training provided by a trainer suitably qualified and experienced,.

The training shall include but not necessarily be limited to the following:

- Composting;
- Arts and crafts;
- Pits;
- Training on collection, removal and disposal of waste and debris in the community
- Establishing disposal area (dumpsite);

The practical training shall focus on waste and debris management for income generation source.

### **4.2.3. Safe removal and handling**

#### **4.2.3.1. waste assessment**

In order to prioritize safe removal of waste and debris, site assessments need to be implemented to identify the type and potential uses, but not be limited to:

- Product type;
- Volumes;
- Location;
- Training needs;

#### ***4.2.3.2. Implementation of training activities***

Minimum requirements for uses and handling of waste and debris will be implemented at beneficiary level, according to their initiatives.

These minimum requirements shall be followed by all entities involved in works involving waste and debris re-utilization, handling and disposal.

A quick assessment of local market in Buzi has shown that all PPEs, as well as other key consumable needed for safe handling of waste and debris can be made available in Buzi by local suppliers.

#### **4.2.4. Final disposal**

Arrangement for final disposal site shall be agreed on with Local Authorities, including SDPI, who is in charge of Environment. Some key requirements for final disposal of waste and debris resulting from demolition and reconstruction are:

- The waste material has to be separated at family level, in order to organize the dumpsite and potential beneficiaries and private sector interested in waste and debris business.
- The choice of the location for final disposal or dumpsite must be taken by local authorities.

## 5. GENERAL STRATEGY FOR RISK REDUCTION LINKED TO ASBESTOS CEMENT

### 5.1. Situation analyses

Tropical Cyclone IDAI made landfall near Beira city, Sofala province, on the night of 14th to 15th of March. Strong winds (180 – 220 km) resulted in heavy damage to buildings in the area, in particular destruction of roofs. Available damage assessment indicates that around 70% of buildings (based on data provided Beira Municipal recovery and Resilience plan) were damaged in the city of Beira, including public buildings, schools, hospitals, industries and warehouses, as well as private properties. In the provinces of Sofala and Manica, the total number of houses totally or partially destroyed raises to 240,000 (Post Disaster Need Assessment).

Concerns were raised early in the response about the possible presence of Asbestos Containing Materials among damaged roofing and debris (fiber cement) by Humanitarian Actors, Government and Local Authorities.

Fiber cement material was produced in a local factory (“Lusalite”) located in Dondo city (30 km from the Beira City). Information from current owner of the factory indicate that the products are asbestos-free only since 2008 (It is confirmed on the Mozalite website (source: <https://mozalite.net/a-mozalite/>), so it can be assumed that most fiber cement products used until that date will probably contain asbestos.

Information from National Statistics Institute (see table 1 below) indicate that high percentages of “Lusalite” roofing for housing can be found in Beira (19,6 %) and Dondo (18,1%), while percentages are much lower in Districts of Nhamatanda and in Manica province. The percentage of fiber cement roofing in public buildings (schools, hospital, etc.) and commercial/industrial building may be significantly higher.

Table 1 - Number and percentage of houses with “Lusalite” roofing in affected areas (Source: INE)

Location	Percentage of houses with lusalite roofing	Number of houses with lusalite roofing
BEIRA (2013)	19,6%	18 609
<b>BUZI (2013)</b>	<b>1,6%</b>	<b>522</b>
DONDO (2013)	18,1%	5 574
NHAMATANDA (2013)	1,4%	590
TOTAL SOFALA PROVINCE	8,1%	27 463
SUSSUNDENGA (2011)	2,4%	595
MANICA PROVINCE	4,9%	13 950

## 5.2. Field assessment

Field assessments were conducted in the city of Buzi. The visit confirmed the large number of public, commercial / industrial buildings, as well as houses had damaged fiber cement roofing. Apart from this suspected asbestos cement material, no other types of asbestos containing material were observed.

