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Detailed Infrastructure Damage Assessment

GAZA - 2014



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1. Introduction

In July 2014, the Israeli military launched a sustained assault on Gaza. For seven weeks, Gaza was invaded and bombarded from land, sea and air. The human loss was great: at least 2,145 people were killed, including 581 children. One in four Palestinians in Gaza was forced to flee, and over 60,000 houses were partially or completely destroyed. Public services were devastated, creating scarcity of water, energy, food and shelter. Agriculture, industry and trade are at a standstill, leaving ever more Gaza residents without a livelihood.

This devastating assault follows decades of occupation and border closures that have left people in Gaza isolated, impoverished and vulnerable. Gaza was already in the grip of a humanitarian and environmental crisis before the assault began. A seven-year blockade and military operations had suffocated the private sector, creating widespread dependency: 80 percent of Gaza residents were already dependent on aid, 47 percent were food insecure and 40 percent were unemployed. Before the most recent assault, there was already a deficit of over 71,000 housing units, in addition to poor health services and overcrowded schools.

In the aftermath of the armed conflict, the collection, evaluation and dissemination of damage data is critical for a timely and accurate early recovery planning and implementation. Accordingly, a Higher Inter-Ministerial Committee was formed by the Cabinet of Ministers on 30 July 2014 to oversee the preparation of the National Early Recovery and Reconstruction Plan for Gaza. The Committee was assisted by a Technical Team composed of representatives of 20 ministries and Government institutions working closely with international organizations, donor countries and the private sector.

The National Early Recovery and Reconstruction Plan for Gaza was presented in the donor conference in Cairo in October and is based on a preliminary infrastructure damage assessment, which was conducted by line ministries in coordination with the Ministry of Planning and Administrative Development (MOPAD). Rapid assessments of damage and recommendations for top priority immediate interventions, as well as broader recovery and rehabilitation interventions, were prepared across the four key sectors, in accordance with the National Development Plan: Social Sector; Infrastructure Sector; Economic Sector; and Governance Sector.

In order to verify the preliminary infrastructure damage assessment findings and to further inform on the actual damages, the Higher Inter-Ministerial Committee tasked UNDP to conduct a Detailed Infrastructure Damage Assessment in collaboration with line ministries, UNRWA, UNOSAT and WFP.

The Assessment has shown that the most affected communities are located to the Eastern side of Salah Al Deen regional road. The areas with concentrated damages during the hostilities were A) Beit Hanoun, Umm Al Nasser, East Jabalia and Beit Lahia in Northern Gaza; B) Shijaiya and Al Zaitoon neighbourhoods in addition to multi-storeyed buildings in different neighbourhoods in Gaza City; C) Al-Maghazi, Nusairat and Al-Bureij Camps, Johr Al Deek and Deir Al Balah in the middle area; D) Khuza'a, Al Zanna, Al Qarara and Bani Suhaila; and E) East Rafah.¹

1 See Annex 1



2. The Assessment

Prior to the start of the Detailed Infrastructure Damage Assessment, coordination and consultation with all stakeholders was ensured in the development of the forms and the decision to limit the scope of the assessment to infrastructure damages. Throughout the Assessment, stakeholders were consulted for guidance and advice. The following sectors were covered in the assessment:

Housing, WASH, Transportation, Energy, Education, Health, Private sector, Al Waqf, Municipal infrastructure and Public buildings.

Although each sector was approached slightly differently depending on its nature, there was a common approach:

- » The Palestinian Contractors' Union recruited engineers with sufficient experience to conduct the Assessment. The engineers were shortlisted from lists of engineers who had previous expertise with the MOPWH and UNDP in damage assessments as well as lists from experienced engineers in the construction sector identified by the PCU. A joint PCU-UNDP committee developed the final list of engineers.
- » All engineers were trained by senior engineers from UNDP and PCU on the form as well as the tablet. Extensive explanation and discussions were held among the teams to clarify the information to be collected. There was also training by UNMAS in order to identify hazards within the rubble and damaged premises and how to act in the field.
- » All damaged premises and locations were visited and properly documented utilizing tablets to identify respective locations and nature of the damage. All field visits were carried out jointly with stakeholders assigned by Ministries or Municipalities.
- » Senior engineers from UNDP, PCU and MOPWH continuously surveyed groups to ensure quality control. All senior engineers were responsible to carry out proper planning for the groups in order to respond to the timeframe allocated for the process. The number of engineers were distributed according to the expected workload within each locality.
- » Stakeholders were continuously approached for coordination and guidance throughout the Assessment.
- » A unified scheme for valuation of costs was established, building on previous similar experience. Consultation was made with specialists/stakeholders for specific sectors whenever needed.





