ShelterCluster.org
Coordinating Humanitarian Shelter

LIBYA SHELTER ASSESSMENT PHASE 1 AND 2

SHELTER CLUSTER REPORT

COVERING PERIOD:

01/07/2011 TO 31/12/2011

Funded by

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ACRONYMS

ACTED – Agency for Technical Cooperation and Development

CESVI – Cooperazione e Sviluppo Italiano

DCC – Damage Control Committee

ERW – Explosive Remnants of War

ECHO – European Commission Humanitarian Aid Office

GIS – Geographical Information System

GPS – Geographical Positioning System

GSC – Global Shelter Cluster

IDP – Internally Displaced Person

NATO – North Atlantic Treaty Organization

NGO – Non-Governmental Organisation

NFI – Non-Food item.

NTC – National Transitional Council

TCN – Third Country National

UN – United Nations

UNHABITAT – United Nations Centre for Human Settlements

UNHCR – United Nations High Commission for Refugees

UNICEF – United Nations Fund for Children

UNOSAT – Unitar's Operational Satellite Applications Programme

UXO – Unexploded Ordinance

1 EXECUTIVE SUMMARY

1.1 CONTEXT

The conflict which engulfed Libya in 2011 saw a high level of urban and semi-urban fighting, causing significant damage to public and private housing and infrastructure. The conflict caused wide displacement; there was an urgent need for the humanitarian community to respond through humanitarian assistance, as well as to prepare the ground for the post conflict recovery. The very nature of the conflict and crisis, however, made the gathering of accurate information often difficult due to not only the level and expanse of damages, but also the proximity of the conflict to those very areas targeted for assessment.

In June 2011, Shelter Cluster actors present in Libya agreed to conduct a detailed shelter and vulnerability assessment in accessible areas of the country, in order to better inform humanitarian and reconstruction activities. The assessment built on a global partnership between the Global Shelter Cluster and REACH, an initiative of ACTED, IMPACT and UNOSAT (see below). To date, on behalf of the Shelter Cluster, REACH teams in Libya have carried out assessments over a vast geographical area, providing rapid and comprehensive assessment data on the affect of the conflict on private infrastructure and households.

This report aims to show the methodology used and findings of assessments conducted in 2011. As explained below a third phase of the assessment is planned in 2012 as new areas become accessible.

1.2 IMPLEMENTATION OF ASSESSMENT

The Shelter Cluster assessment was led by a REACH team, funded by UNHCR, co-funded by ECHO, and in partnership with ACTED, CESVI, IMPACT, LIBAID, UNHCR, UNOSAT. Further technical support was provided by UNHABITAT.

Overall Objective:
The shelter cluster to:
- Better inform humanitarian actors on conflict related shelter and vulnerability priorities in order to enhance and target humanitarian interventions
- To provide baseline data to national authorities for prioritized reconstruction to facilitate durable solutions.

Specific Objectives:
1. To provide a detailed analysis of all damaged and destroyed shelters, in order to have clear base-line information on the level of destruction of shelters in target locations.
2. To survey all families residing in, or displaced from (if possible) these shelters in order to establish their level of vulnerability, thus permitting the planning of an appropriate response to cover urgent & basic needs.
3. To build local capacity for undertaking similarly comprehensive technical assessments in the future, if and when the need arises.

To achieve the above, the assessment proposed to conduct the following for all damaged properties in the targeted areas of assessment**:** (a) Rapid technical assessment and categorisation of the level of damage to the house; (b) Rapid household vulnerability profile; (c) geo-referencing of assessed houses through GPS and pictures; (d) processing of information into online database, static maps and an interactive web-map

The assessment has taken place in two stages to date, with phase 3 planned for 2012:
1) Phase I: Pilot phase, from June – September 2011, in Misrata and Ajdabiya, the only damaged areas accessible at this time
2) Phase II: October – December 2011, encompassing the remaining damaged areas in Eastern Libya; Zlitan and outlying areas of Misrata province; and the Eastern stretch of the Nafusa Mountains
3) Phase III: January 2012 – April 2012, will focus on Sirte and Bani Walid. NB this phase is not included in this report and will be conducted outside the scope of the shelter cluster (clusters having phased out of Libya at the end of 2011).

1.3 KEY FINDINGS

This report focuses on the data analysis of those areas covered by the first two phases of the project: Eastern Libya, Misrata and surrounding areas, and East Nafusa.

Eastern Libya
This section covered the cities of Ajdabiya and Brega, and also included the smaller towns of the Bin Jawad area. In total 1751 damaged shelters were assessed, with approximately 75% of shelters falling into Categories 1 & 2 (light to medium damage). Almost half of households surveyed had no access to utilities (water and electricity), with 49% of families also facing a threat of eviction. Households requested a need for financial and food support to be provided.

Misrata & Surrounding Areas
Covering the cities of Misrata and Zliten, and also the towns of Dafnia, Tammena and Kararim. This area of Libya experienced some of the fiercest fighting of the conflict. Damage levels are therefore high - in total 6887 shelters were assessed, with over 40% of shelters falling into Categories 3 & 4 (medium/heavy to heavy/completely damaged). The vast majority of damage was sustained between March – June 2011. Many households had been internally displaced by the fighting, and there was found to be an urgent need to provide basic support, including food and water.

East Nafusa
1314 shelters were assessed in the Eastern part of the Nafusa Mountain region, including the towns of Zintan and Algalaa. The majority of houses fell into Categories 1, 2 and 3. Virtually all damage was sustained between February and June 2011, with much of this coming in May and June, when fighting was fiercest.
The primary sources of income for almost all households (both before and after the conflict) were government salaries and support, or personal savings. 95% of assessed households were reported to be at threat from eviction – however, due to the extraordinarily high percentage, this figure requires further verification.

Further data analysis is shown in section 5 of this report. Assessment information can also be found on the cluster's web-site: https://www.sheltercluster.org/MENA/Libya/LibyaCivilUnrest2011/Pages/default.aspx.
For access to the online webmap please visit libya.reach-initiative.org.

City / District	Category 1		Category 2		Category 3		Category 4	
	No.	%	No.	%	No.	%	No.	%
Ajdabiya	532	6	289	38	116	30	51	26
Breaga	99	19	256	49	74	14	98	19
Bin Jawad	15	6	89	38	70	30	62	26
Misrata	1032	24	1536	36	1484	35	247	6
Tammena, Kararim, Dafniya	193	14	497	37	373	28	287	21
Zlitan	246	20	504	41	199	16	289	23
ZINTAN	82	33	79	32	35	14	48	19
JADU	0	0	3	50	3	50	0	0
ADDHAR	7	23	12	40	10	33	0	0
KHALAIFA	0	0	1	100	0	0	0	0
YEFREN	34	17	94	46	61	30	16	8
ALGALAA	70	22	138	44	49	16	48	15
AMALGHARSAL	15	58	6	23	5	19	0	0
KIKLA	72	23	118	38	89	29	29	9
ALROJBAN	1	13	5	63	1	13	1	13
RIEINA	38	21	41	23	75	41	28	15
Total 9952	2436	21	3668	38	2644	28	1204	13

Table 1: Categorisation of Assessed Damages to Date (31/12/2011)
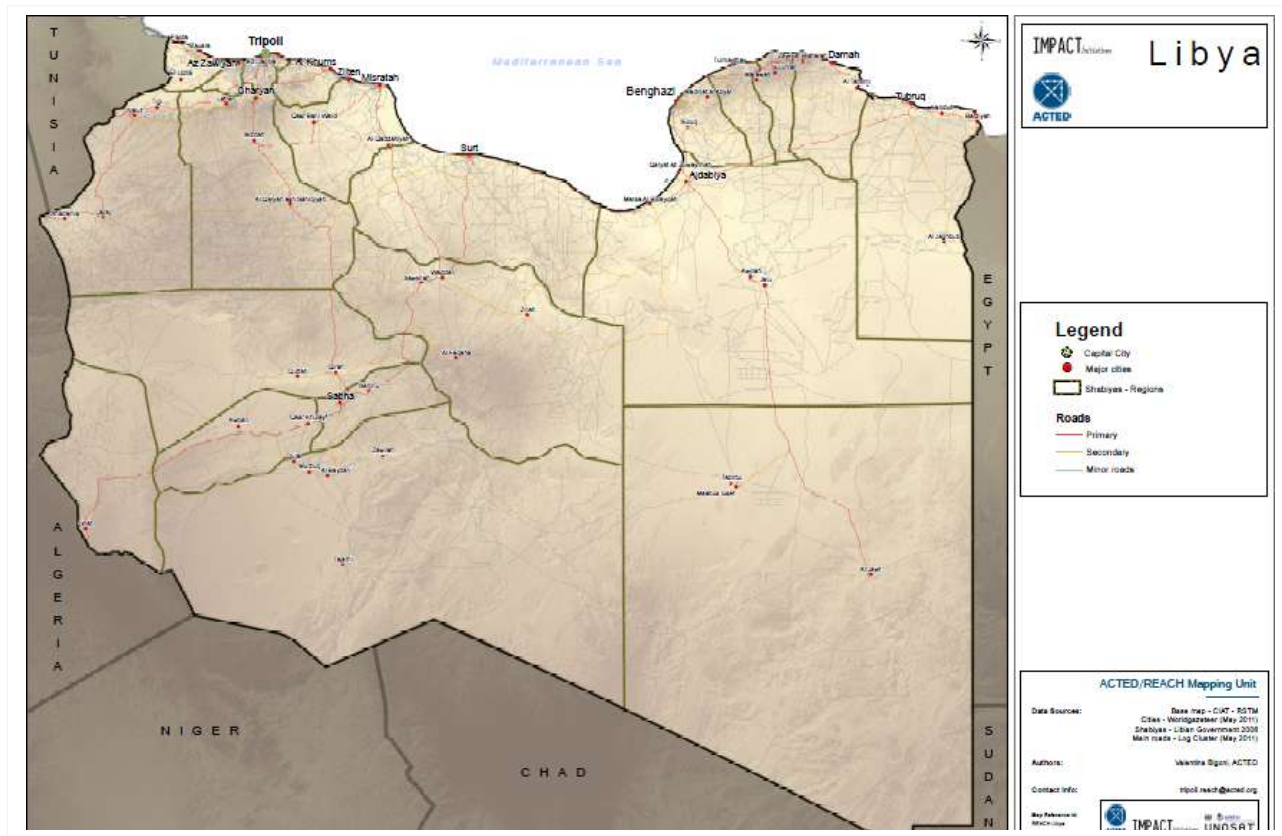
2 BACKGROUND

2.1 COUNTRY PROFILE

Image 1: Map of Libya

Following the massive popular uprisings in Tunisia and Egypt in late 2010-early 2011, protests against Libya's ruler of 42 years, Muammar Gaddafi, erupted across the country in mid-February 2011. The brutal crackdown on protestors, coupled with the rapid militarisation of the opposition, led to the country being dragged into a protracted armed conflict. With the passing of UN Resolution 1973 a NATO-led coalition enforced a no fly zone over the country, halting the rapid advance of the Gaddafi forces, particularly in the East, and leading to the consolidation of opposition areas of control in eastern Libya, Misrata, and the Nafusa mountains to the south of Tripoli. These areas saw some of the fiercest fighting of the entire conflict, with heavy damage sustained in the city of Misrata and surrounding areas; the towns of the Nafusa Mountains; and the frontline cities of Ajdabiya and Brega in the East.

Following the fall of Tripoli in mid August, fighting shifted to the last remaining cities under control of pro-Gaddafi forces, particularly Bani Walid and Sirte. The latter of these two, as Gaddafi's hometown and final bastion, was bitterly defended until the end and consequently suffered levels of destruction higher than almost anywhere else within Libya.

As a result of the high levels of destruction and the protracted displacement of many thousands of families, the shelter cluster agreed that there was an urgent need to conduct structural and vulnerability assessments of damaged shelters in these areas. In a context of limited availability of damage-related information, this was seen as essential in order to better inform humanitarian and reconstruction planning. At the time of the

start of the project, in the two cities initially targeted by the assessment - Ajdabiya and Misrata - the National Transitional Council (NTC) was in the process of conducting rapid assessments of damaged houses. These assessments were not standardized however, and had some shortcomings in terms of methodology. In addition, very little data was available on other areas. It was therefore decided for the Shelter Cluster to conduct complementary assessments and mapping to provide a critical tool for improved humanitarian and post-conflict reconstruction planning.

2.2 PARTNERSHIPS

The assessment was developed and run through the partnerships developed under the Libya Shelter Cluster, established in Libya during March 2011 and led by UNHCR[1]. Through this arrangement the assessment was led by REACH (a program of IMPACT), in direct partnership with ACTED, CESVI and funded by UNHCR. UNOSAT provided backstopping and satellite imageries for the assessment, while IMPACT Geneva provided additional back-stopping and assessment support. Further technical support was provided by UNHABITAT.

On the national level, partnerships have been forged with relevant national authorities; the final interlocutors are now being finalized (see section 6).

