

Permanent threats





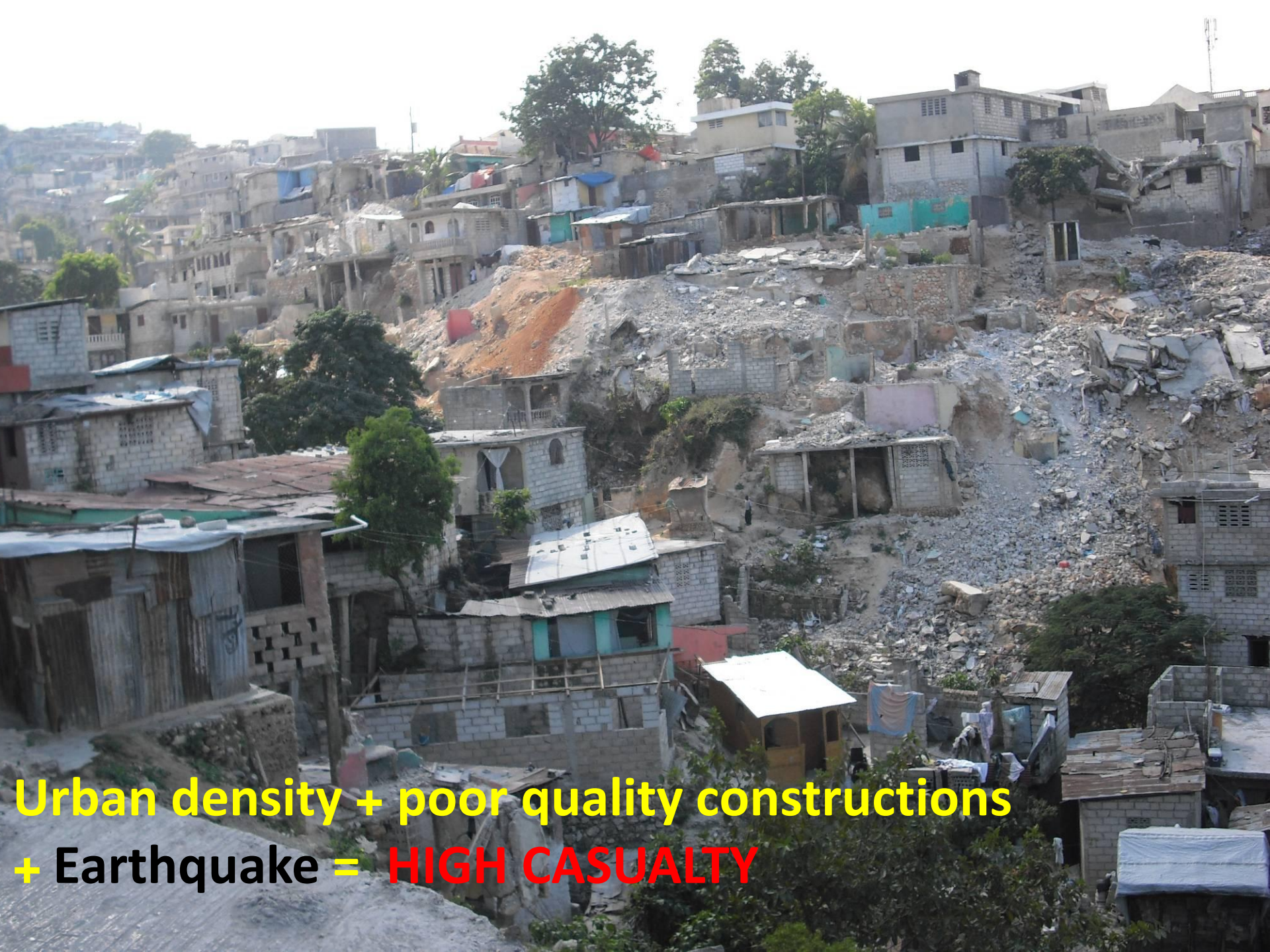
26

BENEDICTION SHOP

NOYE
#8
MARTIN LUTHER KING
TET HALL

MTPTC
2

A DANGEROUS SHADOW...