3. Results of the Detailed Infrastructure Damage Assessment

3.1. Housing Sector

The housing sector was severely affected by the recent hostilities. According to the Initial Rapid Assessment conducted by the UN country team, it was estimated that 13% of the housing stock was affected. However, the Detailed Infrastructure Damage Assessment is showing an increase from the original estimated numbers. While all those displaced by the conflict were considered internally displaced people (IDPs), reaching as many as 500,000 people at the height of the conflict (28 percent of the population), UNDP and the Ministry of Public Works and Housing (MoPWH) have focused the assessment on the displaced non-refugees while UNRWA is focusing on the displaced refugees (that assessment is still ongoing).

a) General background and context

- » The existing housing shortfall, the eight years of restrictions on entry of construction materials, and three Gaza offensives during the last six years have exacerbated already difficult living conditions. The reconstruction and rehabilitation efforts by people are considerably sensitive to opening of borders and allowing entry of prohibited dual use materials that have no available stocks in the local market. In case the access of materials is not granted, the affected Gaza population will be deprived of their right to adequate housing. Meanwhile, temporary solutions are being identified to secure such rights until reconstruction is completed.
- » The vast assessment process of the housing sector needed a large number of engineers and others who are all detailed in annex 2 and annex 3.
- » Needs and damage assessments are still ongoing due to vast damages incurred and the lengthy duration of the hostilities. The main actors in the assessment are the Ministry of Public Works and Housing (MoPWH), UNDP and UNRWA. The assessment results to date exceed the expected ones and changes with the time passing. Therefore, the data does not purport to be conclusive, but is rather an initial attempt to quantify the damage caused by this conflict and the immediate needs for a recovery plan.
- » At the moment, there is a dire need for reconciliation to focus all needed efforts to recover and alleviate the suffering of the affected population by lifting constraints on the entry of construction materials. According to reports from the Ministry of National Economy, construction materials classified as dual use items, which particularly include among many others basic construction materials (cement, aggregate and steel bars) are still banned to enter Gaza for the private sector's use since 13 October 2013.
- » As of 18 October, 18 UNRWA school facilities continue to serve as collective shelters, housing some 42,500 IDPs. The Ministry of Social Affairs in Gaza estimates that another 47,000 IDPs are residing with host families. The distribution of rental subsidies is planned to first relocate all those families housed in emergency shelters set up in school buildings. Their return is impeded by the challenges of starting shelter recovery activities. This is gradually increasing the stress on the already limited housing stock and host families. Hence, MOPWH and all actors within the Shelter Cluster agreed to include rental subsidies for host families who are willing to secure space for IDPs temporarily until the rehabilitation or reconstruction of their damaged houses is completed.

b) Damage assessment

The following table illustrates the cases assessed throughout the five governorates for the non-refugee population.²

Assessment of non-refugees' damaged houses within the Gaza Strip

Date: 1/11/2014

Governorate	Total Damage		Severe Damage		Partial Damage		TotalNo.	Total Cost (USD)
	No.	Cost (USD)	No.	Cost (USD)	No.	Cost (USD)		
North Gaza	454	16,949,220	385	2,702,585	9210	12,483,190	10,335	32,134,995
Gaza	2084	71,722,361	840	12,656,079	6000	23,075,313	10,359	107,453,753
Middle area	107	4,452,651	83	684,945	836	2,285,704	308	7,423,300
Khan Younis	588	23,087,433	250	3,670,702	3564	10,827,952	4,919	37,586,087
Rafah	96	3,596,860	34	287,181	1456	2,047,543	1,657	5,931,584
Total (Gaza Strip)	3,329	119,934,405	1,592	20,011,207	21,066	55,861,008	28,366	195,806,620

² Upon completion by UNRWA of the damages to the refugee population, these will be further verified and a total damage of Gaza Strip housing damages will be obtained.

According to the above table, the average costs for houses are USD 37,910.58 for totally damaged, USD 12,146.87 for severely damaged and USD 2,460.58 for partially damaged houses. Reviewing the data, it was found that the average area of housing units that were totally damaged is 158 m2 per unit versus 150 m2 for the ones damaged in the 2009 Cast Lead operation.

The information collected indicates that there is a decrease in the number of the totally and severely damaged houses and an increase in the partially damaged ones (houses with minor or major damage) compared with preliminary estimates. Prior to the start of the Assessment, it was anticipated to assess around 18,564 units for the non-refugee population; however, as of 1 November 2014, a staggering 27,636 houses had been assessed. Gaza Governorate registered the highest numbers of totally and severely damaged units while the Northern Governorate has the highest record of partially damaged units.