In the locations the assessment was conducted, key partnerships were established with relevant local authorities and committees, working often in direct partnership to conduct the damage assessments. This increased the capacity and speed of the assessment, while also providing capacity building to local-level bodies.

2.3 SHELTER CLUSTER ASSESSMENT

The Shelter Cluster agreed to the need for a Shelter Assessment in June 2011 in order to gather and disseminate information on shelter damage and vulnerability issues resulting from it.

In order to achieve this the assessment aimed to perform the following for all damaged properties in the targeted areas of assessment: (a) Rapid technical assessment and categorisation of the level of damage to the house; (b) Rapid household vulnerability profile; (c) geo-referencing of assessed houses through GPS and pictures; (d) processing of information into online database, static maps and an interactive web-map.

Utilizing the expertise of REACH co-founding partners UNOSAT, it was proposed that satellite imagery was purchased and analysed for two purposes: a) in order to provide a tool for the assessment teams to facilitate their ground assessments b) to enable remote imagery analysis of areas that suffered heavy shelter damage but were not accessible to field assessment teams.

It was proposed that assessment findings would be centralised on a daily basis in a shelter cluster database, set up and managed by REACH specialists with the support of a number of data-entry officers. For the production and dissemination of static maps of assessment findings, it was proposed that REACH's specialists

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[1] It should be noted that the Libya shelter cluster stopped convening in October 2011. However regular discussions continued among shelter actors on the assessment thereafter

produce detailed maps visualizing assessment findings on behalf of the shelter cluster. These would then be overlaid with satellite imagery and other baseline data.
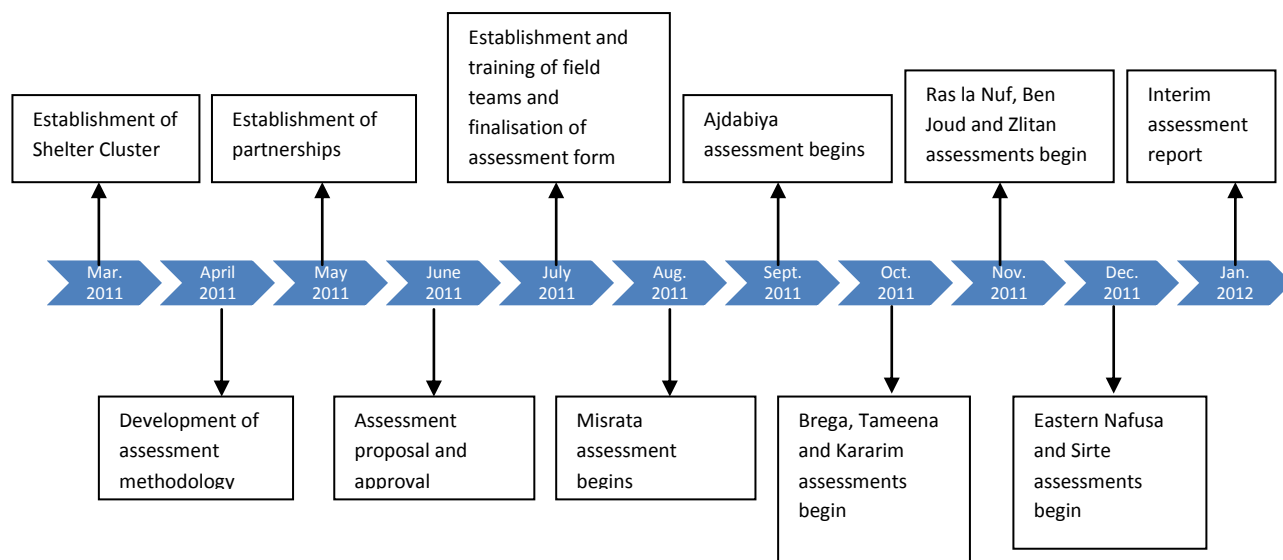
2.4 PROJECT TIMELINE

To give a brief overview of the project, given the extensive temporal and geographical scope of the assessment, what follows is an outline of the steps undertaken:

In late June 2011, following formal signatory authorisation to commence the project, the pilot version of the assessment form was compiled, in close collaboration with local authorities and organisations, and revised by a number of international shelter cluster partners (including UNHCR, UNHABITAT, ACTED, CESVI and IMPACT). It was decided to focus the pilot shelter assessment on two areas – Misrata in the west, and Ajdabiya in the east – which were the only accessible damaged areas at the time. This was then followed in July by the hiring and subsequent training of all field assessment teams, deployed by ACTED and CESVI. In August assessments took place in Misrata, followed in September by the Ajdabiya assessments. All data for the pilot version of the Shelter Assessment had been uploaded into the database and interactive web-map by October.

Once the pilot had been completed there were slight modifications made to the assessment form in order to further improve the methodology and outputs of the project before it was launched over a far wider geographical area. As such, equipped with the new version of the form, assessments for the second phase of the project began in Brega, in the east of Libya, at the end of October. Almost simultaneously, teams operating out of Misrata began work in the areas of Dafnia, Tammena and Kararim (outlying areas of Misrata province). By November, with work now ongoing concurrently in both East and West Libya, assessments were carried out in Bin Jawad and Ras Lanuf - towns to the west of Brega - and in the city of Zliten, to the west of Misrata.

In December, with assessments completed in the East, attention switched to the finalisation of assessments in Zliten and the start of work in the Eastern Nafusa Mountains, to the southwest of Tripoli. In 2012, with further funding granted from UNHCR to extend the project, assessments will be finalised in Sirte and will also encompass the city of Bani Walid.

Timeline

Above the timeline:

- Establishment of Shelter Cluster
- Establishment of partnerships
- Establishment and training of field teams and finalisation of assessment form
- Ajdabiya assessment begins
- Ras la Nuf, Ben Joud and Zlitan assessments begin
- Interim assessment report

Timeline:

Mar. 2011 → April 2011 → May 2011 → June 2011 → July 2011 → Aug. 2011 → Sept. 2011 → Oct. 2011 → Nov. 2011 → Dec. 2011 → Jan. 2012

Below the timeline:

- Development of assessment methodology
- Assessment proposal and approval
- Misrata assessment begins
- Brega, Tameena and Kararim assessments begin
- Eastern Nafusa and Sirte assessments begin

3 THE ASSESSMENT

3.1 OBJECTIVES

Overall Objective:
The shelter cluster to:
- Better inform humanitarian actors on conflict related shelter and vulnerability priorities in order to enhance and target humanitarian interventions
- To provide baseline data to national authorities for prioritized reconstruction to facilitate durable solutions.

Specific Objectives:
4. To provide a detailed analysis of all damaged and destroyed shelters, in order to have clear base-line information on the level of destruction of shelters in target locations.
5. To survey all families residing in, or displaced from (if possible) these shelters in order to establish their level of vulnerability, thus permitting the planning of an appropriate response to cover urgent & basic needs.
6. To build local capacity for undertaking similarly comprehensive technical assessments in the future, if and when the need arises.

3.2 METHODOLOGY

Assessment Form

The assessment form (see Annex A) was created in coordination with key shelter cluster and local partners. Draft versions of the form were shared with local Housing and Relief Committees in all areas chosen for assessment, and also with partner organisations, including ACTED, CESVI, IMPACT, UNHCR and UNHABITAT. Their feedback and comments were integrated into the form, so as to best address all issues relating to shelter.

The form consists of 4 sections
1. Team information: Assessment officer details.
2. Geographical information: Location of the shelter being assessed.
3. Technical assessment: Consisting of 15 questions and designed to evaluate the level of damage to the shelter through information on: shelter location; property type; causes of damage; level of damage; kind of damage; and any other information related to the physical structure of the building.
4. House-hold profile and Socio-Economic assessment: Consisting of 35 questions, designed to assess the level of vulnerability of the household through information on: the composition of the family ; their economic situation before and after the conflict ; and their current needs (if any).

The assessment form is based on a household survey, utilizing observational assessment conducted by the engineer assessment officers for the technical assessment, and interviews with the head of the household, conducted by the social assessment officer for the profile and socio-economic assessment. The assessment was conducted in 100% of damaged households in the selected locations in order to achieve a comprehensive mapping and analysis of damage caused by the conflict.

In October, following completion of the pilot phase of the project, alterations were made to the assessment form making use of feedback both from the assessment teams and third parties. The number of questions in the vulnerability section of the form was increased in particular, in order to more accurately represent the socio-economic background and status of all households living in or owning damaged shelters, and to ensure that subsequent follow up would be best able to cover all needs.

Below is outlined a couple of elements of the form for purposes of understanding of data analysis below.

Categories

In discussion with shelter cluster agencies and relevant authorities, four categories of shelter damage were established, ranging from light to heavy/completely damaged. The categorisation was inspired by global best practices, as well as being adapted to the specificities of the Libya context.

The definitions of the four damage categories included the following[2]:
- Category 1 (light damage – liveable)
  - Damage to glass or locks on window and doors
  - Bullet damage (external only)
  - Light fire damage
- Category 2 (medium to light damage – liveable) *in addition to previous category*
  - Doors and/or windows need to be replaced
  - Bullet holes (penetrated walls)
  - Damage to brickwork or wall lining up to 20m²
  - Water leakage
- Category 3 (medium/heavy damages – repairs needed before liveable) *in addition to previous category*
  - Significant fire damage evident
  - Structural damage related to beams and columns
  - Damage to brickwork, ceramic or ground tiles of more than 20m²

- Category 4 (heavy/completely damaged – to be rebuilt) *in addition to previous category*
  - Partially or completely collapsed roof
  - Structural damage to the foundations (including cracks in walls indicative of foundation damage)

Types of Shelter

1.1) Type of building house is located in (see descriptions on the right):
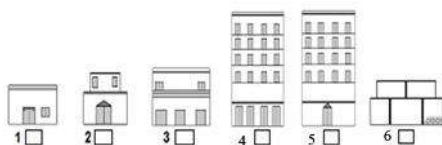
Image description:
1 – Individual house without fence
2 – Individual house with fence
3 – Individual house with shops
4 - Big building with shops (apartment block)
5 - Big building (apartment block)
6 – Building/ house under construction

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[2] Some criteria omitted for brevity's sake. For a full list please refer to Annex 1

Implementation

1. Utilize satellite imagery of the target locations (UNOSAT partnership)

a) Remote imagery analysis – high damage, limited access

Due to difficulties with access to conflict-affected locations as well as western parts of Libya during the conflict, the GIS tool was utilized for immediate access to information by the humanitarian community.

In the initial phase, UNOSAT-processed high resolution imageries were used to perform remote analysis on the conflict and the resultant damages sustained. The partnership with UNOSAT allowed preliminary rapid analysis of damages, especially for Misrata during the siege by pro-Gaddafi forces.

The below map provides initial imagery analysis performed on Misrata before ground assessments were conducted. The brown area shows areas of damage caused by the conflict on areas surrounding Tripoli street, Misrata. Due to the nature of the Libya conflict, with much of the damage caused by horizontal projectiles onto concrete structures, such imagery analysis had constraints as much of the damage could not be viewed from above

Image 2: Initial Satellite assessment of conflict damages on Tripoli Street, Misrarta

b) Ground truthing of assessment

For each location assessed the GPS points for each assessed shelter were plotted and edited to be as accurate as possible. To obviate the geographical device positioning inaccuracy (GPS have a margin of error between 10-50 meters on average due to obstacles such as trees, buildings and clouds, as well as due to

distances between satellite and GPS device), REACH equipped the field teams with 1:3,000 high resolution blank satellite maps of the assessment area.
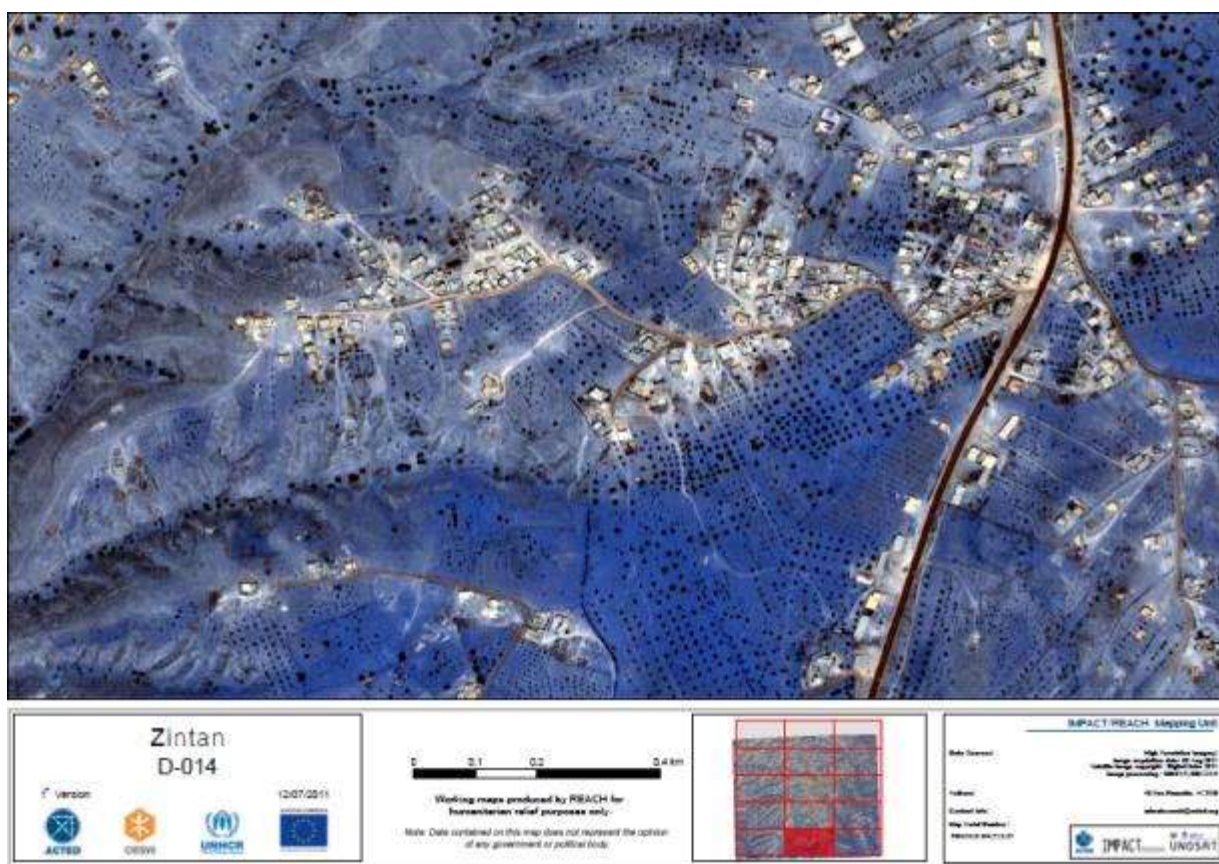
Image 3: Map of Zoom-in (1:3000) of Zintan for ground-truthing purposes.