## 5.3. Regulation related to Asbestos in Mozambique

Existing regulation in relation to asbestos material in Mozambique includes:

- Decree n. 55/2010 – Ban of importation, use and commercialization of material containing asbestos:
  - Since 2010, new fiber cement products shall use asbestos-free processes (use of vegetable fibers, man-made mineral fibers, etc.)
  
- Decree n. 83/2014 – Regulation on Hazardous Waste:
  - Identifies products with asbestos as hazardous waste (Annex 9)
  - Hazardous waste management is under responsibility of the producer / owner (art. 4)
  - Ministry in charge of environment has authority to emit rules for hazardous waste (art. 5)
  - All public and private entities involved in hazardous waste management activities have to prepare a written hazardous waste management plan before beginning activities (art. 11)
  - Private or public hazardous waste collection requires proper license (art. 14)
  - During the act of hazardous waste collection, a register of quantities collected, type and destination needs to be produced (art. 14)
  - Parcel of hazardous waste have to be labelled properly (Annex 4)

Apparently, there is no specific asbestos management, removal and disposal regulation currently in Mozambique.

## 5.4. Purpose

This strategy is intended to reduce risks related to asbestos cement material present in the debris and damaged roofing from Cyclone IDAI. It is not meant to cover high risk asbestos containing material such as sprayed asbestos coating, asbestos insulation boards, thermal insulation of pipes, boiler rooms, etc.

Asbestos cement is considered a low risk type of asbestos containing material since the fibers are bounded within the matrix of the cement sheet (non-friable asbestos containing material). Only when physically disturbed or damaged are the asbestos fibers released.

Internationally, it is recommended not to remove asbestos unnecessarily, as removing it can be more dangerous than leaving it in place and managing it

The strategy covers the following axes of intervention:

- Awareness;
- Training;
- Safe collection and removal;
- Safe Disposal;
- Long-term recommendations.

## **5.5.Awareness**

Awareness needs to be raised at two different levels, with messages and adapted to the target groups:

- Decision makers;
- Population and communities in general.

The general purpose of the awareness exercise is to create a common understanding of the risks and how to manage them, and at the same time to avoid creating panic with the question of asbestos and asbestos cement in particular.

### **5.5.1. Awareness for decision-makers**

The asbestos awareness training for decision-makers shall include:

- Properties, risks and health effects from exposure to asbestos fibres;
- General knowledge of the types and uses of asbestos and asbestos containing material and their associated risks;
- Specific situation in Mozambique and areas affected by the cyclone.

Key target groups for awareness sessions on asbestos are: Local government institutions (Municipalities, Districts, SDPI, etc.), Buzi partners (Projects and NGO's) and the Private sector (construction and waste management contractors).

### **5.5.2. Awareness for communities**

At community level, some awareness is also needed to ensure that the population is aware of the risks linked to asbestos cement, and avoid risk practices such as:

- Cutting;
- Crushing;
- Brushing;
- Using as rubble to fill potholes.

The general message to be transmitted to the population is to avoid any practices potentially disturbing the asbestos cement material and making the fibers airborne. At the same time, it shall be clear that asbestos cement material in construction does not need to be removed if not damaged.

Visual Information, Education and Communication (IEC) material could be developed to illustrate these key messages taking into consideration the need to be culturally sensitive for the message to go through. Trained community mobilizers can support the divulgation of

these messages, with direct involvement of institutions in charge (DPTADER, Local Authorities).

## 5.6. Training

All workers and supervisors directly involved in removal and handling of asbestos cement material shall have received a proper training provided by a trainer suitably qualified and experienced, and shall be delivered a written training certificate, including photo ID.