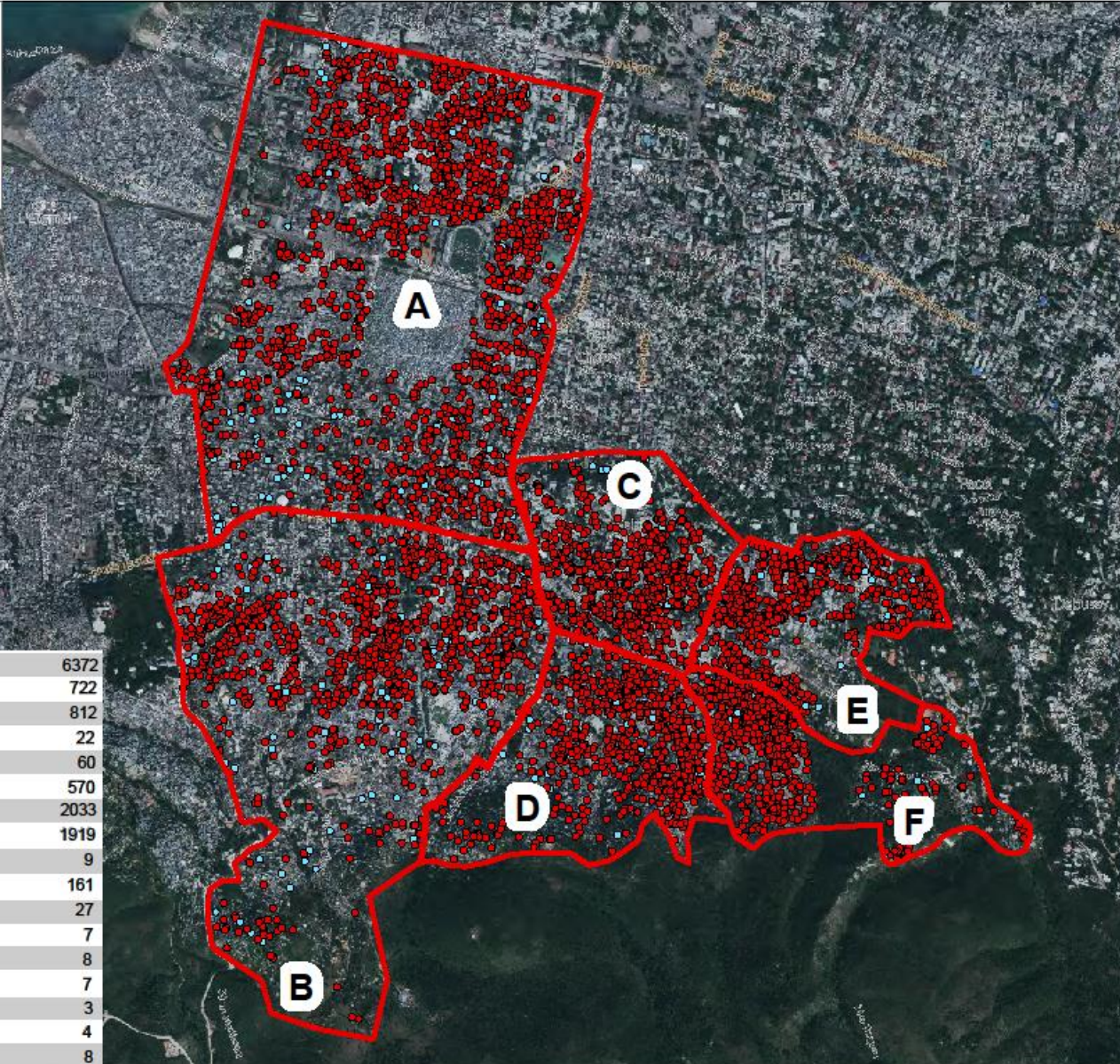
Urban density + poor quality constructions
+ Earthquake = HIGH CASUALTY

6372 houses to be demolished in a 4 km² area



Bureau technique d'évaluation des bâtiments
Inspections Globales

Avec l'assistance technique de : UNOPS



Total des Bâtiments Rouges :	6147
Zone A :	1886
Zone B :	1163
Zone C :	791
Zone D :	752
Zone E :	850
Zone F :	705

Total des Bâtiments Non Tagger :	225
Zone A :	99
Zone B :	77
Zone C :	10
Zone D :	19
Zone E :	13
Zone F :	7