Teams utilized such high resolution satellite imagery to pin-point and manually indicate the exact shelter that was being assessed, hence negating any GPS inaccuracies.

2. Rapid assessment & logistical set-up

Prior to commencement of activities, a rapid needs-assessment was carried out in each location, to ensure cognizance of all local humanitarian considerations – shelter related and otherwise. After which the team looked to establish a) which local actors, if any, are working on shelter issues and build necessary relations (see point 2); b) approximately how many damaged shelters are in and around the city; c) approximately the level of return of displaced populations to the city.

Furthermore, this step includes logistical set-up and security analysis in order to operationalize the assessment.

3. Leverage Existing capacity through Damage Control Committees (DCC) and National Transitional Councils (NTC)

During the set-up phase, the shelter assessment coordination team would immediately liaise with the local Housing or Damage Control Committees of the National Transitional Council (NTC) for each region. The

outcome of this liaison varied in different cities, sometimes forming formal operational partnerships (Ajdadabiya, Sirte, Misrata) or sharing of information. In most locations the local NTC office had conducted rapid assessments/information gathering of the damage within the city, including lists of damaged properties.   These lists provided a starting point for the shelter cluster assessment of that location. Furthermore, these local authorities provided us with the permission to work on shelter issues in the location. This local-level partnership has been an essential element in the assessment to date.

4.   Hire and train assessment teams

 Once the above was complete, the hiring process for all assessment staff took place, followed by training. The role of the assessment team was to: a) Conduct categorization and damage survey; b) Conduct rapid household vulnerability profile; c) Perform geo-referencing of assessed houses – GPS, pictures.

All staff were given a 1 day comprehensive training session, providing detailed explanations on how to use both the technical and vulnerability sections of the form, and the purpose behind collecting the data. Staff were also trained in the correct usage of all camera and GPS equipment, and then subdivided into teams of three.

Each team was usually composed of 1 civil engineer, 1 social assessor and 1 driver, although in some areas the teams were composed solely of 1 civil engineer and 1 social assessor; this was due to the proximity of shelters to one another, thus rendering the use of a specialised driver not strictly necessary. In all regions these teams were grouped into units, each under the control of a team leader, who in turn reported to the REACH Assessment Coordinator.

5.   Data Collection

In order to facilitate rapid data collection and avoid possible duplication, the teams were usually distributed on an area/neighbourhood basis. Within each team the civil engineer was responsible for completing the technical aspect of the assessment tool and taking pictures of the damages, whilst the social assessor was responsible for completing the household vulnerability section and taking GPS coordinates.

For data collection, each team were furnished with 1 camera, 1 GPS, multiple technical and social assessment forms, 1 high-resolution map of the area.

6.   Cross-check data and internal monitoring

Each team averaged approximately 7 properties assessed per day, and would at the end of the working day return the assessment forms to the nearest project field base, in order for the information to then be cross-checked before being uploaded into the database. Cross-checking of the form was conducted by assigned team leaders; If there were any mistakes or missing information these would be highlighted for revision - done either through a follow up visit or phone call - before then inputting the data into the database.

Shelter cluster partners also carried out constant monitoring of the assessment, including weekly meetings with the teams, regular feedback sessions and weekly monitoring and progress reports. The last of these tools contained a large amount of useful information, covering everything from planning procedures, team performance indicators and ongoing problems and technical issues to take into consideration. Internal monitoring and evaluation formed a key core component of the project and was crucial in shaping ongoing improvements to the methodology and data collection of all assessment teams.

7. Database and data entry

The database was designed in direct accordance with the assessment form in order to ease and accelerate data entry and subsequent data extraction. Furthermore, the database was designed using SQL, and was made accessible online in order for it to be edited and information uploaded from multiple locations. Where the internet was not available or poor, the database could be worked on off line and eventually uploaded into the online version.

The average daily upload for each data entry officer was 70-80 forms per day, making it far faster than the data collection. Accordingly, the data entry phase, irrespective of area, usually began 3-4 days after assessments had started.

8. Static and Web-mapping

The final stage of the assessment process was to produce all relevant static maps and one online, interactive web-map. A static map was produced for each area showing the level and location of damages. A global map has also been produced showing all areas assessed within the country.
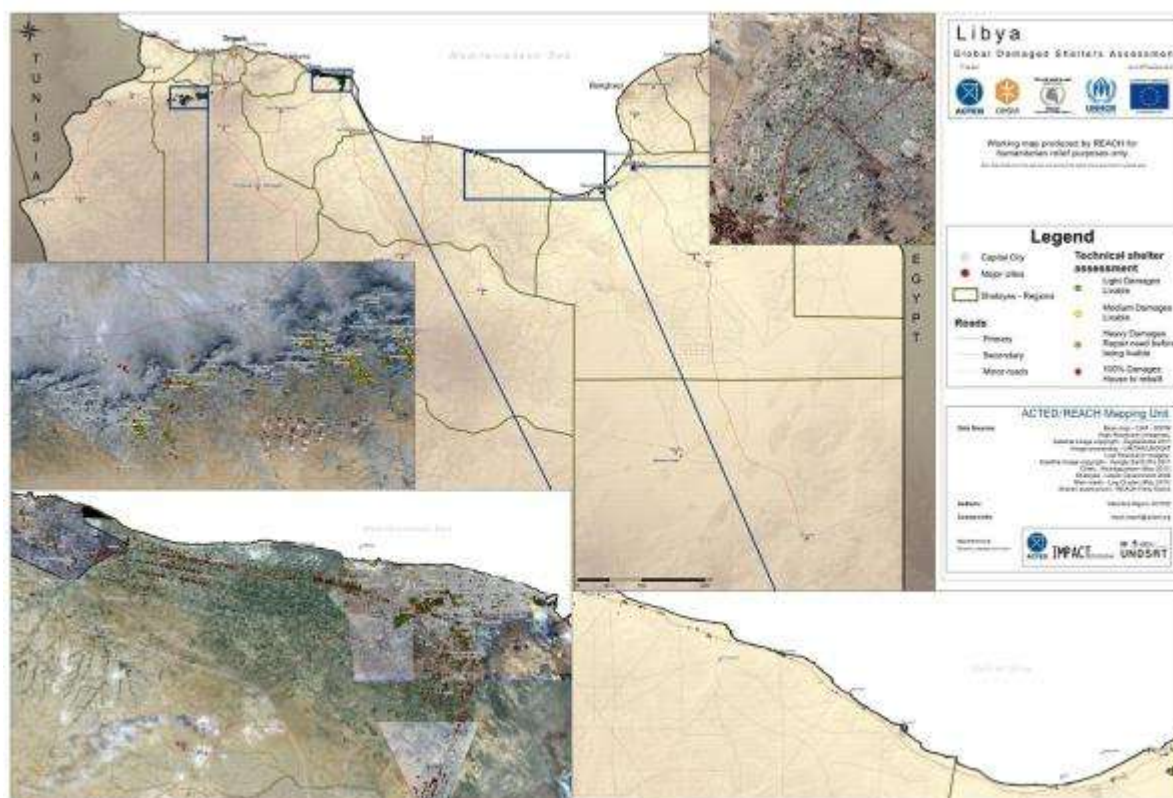
Image 4: Map of Country-wide shelter Assessment

Additional static maps are currently being produced to further analyse the results of the shelter assessment. The maps will analyse and overlay the technical section of the assessment form with the household profile to compare levels of damage with levels of vulnerability for future planning purposes. The mapped results have been distributed to the different relevant local and national authorities.

 An online interactive web map has been produced showing some of the assessment results, see link: http://libya.reach-initiative.org/

Image 5: Screen shot of online web-map.

In addition to the static maps, this interactive and worldwide-accessible instrument has the advantage of showing pictures and limited profile of each shelter assessed. In fact, the picture is an immediate and effective tool to identify the nature and exact location of the damage.
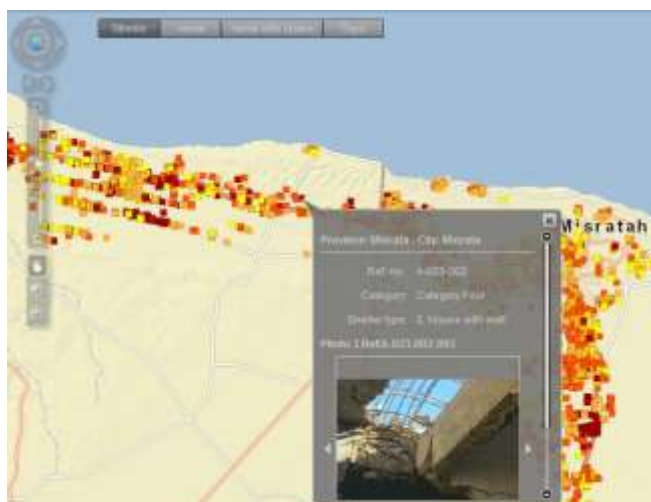
Image 6: Screen-shot of online web-map showing individual house profile.

4 ASSESSMENT RESULTS PHASES 1 and 2

This section is dedicated to the data analysis resulting from the shelter assessment's data collection that took place from July 15th until December 31st 2011. The total number of cases registered (up to 31/12/2011) is 9941 shelters.

The data analysis that follows is divided into 4 sections, representing the 3 main assessment areas plus an aggregated assessment. The three main areas include: Eastern Libya (Ajdabiya, Brega and Bin Jawad); Misrata and surroundings (Misrata, Dafnia, Tammena, Kararim and Zliten); and East Nafusa (Zintan, Jadu, Addhar, Khalaifa, Yefren, Algalaa, Amalgharsal, Kikla, Alrajban and Rieina).

It should be noted that the original questionnaire used for the assessment has changed during the implementation of the activities. Thanks to the monitoring and reporting activities of the local staff, issues with initial forms were identified and subsequently ameliorated. Due to these changes, some questions have a significant percentage of missing information. The absent information is also due to the natural data collection process. From the data collection in the field, right up until the moment of data interpretation, the filters that the information must pass through can be summarized as follows:

1) Data collection in the field
2) Questionnaire control and information cross-check in the field
3) Data input into the database
4) Data extraction

The different steps have both positive and negative aspects; whilst at different levels there is continuous control and monitoring of the data, it must also be noted that the different steps, involving a high number of different actors, increase the risk of data loss or data misinterpretation.

As such, in order to have reliable interpretation of the data, the analysis that follows has, where appropriate, been cleared of missing information.

It is important to note that while this assessment provides a brief overall data analysis, this is not representative of the final findings due to the fact that Sirte, Bani Walid, and additional locations have not yet been included as the assessments are ongoing. Therefore, while we can extrapolate some useful initial conclusions, these findings must not be assumed to be representative of the entire country.