The training shall include but not necessarily be limited to the following:

- Asbestos Awareness Training (same as detailed in section 2.2.1);
- Classroom training on collection, removal and disposal of asbestos cement:
  - Production and use of risk assessments and plans of work;
  - Health and Safety;
  - Assessment of non-asbestos hazards on sites e.g. the safe working at height requirements;
  - Prevention of exposure to asbestos fibres;
  - Selection and correct use of Personal Protective Equipment (PPE) and Respiratory Protective Equipment (RPE), including short practical;
  - Dealing with accidents and emergencies;
  - Collection and removal of asbestos cement sheets and asbestos waste handling;
  - Personal Decontamination;
  - Final Disposal. - On-site practical training on collection, removal and disposal of asbestos cement:
    - Establishing an asbestos works area;
    - Correct use of the PPE and RPE provided;
    - Correct use of the equipment to keep the asbestos cement damp;
    - The collection of the asbestos cement without further disturbance or damage;
    - Wrapping or bagging the asbestos cement with suitable polyethene bags or sheeting;
    - Placing the asbestos cement in the container for final movement to the disposal location;
    - Inspection and audit of the site;
    - Arrangement at the site for final disposal.

The practical training shall focus on workers potentially directly involved in handling of asbestos cement (municipal workers of solid waste and construction, workers of civil construction contractors, community builders, etc.), as well as technical personnel in charge of supervision and auditing.

The availability of specialized companies with required qualification and experience to provide training in the region shall be explored, in particular in South Africa. Considering the extend of the needs, Training of Trainers shall also be considered as a way to increase local capacity to handle asbestos cement in the future.



## **5.7. Safe removal and handling**

### ***5.7.1. Site assessment and prioritization***

In order to prioritize safe removal of asbestos cement interventions, site assessments need to be implemented. Site assessments shall include, but not be limited to:

- Product type;
- Extent of damage;
- Location;
- Amount estimate;
- Use, occupancy and activities at the location;
- Likelihood of disturbance.

### ***5.7.2. Implementation of safe removal activities***

Minimum requirements for safe removal and handling of asbestos cement can be developed a guidance note. Should includes the need of having a specific plan of work and risk analysis before starting removal activities, training of workers, use of adequate Personal Protection Equipment (PPE) and Respiratory Protection Equipment (RPE) as well as work procedures to minimize the risk of exposure, and finally arrangement in place for final disposal.

These minimum requirements shall be followed by all entities involved in works involving asbestos cement removal and handling (debris collection, building rehabilitation), and could also be integrated in tender documents for rehabilitation work of buildings with asbestos cement material.

A quick assessment of local market in Beira has shown that all PPEs and RPEs, as well as other key consumable needed for safe handling of asbestos cement can be made available in Beira by local suppliers. Second-hand information also gave evidence that know-how shall be available in local construction companies, as safe asbestos removal activities were already implemented by local construction companies in the harbour during rehabilitation works in the past (before the cyclone).

## **5.8 Final disposal**

Arrangement for final disposal site shall be agreed on with Local Authorities and Ministry in charge of Environment. Some key requirements for final disposal of asbestos are:

- Asbestos containing material has to be buried and covered, in order to avoid future access to the material. There is no need of specific protection regarding ground water as asbestos does not causes risks of groundwater pollution;

- The choice of the location for final disposal is very important, it shall be an area with little access to the population and with no plan for excavation/urban expansion in the future;
- The disposal location shall be properly demarcated and the exact location of the area registered (GPS coordinates) and the record kept;
- Security and access control measures need to be put in place and maintained during the time of operation.

## **5.9.Long term considerations**

On a longer-term perspective, the following recommendations can be done in order to improve management of asbestos containing material:

- Complete existing national regulation on asbestos, specifying minimum requirements for handling, removal and disposal of asbestos containing material (mirroring existing regulation in Europe);
- Implement an exhaustive survey on the existing presence of asbestos containing in the country, in particular in public buildings, in order to and prioritize future interventions;
- Create capacity in country for analysis of samples of suspected Asbestos Containing Material (possibility to create a laboratory in partnership with national Universities);
- Implement dedicated Municipal phone service (“Linha verde”) for Collection and disposal service of asbestos cement debris.