Signalisat, Estimation	6372
● Rouge,	722
● Rouge, 0-1%	812
● Rouge, 1-10%	22
● Rouge, 10-30%	60
● Rouge, 30-60%	570
● Rouge, 60-100%	2033
● Rouge, 100%	1919
● Rouge, Aucun	9
○ No Tag,	161
○ No Tag, 0-1%	27
○ No Tag, 1-10%	7
○ No Tag, 10-30%	8
○ No Tag, 30-60%	7
○ No Tag, 60-100%	3
○ No Tag, 100%	4
○ No Tag, Aucun	8

- Bâtiments Sains
- Bâtiments partiellement endommagés
- Bâtiments sévèrement endommagés ou effondrés
- Bâtiments Non Tagger

0 0.1 0.2 0.4 Kilometers



18-Mars-2011

Local Demolition and Debris Removal Plan (LDDRP)

ZONE 'A' CARREFOUR FEUILLE and ZONE B FORT MERCREDI and CITE 9.

1. Security and Safety

2. Demolition and Debris Removal Management

3. Building Assessments

4. Demolition 'flowchart'

- The DDM Coordinator and The Project Engineer in consultation with the Demolition Expert will compile the following :
 - a. Risk assessments highlighting 'High – Medium – Low' level risks relating to the specific job site.
 - b. Means and method statements of work completed in detail for all stages of the demolition and debris clearance operations.
 - c. Detailed time line programme for the works showing various on and off the job site tasks
 - d. and the expected respective completion dates.

5. Hazardous and Dangerous Material Procedures.

1. In buildings to be demolished :

✓ If material is suspect ;

- **Take** a small piece / sample
- **Place** it into a clear plastic sample bag and securely seal the opening to the bag.
- **Write** clearly on a label, the building reference number, its address and the location where in the building the sample was taken from and,
- **Deliver** the sample to the DDM Coordinator who will,
- **Forward** the sample to a recognised and approved laboratory for testing.

✓ If the results of the laboratory test prove to be positive ;

- Appropriate steps must be taken to remove and dispose of the hazardous material in strict accordance with the method of work statement to be developed and provided by the Project Engineer and approved by the DDM Coordinator.

✓ If there are any obvious signs of suspect materials that may contain a hazardous substance (asbestos

✓ If the results of the laboratory test prove to be positive :

6. Building Demolition Sequence in Zone A and Zone B.

- **Public buildings** (schools, hospitals, churches and public assembly buildings)
- **Private Buildings** with the 'Approval to Demolish' provided to UNOPS by UNHABITAT.

7. Debris Removal Sequence

8. Training.

9. Human resources

a) Management Team:

- Project Manager - 1
- Project Coordinator - 1
- Operations Manager - 1
- Demolition Expert / Engineer - 1
- DDM Coordinator - 1
- Logistic Manager - 1
- Field Engineers (Senior) - 2

✓ **Job Site Management Teams:**

✓ **Job Site Demolition Machine Operators:**

✓ **Job Site Demolition Operatives:**

➤ Eight (8) Crews will be composed, consisting of;

- Skilled Demolition Topmen - 2
- Demolition Labourers - 4
- Banksmen - 2

✓ **Debris Transport team**

✓ **Transfer Station Team.**

✓ **Triage Labourers and Crusher Operators Team.**

10. Equipment Required :

a) Demolition

➤ Means and Method of Works at the Job Site Locations:

b) Debris Removal

c) Triage / Transfer Station

11. Technical and Safety Protocols for Demolition

12. Safety Protocol for the TRIAGE / Transfer Station Job Site.

13. Work documents

14. Record of the completion of training courses for all operatives :

✓ Safety Awareness Courses to be developed by UNOPS Demolition Expert.

✓ First aid Course to be developed by Demolition Expert and First Aid Adviser.

Note : First Aid Kit will be located on the job site.