DATA ANALYSIS

Disaggregated data

EASTERN LIBYA: 1751 Shelters

TECHNICAL ANALYSIS

The majority of damaged shelters in the Eastern survey area are of type 2, though Types 1 and 5 are also present in sizeable quantities. With regards to total shelter area, there is a fairly even spread of results, with almost 50% totalling more than 100m². Of concern is the fact that over 40% of households interviewed had no access to basic utilities.
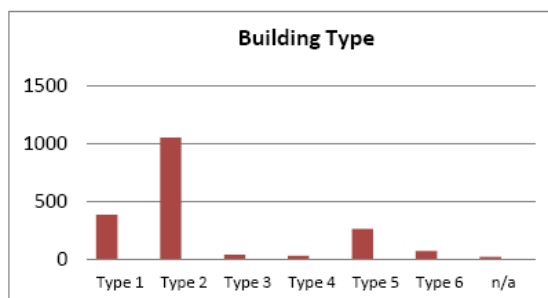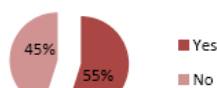
Tab. Building Type Eastern Libya. Data source: A
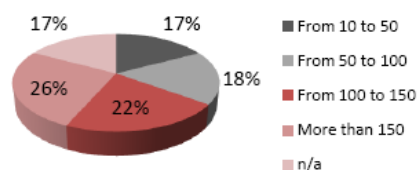
Tab.Shelters'area Eastern Libya. Data source: ACTED/CESVI

Damages and cateogries

High levels of damage were sustained from February right through to September 2011, reaching their peak in July and August. In those shelters affected by UXO/ERW contamination, the distribution is even between those "Inside", "outside" and "nearby". Shelling was the primary cause of damage, with vandalism, occupation by armed forces and fire also significant factors.

Tab.Evidence of UXO/ERWs.Eastern Libya.
Data source: ACTED/CESVI
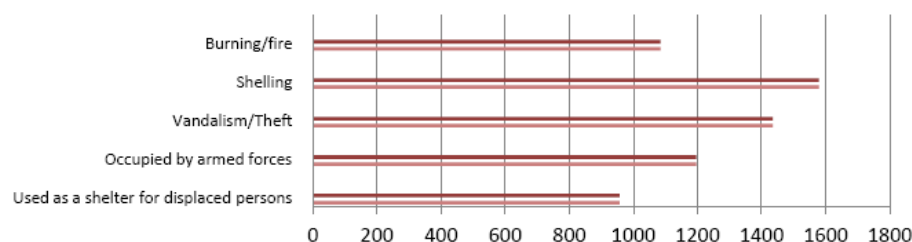
Cat.1		Cat.2		Cat.3		Cat.4		Total
No.	%	No.	%	No.	%	No.	%	
Bin Jawad								
15	6	89	38	70	30	62	26	236
Brega								
99	19	256	49	74	14	98	19	527
Ajdabiya								
532	54	289	29	116	12	51	5	988
Total								
646		634		260		211		1751

Tab. Shelters by category (table), Eastern Libya. Data source: ACTED/CESVI
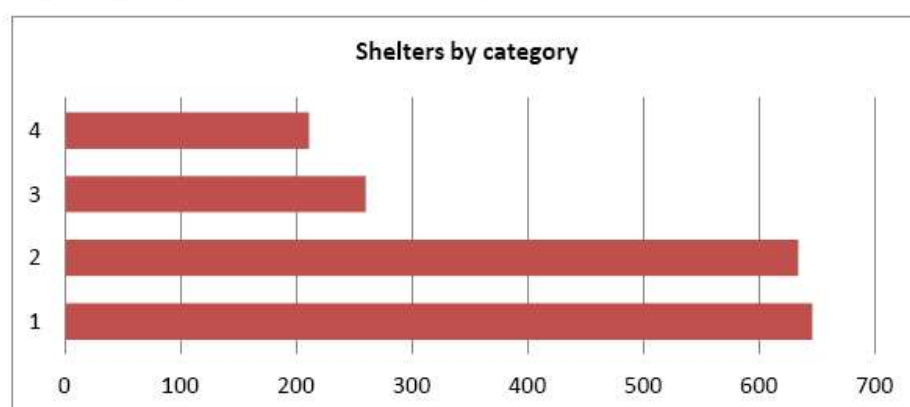
Tab. Shelters by category (graph), Eastern Libya. Data source: ACTED/CESVI

Whilst Ajdabiya suffered the highest numbers of damaged shelters, over half of these were Category 1. In Bin Jawad on the other hand, the overall total of damaged shelters was lower - indicative of the size of the town - but damage levels were far higher, with 56% of shelters either Categories 3 or 4. In Brega almost half of all properties fell into Category 2. Overall, there were significantly more shelters in Categories 1 and 2 than in Categories 3 and 4, a reflection perhaps of the fact that the heaviest fighting in libya occured in the West of the country.

VULNERABILITY ANALYSIS

Household (HH) composition		Average/HH
Total number of persons	7087	4.04
Number of women	4595	2.62
Number of children (under 18)	4015	2.29
Number of elderly (above 60)	705	0.4
Number of people with disabilities	217	0.12
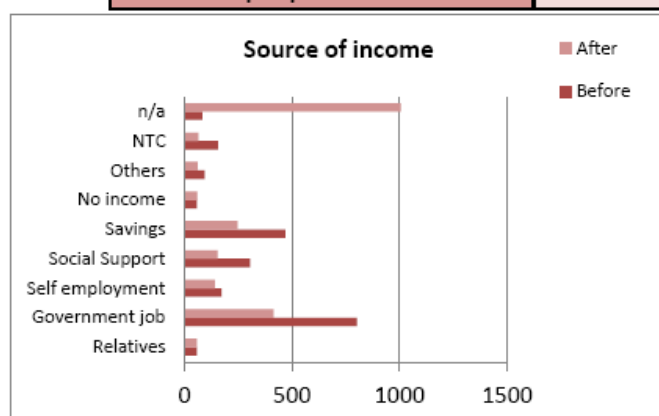
Source of income

Household size amongst those surveyed appears to be below the national average of approximately 7 individuals. Regarding sources of income, most families relied on government jobs, savings or social support. Post conflict, unemployment is rampant and many household heads have no means of supporting their families (NB data collection teams misinterpreted the Category n/a to mean 'no source of income')

Amongst those interviewed, 40% were residents of the damaged shelter, with the remainder fairly evenly spread between IDPs, recent returnees and Third Country Nationals (TCNs). For those shelters unoccupied at the time of assessment, results were again evenly distributed, with the level of damage to the house the main factor in the household not moving back into their property.

Profile of the resident

Why is the house not occupied?

Where are people living if not in the shelter?
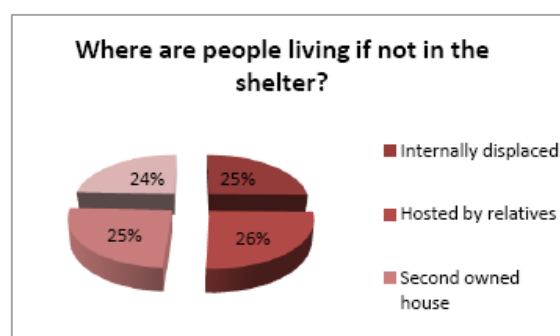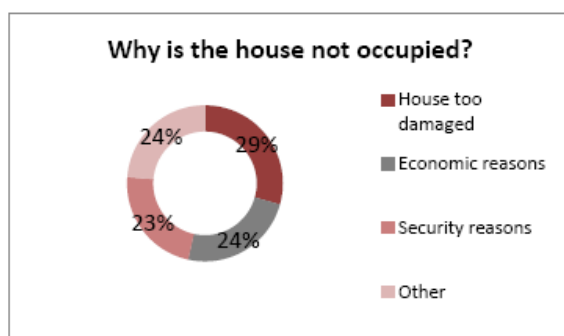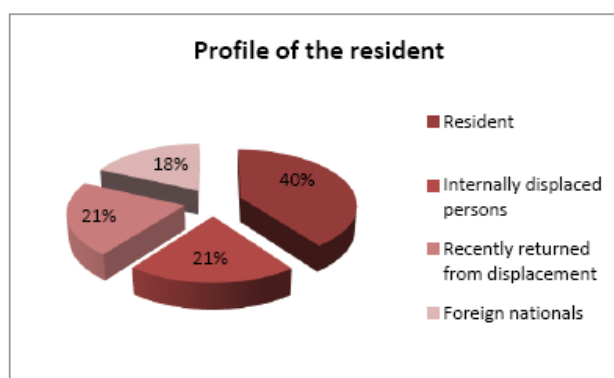
For those households not living in the damaged shelters, the split between those internally displaced, those hosted by relatives and those living in a second home is almost uniform. There was also a similar number of those households not present at the time of assesssment, for whom the location of temporary residence was unknown.

Threats

Legend:
- Regular access food
- Access to drinking water
- Low levels of sanitation
- Risk because of the level of damage in house
- Risk of UXOs/ERWs in the area

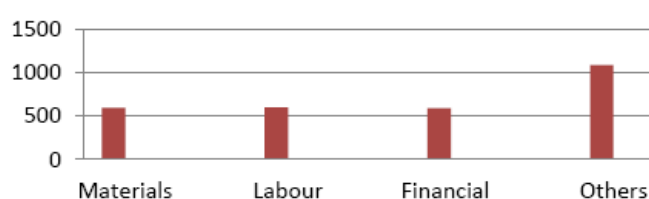## Threat of eviction

49% / 51%
- Yes
- No
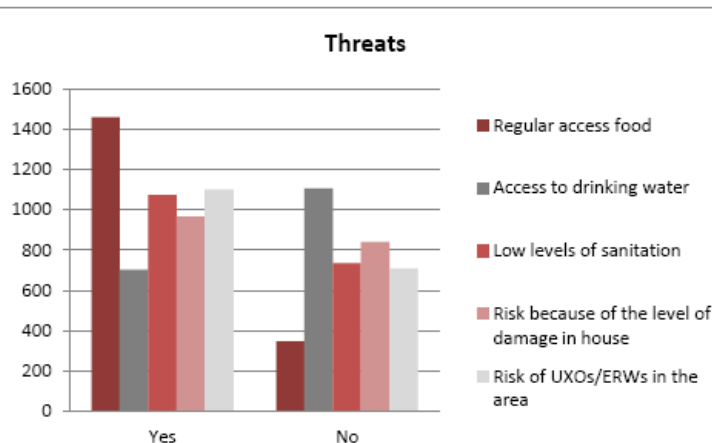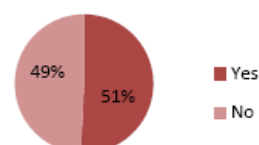
Approximately half of all households surveyed in Eastern Libya are under threat of eviction. Other threats faced included: regular access to food, sanitation issues, risks related to the damage and also UXO/ERW contamination.
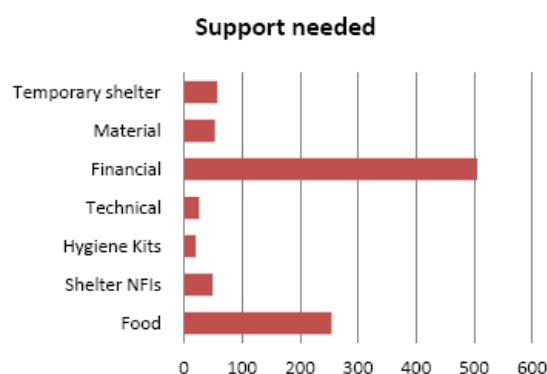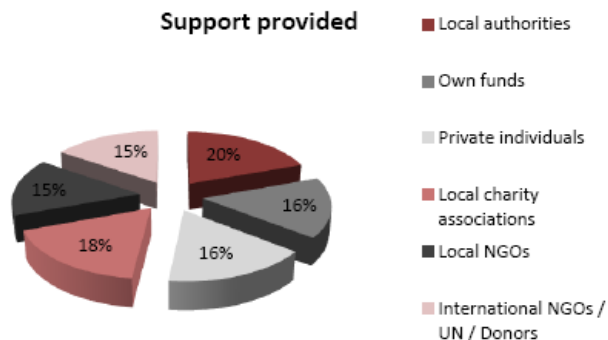
Support needed

- Temporary shelter
- Material
- Financial
- Technical
- Hygiene Kits
- Shelter NFIs
- Food

Basic needs coverage

- Before
- After

(Completely, Sufficiently, Partially, Not at all)
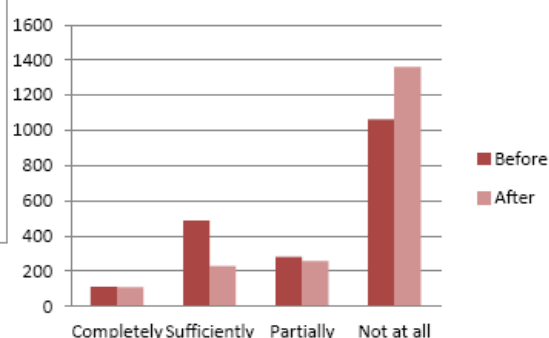
As shown in the graph above, there is a severe lack of coverage of people's basic needs. This issue, of major concern before February 2011, has significantly worsened following the conflict. The main support needed is financial, followed by food. There is an even spread of the type of support that the residents can provide to rebuild their homes. For those households that have already received support, results were also evenly spread, with local authorities and charity associations particularly prominent in providing support.