Buildings assessments





DEMOLITION ASSESSMENT FORM

BUILDING

1	Bdg. NR		ADDRESS	STREET	NEIGHBORHOOD	ZONE NR
2	DESCRIPTION			PHOTO		
3	PERMIT UNHABITAT		DATE RECEPTION			

SAFETY AND SECURITY OF PEOPLE, MATERIALS AND TOOLS

4	NOTES:					
5	SITE ACCESS	EASY		SAFE ACCESS INTO THE BUILDING		
		DIFFICULT		UNSAFE ACCESS INTO THE BUILDING		
6	NEIGHBORING BUILDINGS	SAFETY OK				
		EVACUATION				
		CONSOLIDATION				
		DEMOLITION				

METHOD OF DEMOLITION

7	A	MANUAL				
		B	MANUAL AND MACHINE			
		C	MACHINE			

EVALUATION OF THE DEMOLITION

8	DEBRIS	CRUSHER		M3		9	DESTINATION OF THE DEBRIS		TIME AND DISTANCE		HR		KM
		LANDFILL		M3					HR		HR		KM
		DUMP		M3					HR		HR		KM
10	PROJECT DURATION	START DATE			END DATE								
		NBR OF DAYS											
		NBR OF WEEKS											

RESSOURCES

11	HR	TOPMAN		DAYS			DAYS
		GROUND LABORERS		DAYS			DAYS
		SAFETY CONTROLLER		DAYS			DAYS
		MACHINES					
		EXCAVATOR - BUCKET	BOBCAT	HYDRAULIC ACCESS PLATFORM			
		EXCAVATOR - HAMMER	MINI EXCAVATOR	MOBILE HYDRAULIC CRANE			
		EXCAVATOR - GRAPPEL	JACK HAMMER - AIR	DUMP TRUCK 16 M3			
		LOADER	JACK HAMMER - GASOLINE	ROLL OFF CONTAINER			

SPECIAL NOTES

12						

Self fallen house



Defying gravity...



DEMOLITION DESIGN MANAGEMENT (DDM)

DEMOLITION, DEBRIS REMOVAL AND RECYCLING OF SUITABLE MATERIALS ARISING FROM THE WORKS AT CORREFOUR FEUILLE.

Introduction

The key aim of DDM is to integrate health and safety into the management of the demolition and recycling of the materials arising from the various project zones and to encourage everyone involved in the key parties to work together to :

- a) Improve the planning and management of the project from the very start.
- b) Identify hazards early on, so they can be eliminated or reduced at the design or planning stage and the remaining risks can be properly managed.
- c) Target effort where it can do the most good in terms of health and safety and project efficiency.
- d) Discourage unnecessary bureaucracy.

DDM is intended to focus attention on planning and management throughout demolition projects, from design concept onwards. The aim is for health and safety considerations to be treated as an essential, but normal part of the project's development – not as an afterthought or bolt on extra.

The effort devoted to planning and managing health and safety should be in proportion to risks and complexity associated with the project. When deciding on what you need to do at the planning stage of the project, your focus should always be on action necessary to reduce and manage risks. Paperwork that is produced should help with communications and risk management. Paperwork that adds little to the management of risk is a waste of effort and can be a dangerous distraction from the real business of risk reduction and management.

Time and thought invested at the start of the project will pay dividends not only in improved health and safety, but also in:

- a) Reduction in the overall cost through efficient and safe work practice on the job site.
- b) Reduce and minimise delays.
- c) Meet the project budget and completion time lines.
- d) Improve communications and co-operation between key parties.
- e) Achieve an improved quality of the cleared and tidy finish of the job site.

Co-operation and Co-ordination.

DDM can be best applied through the appointment of a DDM Co-ordinator who will connect with the Project Engineer assigned to look after the project from start through to completion. The DDM Co-ordinator along with the Project Engineer will seek the co-operation from the UNOPS Demolition Expert and key members of the project team to ensure the best possible results for each and every aspect of the on and off the job site activities related to the specific project.

Duties of the Project Engineer / DDM Co-ordinator

Prior to any demolition work or debris removal operations commencing on the project job site it is imperative the following points must be checked and confirmed:

- a) Obtain the 'Authorisation to Work Permit' from HABITAT or any other party with the authority to allow project works to proceed.
- b) Confirm all utility services, including electric, gas, water and telecommunications, have all been terminated and removed from the buildings and structures to be demolished and the areas where debris removal has to be undertaken.
- c) Confirm the location of under ground culverts and pipes located in or around area of proposed demolition works.
- d) Carry out a visual survey and compile a photographic record of the general condition of adjoining and adjacent buildings to the project site.
- e) Confirm and obtain agreement with all parties concerned on haul routes for debris removal vehicles to and from the project job site location.
- f) Determine the method of demolition – careful hand demolition – partial hand demolition followed by mechanical demolition - demolition totally by machine.
- g) Write the demolition means and method statement for the project.
- h) If safe access to the buildings and structures is possible, carry out a survey to identify materials that may contain hazardous substances (asbestos). If material is suspect take a small piece /sample, place it into a clear plastic sample bag. Write on a label the Building number, the location and address and the location in the building where the sample was taken from and forward the sample to a recognised and approved laboratory for testing. Also look for any other obvious hazards such as gas cylinders, drums or cans containing chemical fluids, gasoline etc., that will require to be removed if safe to do so out of the property prior to commencement of the demolition works.
- i) Obtain laboratory results on material samples and if the laboratory tests show there are no hazardous materials proceed to the next step of the pre-commencement requirement list.
- j) Prepare Risk Assessments for the project.

- k) Obtain agreement between key parties on the project programme.**
- l) Write the demolition means and method statement for the specific demolition and debris removal project.**
- m) Arrange a meeting to discuss in detail the Risk Assessments and Means and Method Statements for the specific project between the UNOPS Project Engineer and DDM Coordinator. Both parties should then sign the documents and retain the original signed copy in the project file.**
- n) If the results of the material laboratory tests are proved positive, appropriate steps must be taken to remove and dispose of the hazardous material in strict accordance with the method statement to be developed and provided by the Project Engineer and approved by the DDM Coordinator.**
- o) Obtain agreement between all key parties on the programme and time lines for the proposed project.**

Commencement of the Work on the Job Site

Notify all key parties of the proposed date for commencement of the works on the specific project job site and reconfirm Permit to Work is in place.

- a) Arrange a pre-start meeting at the job site with all operatives who will be deployed on site along with any other appointed agency and their site operatives who will be undertaking the physical work. Make sure all operatives who will be working on the job site have a safety helmet, ear and eye protection, high visual vest, work gloves and safety boots with steel toe cap protection.**
- b) Conduct prior to any works commencing an on site safety awareness ‘tool box talk’ to ensure all demolition equipment operators and demolition labourers are totally clear on what the overall tasks and objectives of the project are and what their individual role and responsibilities are to achieve the safe completion of the project works.**
- c) Special note must be made by the Project Engineer that it is a requirement on each individual project to arrange and conduct frequent ‘tool box talks’ on the job site with all site operatives and in particular when there is a change in the on site work activity.**
- d) Set up on site temporary facilities for work force.**
- e) Erect temporary site fencing and post at various locations, warning signs – “Danger – Keep Out - Demolition Works in Progress”.**
- f) Provide / make a safe access route in and out of the work area.**
- g) If required and if safe access is available into the building, remove and dispose of hazardous materials from the building in strict accordance with the instructions issued by the Project Engineer and DDM Coordinator.**
- h) Following the removal of hazardous materials from the building proceed with the demolition works in accordance with planned sequence of work and the means and method statement all in accordance with the Project Engineers instructions.**

SCOPE OF WORKS AND AWARENESS
TRAINING FOR NGO OPERATIVES
DEPLOYED IN LDDRP

VARIOUS UNOPS WORK ZONES IN CARREFOUR FEUILLE

INTRODUCTION :

The NGOs' will be working clearing debris from various Zone locations in Carrefour Feuille.

The purpose of this training meeting is to provide a basic course on the fundamental safe working practises for debris removal works. Every NGO person (Operative) who is employed on each and every project has a responsibility to work safely to ensure both his / her own safety and also the safety of his / her fellow Operative. In addition all NGO Operatives have a 'duty of care' to maintain a high level of safety for the members of the general public who are in or close to the area of the debris removal works.

Personal Protection of Job Site Operatives:

Every NGO Operatives who will be working on the job site location must wear suitable protective items to ensure to the best of their ability their own personal protection. List of items :

- Safety boots with protective toe caps.
- Safety Helmet.
- Eye protection goggles / glasses.
- Work quality gloves.
- High Visibility Vest.
- Ear protectors (when working with or closer to machinery).
- Disposable Dust Mask.

The above work wear is necessary to meet Personal Protection of all on the job site Operatives. It is a strict requirement of UNOPS – LDDRP Health and Safety Policy that all NGOs' deployed on the Local Demolition and Debris Removal Programme (LDDRP) will have to comply. NGO on the Job Site Operatives, found by an official UNOPS member of staff, not to have adequate levels of Personal Protection will have the right to request the removal of the Operative or Operatives from the job site.