Support that the resident can provide

- Materials
- Labour
- Financial
- Others

Support provided

20% / 16% / 16% / 18% / 15% / 15%

- Local authorities
- Own funds
- Private individuals
- Local charity associations
- Local NGOs
- International NGOs / UN / Donors

MISRATA and surroundings (Tammena, Dafnia, Kararim & Zliten): 6887 shelters

NB. Several questions were added to the form following completion of the Pilot Assessment. As a result, data is missing for Misrata for certain sectors
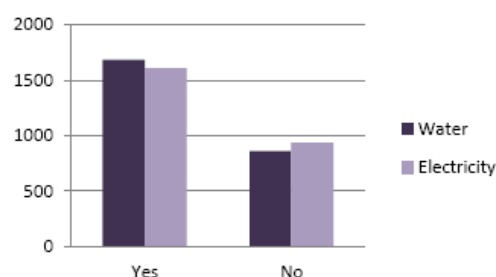
TECHNICAL ANALYSIS

In the Misrata area, the vast majority of those shelters included in the assessment were of Type 2 (house with a fence), whilst over 2/3 of shelters had an area of more than 150m². A further 27% had an area of between 100-150m². As can be seen in the utilities graph, almost 1/3 of households had no access to water and electricity.

Building Type

Legend: Misrata; Tammena, Dafnia, Kararim; Zletan

Shelter area size (m²)

- From 10 to 50
- From 50 to 100
- From 100 to 150
- More than 150
- n/a

1% — 2% — 3% — 27% — 67%

Utilities

- Water
- Electricity

Period of Damage

- Zlitan
- Tamena, Dafnia, Kararim
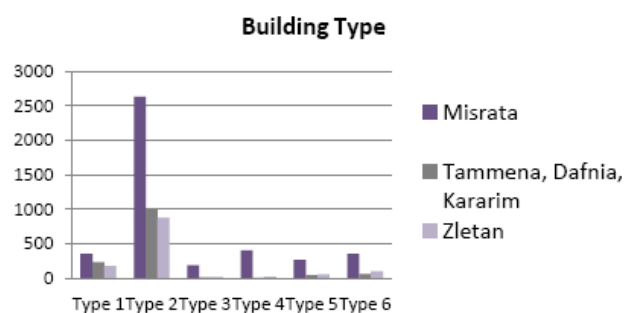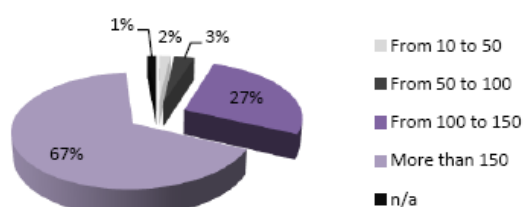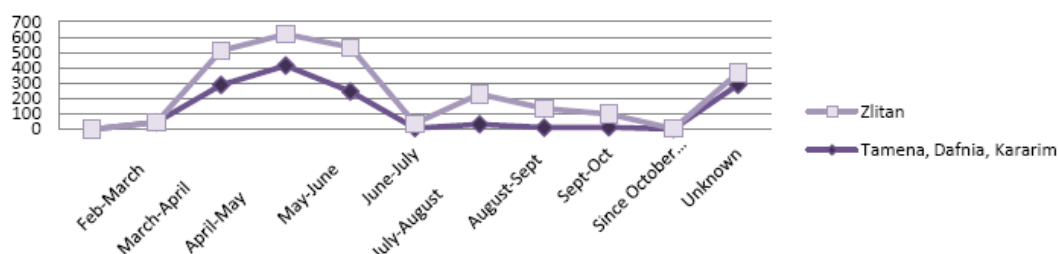
The graph above does not include data from Misrata; we can however see that the majority of damage was sustained between March and June - when fighting was fiercest for control of the Misrata enclave. There is also a later spike in damage sustained in Zliten, particularly in August, as this was when heavy urban fighting led to the city being taken from pro-Gaddafi forces

Cause of damage

- Burning/fire
- Shelling
- Vandalism/Theft
- Occupied by armed forces
- Used as a shelter for displaced persons

- Tamena, Dafnia, Kararim
- Zletan
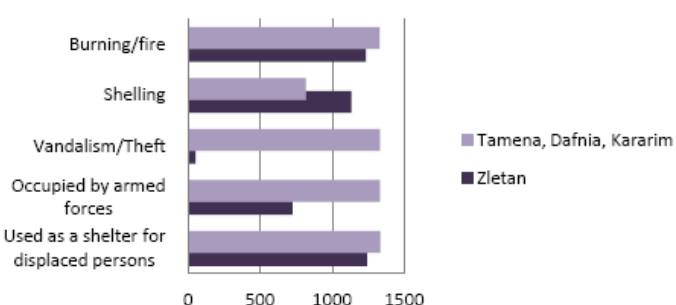
In Tammena, Dafnia and Kararim the reasons for damage were often a combination of factors, whilst in Zliten the primary causes were: use as a shelter for displaced families; fire, and shelling

	Cat.1		Cat.2		Cat.3		Cat.4		Total
	No.	%	No.	%	No.	%	No.	%	
Misrata									
	1032	24	1536	36	1484	35	247	6	4299
Tammena, Kararim, Dafniya									
	193	14	497	37	373	28	287	21	1350
Zliten									
	246	20	504	41	199	16	289	23	1238
Total									
	1471		2537		2056		823		6887

Shelters by category
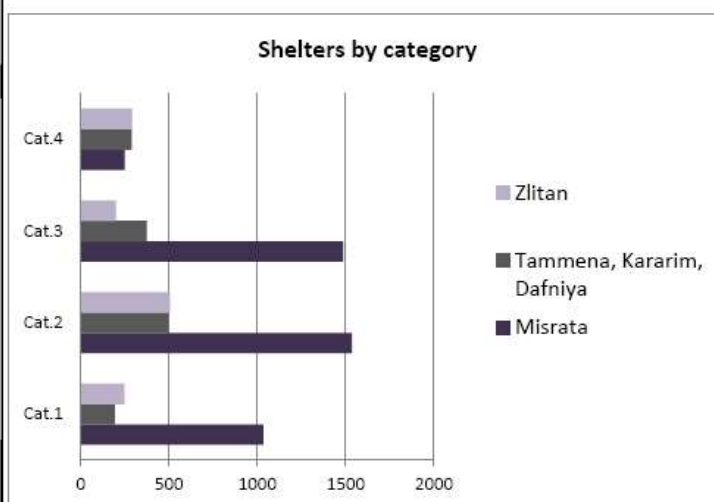
As the graph and table show, the prolonged urban nature of the conflict in Misrata led to the damage of many thousands of shelters. Of these, over 70% fell into Categories 2 and 3. In Tammena, Dafnia and Kararim 49% of damaged shelters were either Category 3 or 4, indicative of the front line location of these three towns for many months of the conflict. In Zliten meanwhile, damage was again heavy, with 80% of shelters in either Categories 2.3 or 4.

MISRATA SHELTER ASSESSMENT
Misrata City

VULNERABILITY ANALYSIS

Source of income
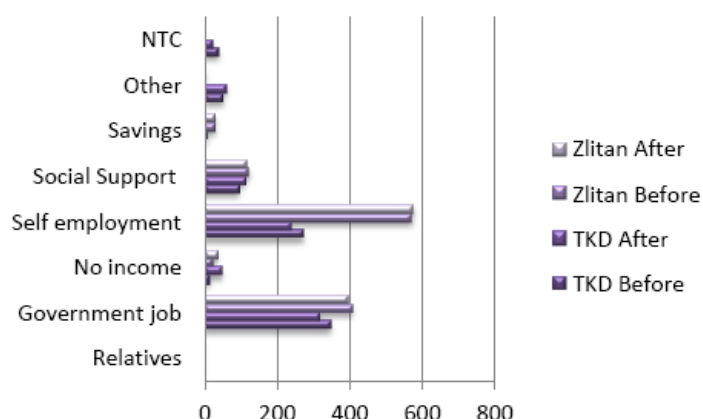
Unlike in other areas of the country - where the primary source of income often came from Government jobs - in Zliten the majority of those interviewed were self employed, both before and after the conflict. The second highest source of income was Government salaries. In Tammena, Dafnia and Kararim the main source of income was Government employment, followed by self employment and social support. In the Misrata area 77% of those interviewed were residents, followed by 14% recent returnees and 9% IDPs

In Misrata, the reasons for the shelter being unoccupied were varied, with many interviewees citing security, economic, and damage-related causes, alongside other issues. In Tammena, Dafnia and Kararim the main causes were the level of damage, and security concerns. For those shelters currently unoccupied in these three towns, the cause was primarily unknown, although many families were now internally displaced. In Zliten most displaced families were staying with relatives, with smaller numbers either internally displaced or having moved to a second home.

Resident profile
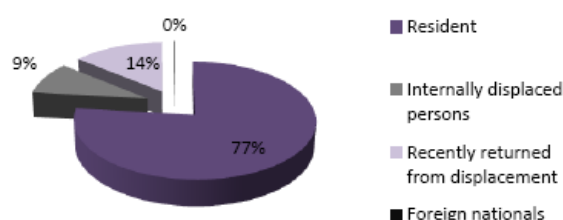
Why is the house not occupied?
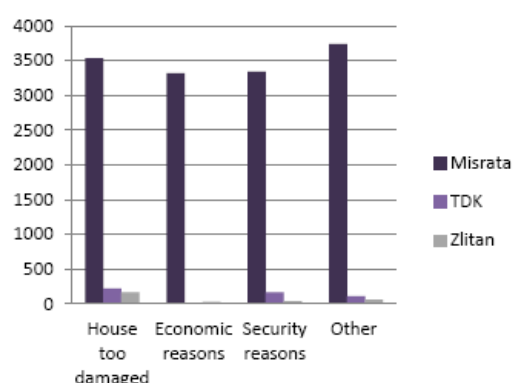

Where are people living if not in the shelter?
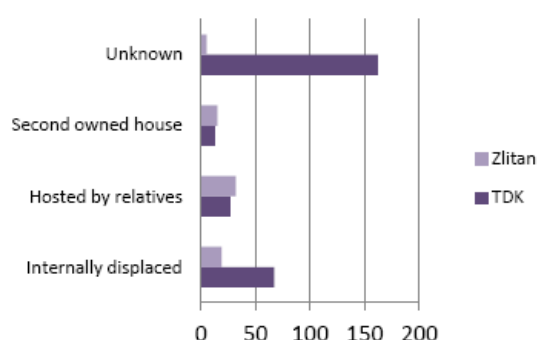
The level of support provided to families in Zliten, Dafnia, Tammena and Kararim has been inadequate, both before and after the conflict. The vast majority of those surveyed had either only partial needs coverage, or none at all. In all four areas there were many families that indicated their ability to provide financial support to the rehabilitation process of their shelters, with many in Zliten also able to provide building materials.
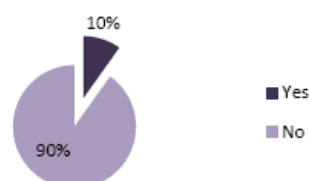
Basic needs coverage
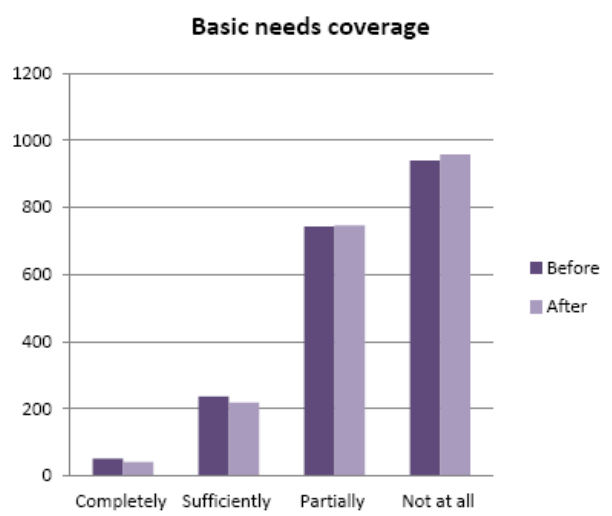
In terms of support provided, the biggest contributors have been international aid organisations, along with local authorities. All sectors have however been well represented, including local NGOs, private individuals and households using their own funds.