Scope of Works:

Removal of Debris that is presently deposited on the street and footpath surfaces and also in ravines located in the various UNOPS Work Zone Areas.

The debris removal will be carried out by NGO Operatives using hand held tools consisting mainly of mattocks, heavy sledge hammers, nail bars, rebar wire cutters, all necessary for dealing with the manual break up of debris where required. The broken debris will then be loaded into wheel barrows or buckets and deposited on to a debris pile at a UNOPS pre agreed debris collection location. In some selected locations the broken debris will be deposited by the NGO Operatives directly into a container dumpster located adjacent to or as close to the debris clearance job site as possible.

The debris stock piled by the NGOs' at the agreed debris collection locations will be removed by UNOPS to the Triage / Transfer Station or Landfill Dump.

Hand Held Tools:

The following hand held tools will be necessary for the NGOs' to be effective on the debris removal task :

- ✓ Hammers – Various Size and Weights including claw hammers, ball hammers, sledge hammers.
- ✓ Mattocks
- ✓ Nail Bars
- ✓ Steel Reinforcement wire cutters.
- ✓ Wheel Barrows.
- ✓ Two Wheel Trolley.
- ✓ Shovels.

Traffic and Management of Members of the Public:

To achieve the best possible management system for both passing traffic and pedestrians, located in the immediate vicinity of the debris removal operations, the NGO will provide Operatives at the debris removal job site street location to maintain to the best of their ability, the safe flow of passing traffic and pedestrians.

Operatives Training:

The following safety awareness training would be held at a suitable off site venue and all NGO Operatives who will be deployed on the job site locations are required to attend.

To begin with the Operatives will be shown examples of the Personal Protection items they are required to wear on the job site.

All NGO Operatives will be made familiar with the various job site locations. A Work Zone Plan will be displayed. Obvious risks will be highlighted to the Operatives.

Operatives will be instructed to maintain a more than adequate safe distance from their work colleagues during certain activities such as:

- ✓ Mattock swinging.
- ✓ Light and heavy hammer swinging.
- ✓ Nail bar use.
- ✓ Shovel use.
- ✓ Wheel barrow and trolley use.

Operatives will be instructed to establish safe and clear route to and from the area of work and to maintain as best as possible, clean and tidy underfoot conditions at all times.

Operatives will be instructed on lifting techniques to avoid injury in particular to the area of their lower backs.

Operatives will be encouraged to execute heavy manual lifting in pairs or more as the lift may require.

Operatives will be instructed on how to handle items of length to avoid accidental injury to both themselves, a work colleague or a member of the public.

Operatives will be made aware of the danger of being cut or injured by protruding nails or items of iron monger, metal window frames that may be concealed amongst the debris.

Operatives will be instructed in the correct way to use a wheel barrow and two wheeled trolley.

Operatives will be made aware of the importance to give consideration at all times during the debris removal works to maintain the safe passage for both traffic and pedestrians.

Operatives will be made aware of the requirement to leave the work area as safe as possible on the completion of the working shift.

At the end of the course Operatives will be required to agree or disagree that they have clearly understood the content of the course.

The Operatives who have understood clearly the content of the course will sign the awareness training course register confirming his or her attendance of the course.

Each Operative who has attended the course and signed the course register confirming he / she has clearly understood the content of the course will receive a UNOPS – LDDRP Awareness Training Course Certificate, dated and signed by the Instructor. (Example of Certificate attached).

The Operatives who did not clearly understand the content of the course will be required to attend the course again at a future date and in the interim period will not be allowed to work on the project job site.

**UNOPS TRAINING
LDDRP
CERTIFICATE OF TRAINING**

THIS IS TO CERTIFY THAT

NAME OF NGO OPERATIVE :

.....

HAS ATTENDED A :

**SAFETY AWARENESS DEBRIS REMOVAL COURSE
TRAINING**

GIVEN BY UNOPS DEMOLITION ENGINEER / EXPERT

DATE OF COURSE

LOCATION : PORT AU PRINCE, HAITI

SIGNATURE OF TRAINER

DAVID P. SINCLAIR F.I.D. E.

Accessibility !



Poor quality constructions





Crowd control challenges





A determined metal picker

Height = 6 meters



On site metal buyers





Crusher training





Transfer Station



Sweet Kids !



Creative haggis cooking !

(© David Sinclair)





UNOPS Office