Support that the resident can provide
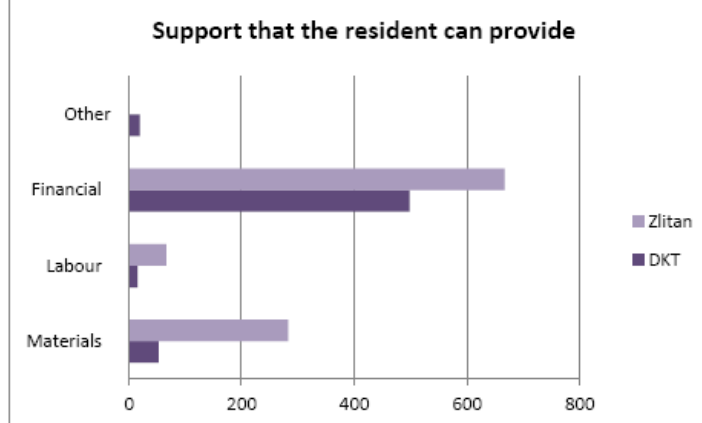
Support provided
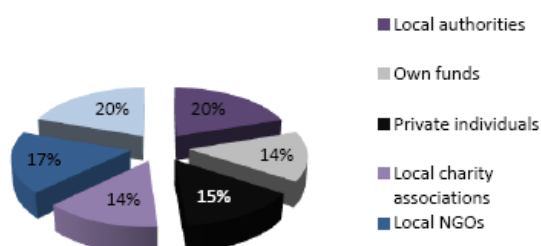
Threat of eviction

Threats
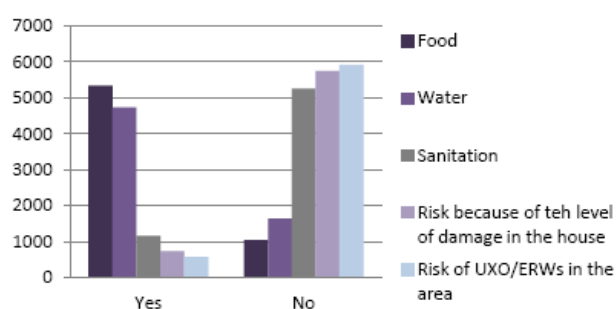
Unlike in other areas of assessment, in Misrata and surroundings there are relatively few families threatened by eviction (10%). Other threats are being acutely felt by interviewees however; notably a lack of food and water. Threats from levels of sanitation, shelter damage and UXO contamination have declined, thanks to efforts by both local authorities and, in the case of the final issue (UXO contamination), a concerted joint effort from katibas (military brigades) and international de-mining agencies.

EASTERN NAFUSA: 1314 shelters

TECHNICAL ANALYSIS

The data collected shows that virtually all houses surveyed in the Eastern Nafusa Region are either Type 1 or Type 2 shelters - an individual house either with or without a fence - and that the majority of shelters assessed (62%) have a total area of more than 150 square metres. Concerning utilities, approximately 30% of households living in damaged properties did not have access to running water and electricity.
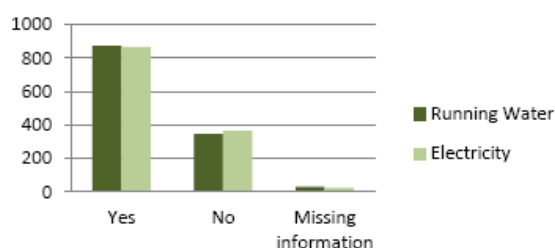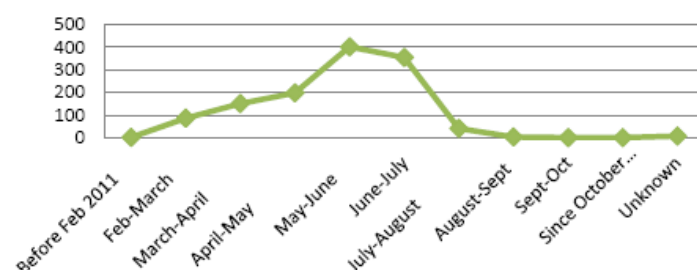
Building Type

Shelter area size (m^2)

- From 10 to 50
- From 50 to 100
- From 100 to 150
- More than 150

Access to utilities

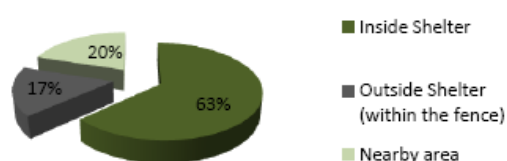- Running Water
- Electricity
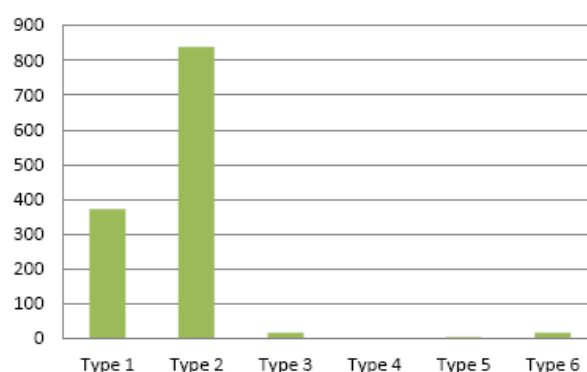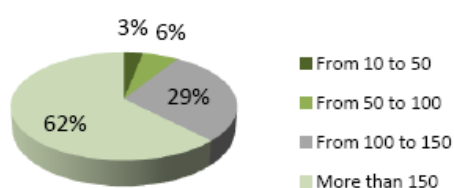
Period of damage

In the Eastern Nafusa Region the main damages have been caused between May and August, as this was when fighting between pro-Gadaffi and pro-NTC forces for control of the region was fiercest. The cause of shelter damage has been a combination of several factors.
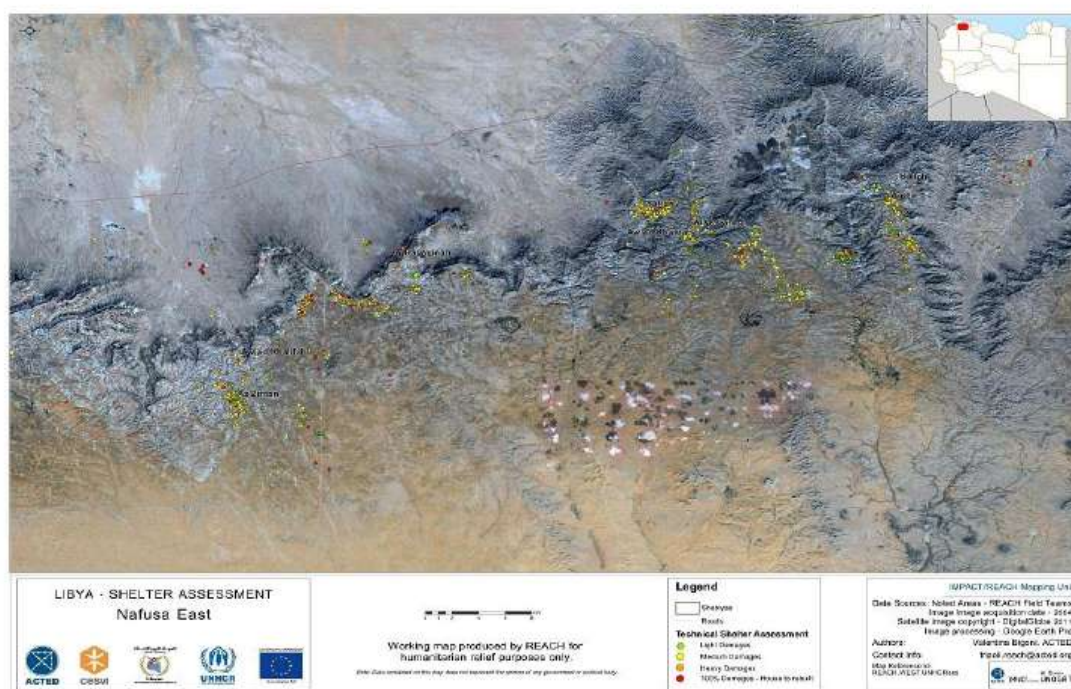
Of those shelters found to suffer from UXO contamination - 42 properties - 63% had a UXO within the shelter perimeter itself, placing these households at high risk.
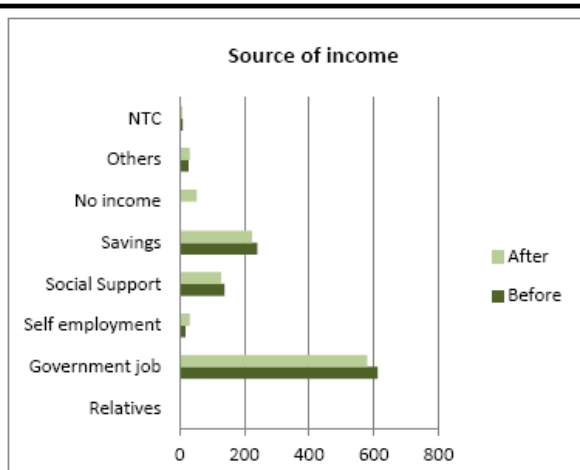
Evidence of UXO/ERW

- Inside Shelter
- Outside Shelter (within the fence)
- Nearby area

City / District	Category 1		Category 2		Category 3		Category 4	
	No.	%	No.	%	No.	%	No.	%
ZINTAN	82	33	79	32	35	14	48	19
JADU	0	0	3	50	3	50	0	0
ADDHAR	7	23	12	40	10	33	0	0
KHALAIFA	0	0	1	100	0	0	0	0
YEFREN	34	17	94	46	61	30	16	8
ALGALAA	70	22	138	44	49	16	48	15
AMALGARSAL	15	58	6	23	5	19	0	0
KIKLA	72	23	118	38	89	29	29	9
ALROJBAN	1	13	5	63	1	13	1	13
RIEINA	38	21	41	23	75	41	28	15
Total 1314	319	24	497	38	328	25	170	13

Shelters by category
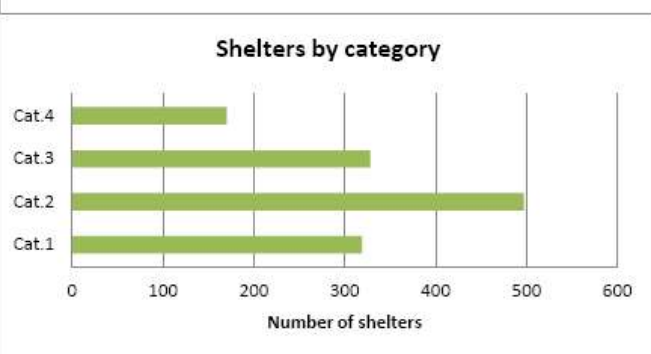
The table above shows the dissaggregated data of the assessment undertaken in Eastern Nafusa. As can be seen, the larger towns of Algalaa, Kikla, Zintan and Yefren suffered high numbers of damaged shelters, whilst shelters in Rieina suffered the most elevated levels of damage, with 56% of all assessed properties falling into either Categories 3 or 4.

As the bar graph above shows, over 1/3 of the shelters damaged in Eastern Nafusa fall into Category 2, followed by Categories 3 and 1.
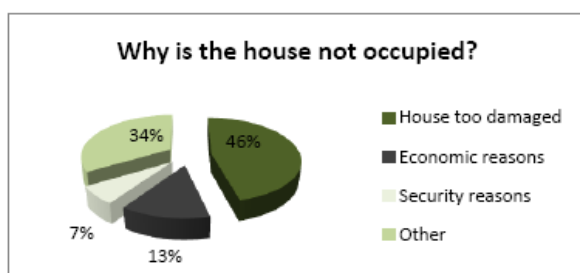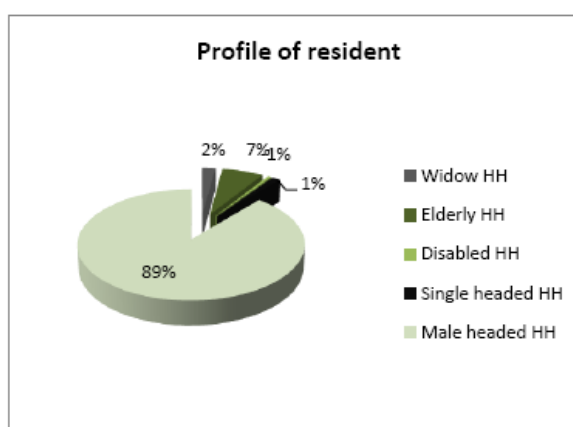

LIBYA - SHELTER ASSESSMENT
Nafusa East

Working map produced by REACH for humanitarian relief purposes only.

Source of income

As indicated in the graph opposite, the main source of income for those housholds assessed was government employment. The number of people living on social support, approximately 11%, must also be noted. These two statistics confirm the crucial role that government support played in providing a source of income for inhabitants.

The majority of those interviewed have preserved the same job, although there has been an overall decrease in those now abe to support themseves following the conflict.

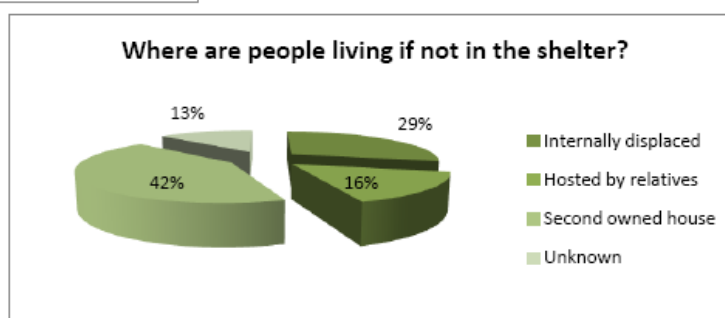Almost everyone assessed (99%) owns the house they live in. Of the homeowners, 4% are female.

93% of those assessed are residents of the property, with the remainder divided between Internally Displaced Persons (IDP) (3%) and those recently returned from displacement (4%). As the pie chart to the right shows, the vast majority of families interviewed had a man of working age as household head. However, for 7% of families an elderly family member was household head, with widows making up a further 2% of households. These last two statistics may be indicative of the large numbers of fighters from the Nafusa Mountains that joined the revolution, and consequently high numbers of casualties amongst young males in the region.
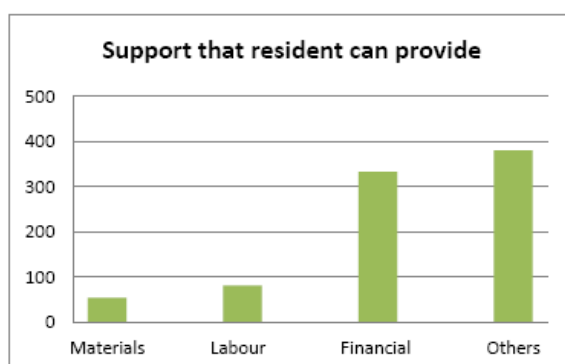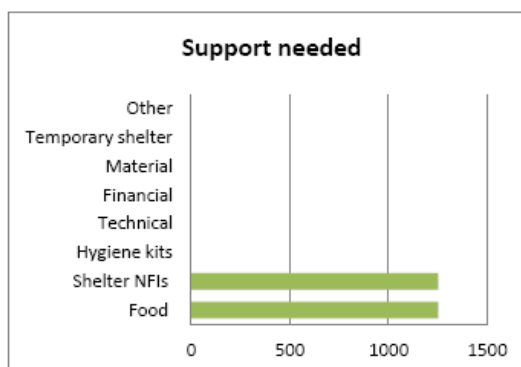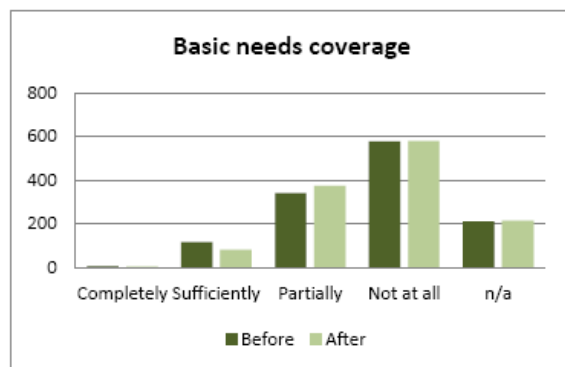
Profile of resident

Why is the house not occupied?

Amongst those still yet to return to their homes, the main reason is the level of damage to the house (46%), followed by security (34%) and economical (13%) concerns

Almost half (42%) of those not living in the shelter have a second owned house, whilst 29% are now internally displaced. 16% are currently staying with relatives.

Where are people living if not in the shelter?

Basic needs coverage

Support needed

Support that resident can provide

Many households reported serious problems in covering basic needs, particularly food and medicines. However, the data also shows that the conflict did not substantially affect the situation – it would appear that such issues have more deeprooted, structural causes. The type of support needed is, specifically, food and shelter/NFI assistance. Residents declared their ability to contribute financially to the reconstruction of the shelters.

About 23% of those interviewed reported to have received some kind of support. The pie chart to the right shows that the main source of support comes from local NGOs, followed by local authorities and local charity associations. Support provided by international NGOs is mentioned by only 4% of interviewees.   This corresponds to the low-level of international presence in the Nafusa area during the crisis.

### Support provided

Threats

Threat of eviction
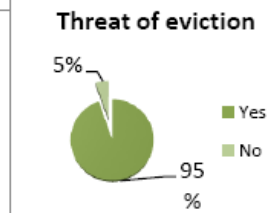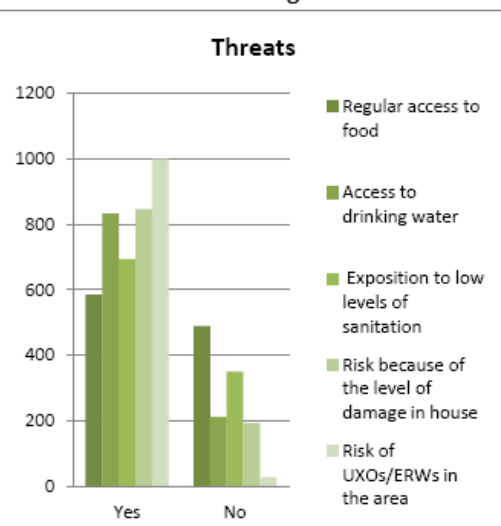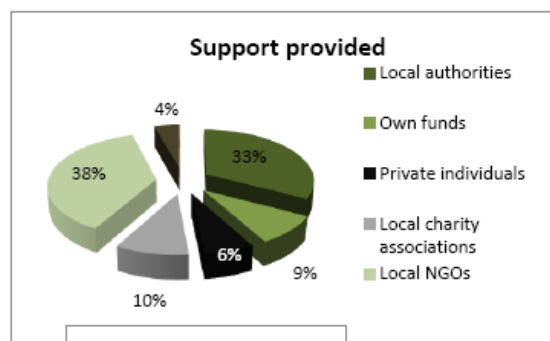
The table on the left summarizes the main threats that households currently face. The main issues seem to be caused by the conflict: risk of UXO/ERWs and risk due to level of damage of the house. The pie chart meanwhile shows that 95% of households are under threat of eviction. Due to the extreme nature of this statistic, it requires further verification, however it provides a worrying indication.

AGGREGATE ANALYSIS: 9952 shelters

TECHNICAL ANALYSIS

Cat. 1		Cat. 2		Cat. 3		Cate. 4		Total
No.	%	No.	%	No.	%	No.	%	
2436	24	3668	37	2644	27	1204	12	9952

The aggregate analysis shows that, as already seen for most other areas, category 2 is the most common category of damages. Only eastern Libya differs from this general analysis.
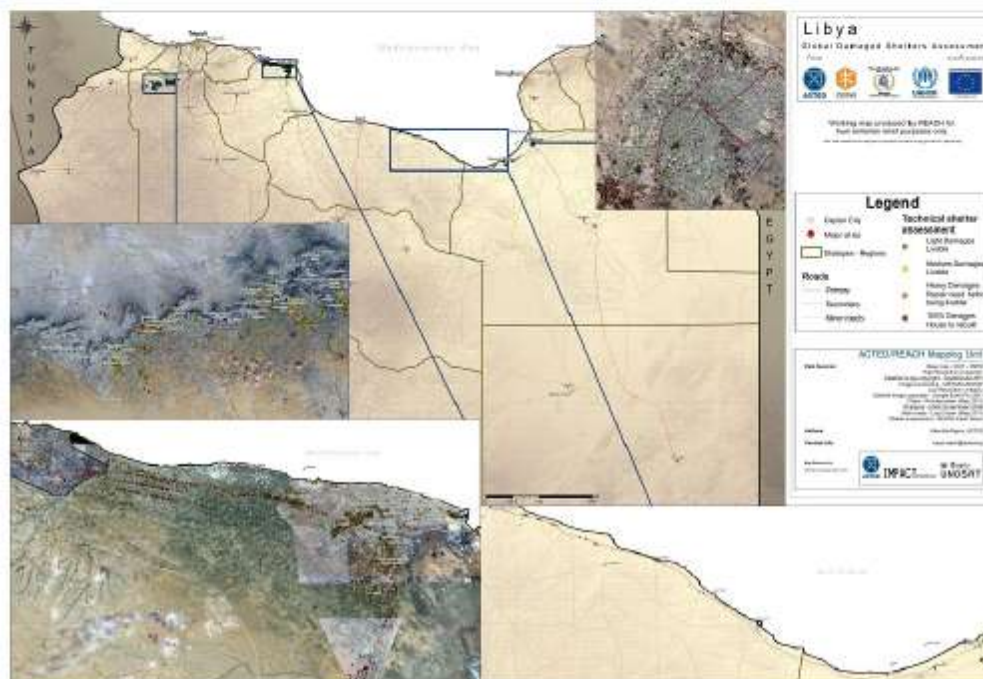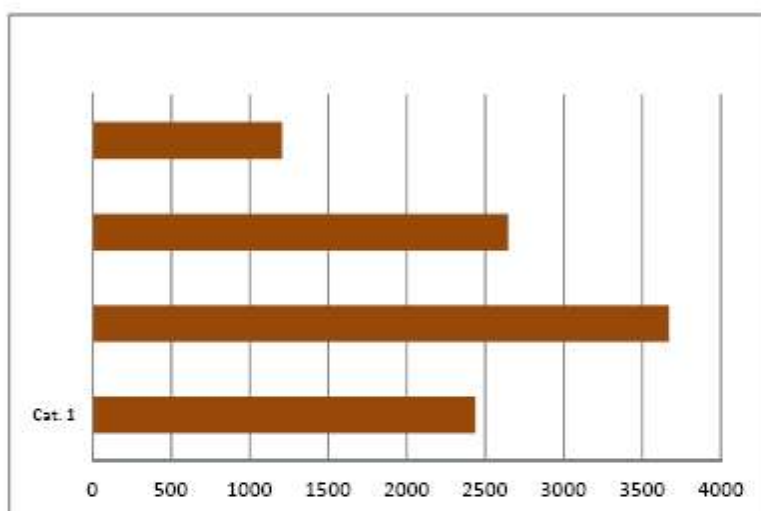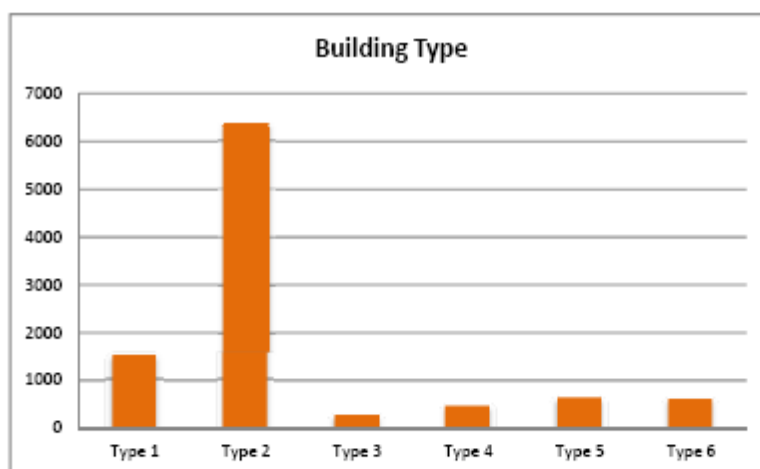
Building Type

The table on the left shows that the most frequent building type is type 2. The aggregate analysis in this case doesn't differ from the disaggregate analysis, where each location has type 2 as the most frequent type of building.

As shown in the table on the right, the causes of damages are not significantly differentiated among the different areas that have been surveyed. An interesting difference highlighted in this aggregate comparison is the significantly low number of "Vandalism and Theft" cases in Zletan, far lower than other locations. Furthermore it's interesting to notice that Eastern Libya has the highest number of damages caused by "shellings"and the lowest number of damages caused by the usage of the shelter by displaced people.

Cause of damage
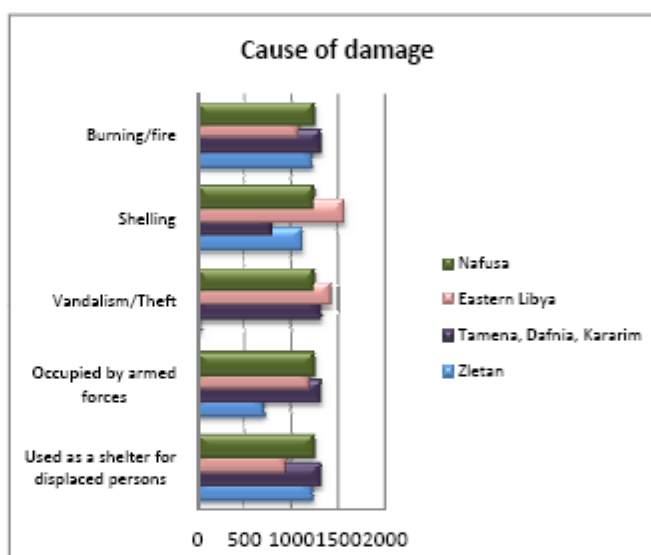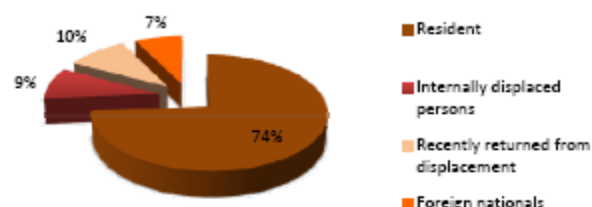

Water Availability
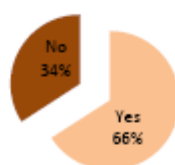
Electricity Availability
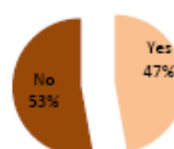
According to the data available, half of the households surveyed does not have access to electricity, while 34% surveyed does not have access to running water. The results of the aggregate analysis of the utilities does not differ significantly from the disaggregate analysis.

VULNERABILITY ANALYSIS

Profile of the resident

7%
10%
9%
74%

- Resident
- Internally displaced persons
- Recently returned from displacement
- Foreign nationals

The table on the left shows the profile of the residents interviewed. The aggregate analysis shows most households surveyed were classified as 'residents'. Comparing this result with the disaggregate analysis, we notice that while Nafusa and Misrata (+ surrounding areas) confirm this pattern, Eastern Libya differs significantly. Surveys in Eastern Libya show in fact that only the 40% of the respondents are residents. The second most frequent categories for eastern Libya are, with 21% each, "Internally Displaced Persons" and "recently returned from displacement".

Why is the house not occupied?

| | House too damaged | Economic reasons | Security reasons | Other |
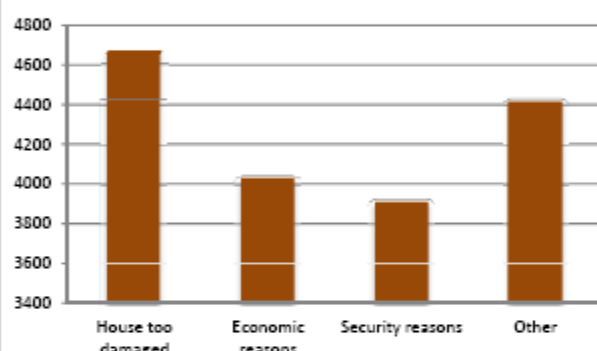
The above table shows that the main reason for not returning to the house is due to the high level of damage to the house. This is also relfelcted inthe disagregated data.

The pie chart on the right shows that there is no significant differentiation between the different coping strategies for people who are not living in their shelters. Comparing this result with the disaggregate analysis, we notice that Eastern Nafusa is differentiated due to the high number of people who own a second house (42%). Furthermore, we also notice that Tameena, Dafnea and Karareem have, among all locations, the highest number of people hosted by relatives.

Where are people living if not in the shelter?

24%
25%
24%
27%

- Internally displaced
- Hosted by relatives
- Second owned house
- Unknown
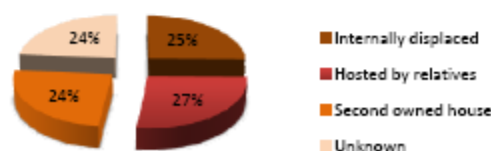
BASIC NEEDS COVERAGE
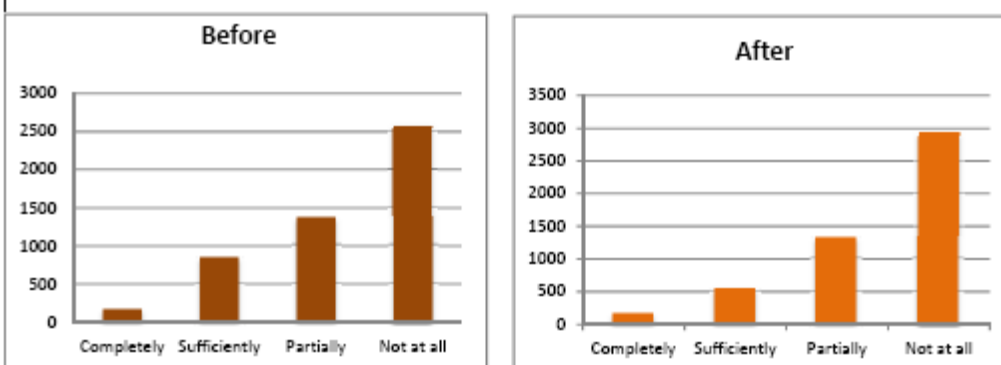
Before

After

Respondents, as shown in the tables above, state that their capacity to cover basic needs was insufficient both before and after the conflict. This aggregate result reflects the situation of each location surveyed.

Support that the residend can provide

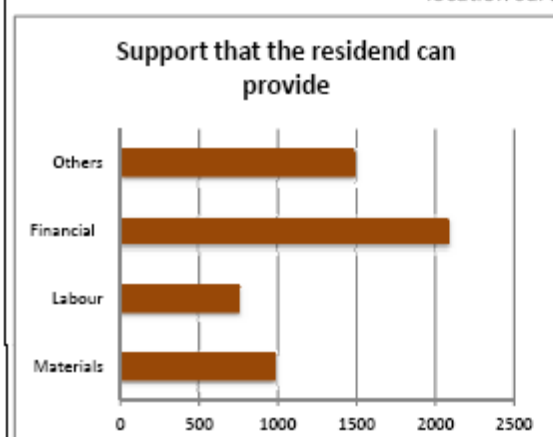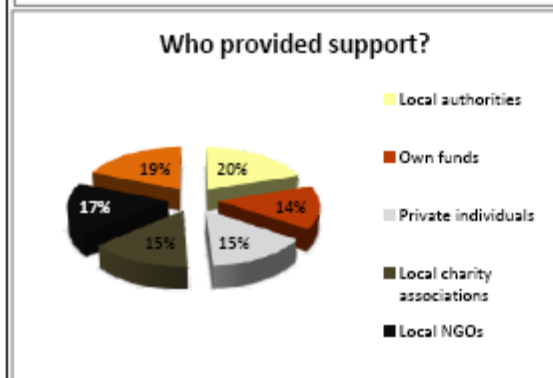The aggregate analysis shows that the respondents are willing to contribute to the reconstruction mostly in financial terms. This pattern reflects also the situation of Eastern Nafusa and of Misrata (+ surroundings areas), while Eastern Libya differs having as the most chosen answer "material" (after "other").

Who provided support?

- Local authorities
- Own funds
- Private individuals
- Local charity associations
- Local NGOs

Threat of evicion

Local Authorities, according to the pie chart on the left, have provided the highest level of support, followed by International organisations. However this aggregate analysis differs from the disaggregated one, where in Eastern Libya the intervention of International organisations is lower than the average (15%), and where in Eastern Nafusa such internaitonal intervention is the smallest form of support provided.
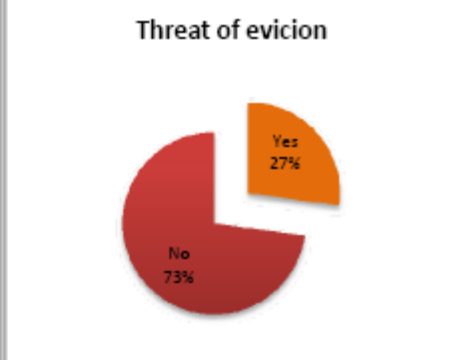
According to the aggregate analysis the threat of eviction is detected in the 27% of the interviewed population. This result differs from the disaggregate analysis where we find Easter Nafusa with only a 5% of risk, Misraa (+ surroundings) with the 10% of risk and Eastern Libya with the 49% of risk. Clearly the result is highly influenced by Eastern Nafusa that significantly differs from the other locations.

5 CHALLENGES & LESSONS LEARNT

5.1 TECHNICAL ISSUES

Given the extremely fluid nature of events in Libya, including constantly evolving humanitarian priorities, as well as the different effect of the conflict in different locations, the assessment form had to be adapted and realigned on several occasions. As a consequence the database also had to be regularly recalibrated to ensure exact reciprocity with the form – for example questions relating to damage level and details were improved and refined, and the database edited accordingly.

There were instances where the translation of questions from English into Arabic led to misunderstanding of the precise information required. This meant that on occasion the assessment teams would omit or incorrectly insert data when completing the form. This would be rectified at the cross-checking phase of the assessment.

In Ajdabiya it was discovered at the time of project implementation that the local NTC had already completed some structural surveys of damaged properties; however this was not comprehensive and no socio-economic information had been compiled. As a result, project teams faced the dual challenge of integrating the technical information that had been collected by the NTC committee into the established database setup, whilst also coordinating follow up visits to all households in order to complete the vulnerability section of the assessment.

4.2 IMPLEMENTATION

The implementation of the main activities (with the exception of recruitment) took more time than originally planned. There were many causes for the delays, and these differed from region to region.

Misrata was chosen to be the initial target for assessments, yet teams in the city had to overcome several major obstacles in order to commence activities. A particular challenge was the situation at the time of assessment - August 2011. During this period the city was still encircled by pro-Gaddafi forces, with the front lines 30-35km beyond the city limits. Misrata was still within the range of Grad rockets and was subjected to near-daily bombardment. Project partners did not want to jeopardise the safety of staff members and so restricted movements, leading to some delays in data collection. It also took a considerable amount of time and effort to secure approval to use GPS devices, as the city was still on a war footing and the Misrata NTC did not look favourably on the idea that anyone – humanitarian organisations included – take GPS coordinates of locations within the city, fearing that this information could fall into the wrong hands.

All teams in the country were given mine and Unexploded Ordnance (UXO) risk awareness training before beginning assessments, given their relative abundance in areas targeted for assessment and the extreme risk they posed. Upon encountering any suspicious object, teams were advised to leave the vicinity and immediately contact a relevant demining agency. These precautions were indispensable, but did lead to delays in assessment completion.

Cultural sensitivities in certain regions of the country, notably in the towns of Ajdabiya and Brega in the east, meant that, at the start, teams were unable to gather socio-economic information if the male head of the family was not present at the time of assessment. To counteract this issue and thus expedite the data collection process, it was ensured that women were included in all assessment teams for these areas.

The assessment was intended only to cover private properties, yet in certain areas the lists of damaged properties provided by the local NTC included government or company-owned shelters. In Brega, for instance, teams found that many of the properties listed were either owned by the government or the Brega Oil Company. This led to time being lost in ascertaining ownership issues.

It was common for the lists of damaged shelters to contain duplicated information; this again led to valuable time being lost in double checking all lists. In Zliten meanwhile, the local NTC had not compiled any list of damaged properties, leading to delays as there were no figures regarding the number of damaged properties, and also no contact information for those families inhabiting the properties. The lack of the latter led to delays, as teams were unable to coordinate with household heads so as to ensure the presence of a family member at the time of assessment.

4.3 LOGISTICAL ISSUES

In some of the more rural areas, notably the Nafusa Mountains, properties were dispersed over a broad geographical area, leading to delays in completion of activities when compared to those undertaken in urban settings. In addition, the remoteness of some areas of the Nafusa Mountain chain was exacerbated by the fact that assessment teams found some regions to be restricted military zones, inaccessible to civilians.

Furthermore, project partners lacked the financial resources required to fund a permanent base in the region; this compounded the logistical challenges of operating in the Nafusa Mountains, as teams had to be coordinated remotely from Tripoli.

6 NEXT STEPS AND RECOMMENDATIONS

6.1 ADDITIONAL LOCATIONS

The assessment will now shift into a third phase, focussing on additional conflict-affected locations, including Sirte (approx 6,000 damaged shelters) and Bani Walid (approx. 2000 damaged shelters). It is also recommended to assess towns in Western Nafusa (approx. 1200 damaged shelters), Al Zawiya (approx. 2000 damaged shelters), as well as additional damages incurred due to the conflict (unknown number), in order to have a comprehensive analysis.

6.2 FURTHER DATA ANALYSIS

Once the above stages are completed, a final comprehensive assessment report will be developed, building further on this current version. Furthermore, the assessment database, maps and results will be transferred directly to the appropriate local and national authorities for use in the planning and implementation of reconstruction activities in the country. Currently, the shelter cluster assessment members, led by UNHCR, in partnership with the Libyan government, are defining the correct ministerial bodies through which to pass the assessment. Furthermore, as and when the results are ready, they are transferred to the appropriate local bodies through a set-out communications plan. The database then allows these local and national bodies to run further queries and analysis on the results, and the maps (static and online) provide the authorities with an invaluable tool for further analysis and planning.

The assessment was facilitated (in the framework of the shelter cluster) by REACH, an interagency program of IMPACT Initiatives (IMPACT).

REACH was born in 2010 as a joint initiative of two INGOs (IMPACT and ACTED) and one UN program (UNOSAT). Based in Geneva, REACH operates through global advocacy and country-level deployments.

REACH's **purpose** is to promote and facilitate the development of information products that enhance the humanitarian community's decision making and planning capacity.

REACH's **overall objective** is to enhance the effectiveness of planning and coordination by aid actors in countries that are in crisis or at-risk of crisis.

Since 2011 REACH has formalized a partnership with the Global Shelter Cluster (GSC) to support the strengthening of its coordination and planning capacity, with financial support from the European Commission Humanitarian Aid Office. Dedicated REACH teams (including assessment, database and mapping experts) are available to be rapidly deployed to the field in the aftermath of future emergencies in order to facilitate interagency assessments and mapping activities on behalf of the shelter cluster. Resulting information products are used to enable better planning and coordination by the cluster, and are widely disseminated.

REACH's partnership with the GSC is directed by a dedicated Steering Committee including representatives from ACTED, IFRC (as GSC co-lead), IMPACT, the European Commission's Joint Research Centre and UNOSAT.

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7 ANNEXES

ANNEX A: SHELTER ASSESSMENT FORM (ENGLISH AND ARABIC)

ANNEX B: SHELTER ASSESSMENT STATIC MAPS

A product of

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