The capacity to produce building components locally, already limited by the Israeli blockade and damage during conflicts, has been further weakened by the targeting of concrete, interlock and other productive factories.

c) Methodology

The damage assessment was undertaken by a team of UNDP, PCU and Ministry of Public Works and Housing distributed in the five Governorates of Gaza Strip for the collection of data and information. The destruction observed was categorized as: (A) massive total destruction of full neighbourhoods; (B) total destruction of selected buildings; and (C) partial destruction, with varying magnitudes from minor to substantial.

Classification of the damages was done according to the following table.

Classification of Damage

Total Damage	Severe Damage	Partial Damage
Housing units that are totally in rubble or where at least 50% of the structure of the house has incurred severe damage.	Housing units where the skeleton incurred heavy damages to such an extent that it has become unsuitable for living. However, it can be repaired.	Housing units that incurred damages while the house is still adequate for living. In case the damages are less than USD 5,000 it can be categorized as a house with minor damages.



Throughout the assessment, the teams always referred to senior engineers for deciding about complex situations especially to decide upon whether the unit was severely or totally damaged. During the assessment some of the classifications of units were changed due to the disturbance of the underlying soil where heavy rockets were shelled in confined areas and deep in the ground. This case was extremely apparent in the heavily crowded Shijaiya neighbourhood in Gaza where buildings are still collapsing with the passing of time.

The surveying teams followed the coding provided by the MOPWH and depended on aerial maps supplied by them in most of the areas surveyed. The MOPWH also carried out its own quality assurance checks along with senior engineers in the field.

After finishing the field survey, a claim period was announced in the media and radio to receive claims by people in the five governorates in the respective Ministry of Housing Governorate offices. The claim process came to an end at the end of October 2014. All data collected were extracted for review and verification of different technical assessments conducted utilizing the expertise of the engineers and the past experience. The ownership documents and ID data were also reviewed and crosschecking was done with UNRWA in order to avoid any duplication.

d) Early recovery and reconstruction

The strategy for the reconstruction and rehabilitation of housing is slightly different depending on the extent of the damage but all interventions will use the self-help modality which has been utilized extensively over the past years by UNDP in delivering support to the Housing Sector in the occupied Palestinian territory, especially in the Gaza Strip and East Jerusalem. This model provides the opportunity to carry out fast-track implementation, increase community engagement and commitment and offer massive employment generation. It includes carrying out surveys and on-site assessments, qualification of potential beneficiaries and selection processes based on pre-set criteria, providing reasonable grants through a professional committee. Under this particular modality, UNDP enters into agreements with beneficiaries, who are responsible for implementing the activities by themselves or by directly hiring subcontractors to perform the works on their behalf. UNDP manages the process and provides technical support, quality control and assurance.

Partially damaged houses:

Within UNDP's early recovery role, and in support of the Palestinian national efforts and relevant public institutions currently facing a financial crisis, UNDP seeks to offer cash assistance to Palestinian non-refugee families displaced from their homes (since refugees are under the mandate of UNRWA), and whose homes have sustained partial and limited damages and can be reconstructed immediately before the arrival of the winter season. The implementation of this intervention will be based on a detailed technical assessment to be conducted in cooperation with the relevant national bodies in order to assess needs on the basis of damages. The average value of assistance will be around USD 2,500- USD 3,000.

Home rehabilitation will be conducted through a self-help mechanism and beneficiaries will receive payments in instalments through local banks against progress and quality control certification conducted by UNDP teams. A combined committee has been formed recently to work in the field on assessing damages sustained by all citizens. Members of the committee include the Ministry of Public Works and Housing, UNDP and UNRWA, in cooperation with municipalities. The aim is to obtain accurate and unified data to verify eligibility of beneficiary families.

Severely damaged houses:

Within UNDP's early recovery role, and in support of the Palestinian national efforts and relevant public institutions currently facing a financial crisis, UNDP seeks to offer cash assistance to Palestinian non-refugee families displaced from their homes (since refugees are under the mandate of UNRWA), and whose homes have sustained severe damages and can be reconstructed before the arrival of the winter season. The implementation of this intervention will be based on a detailed technical assessment to be conducted in cooperation with the relevant national bodies in order to assess needs on the basis of damages. The average value of assistance will be around USD 13,000. Some of the houses are simple homes of small areas where the intervention can be as low as for the minor and major cases.

Home rehabilitation will be conducted through a self-help mechanism and beneficiaries will receive payments in instalments through local banks against progress and quality control certification conducted by UNDP teams. A combined committee has been formed recently to work in the field on assessing damages sustained by all citizens. Members of the committee include Ministry of Public Works and Housing, UNDP and UNRWA, in cooperation with municipalities. The aim is to obtain accurate and unified data to verify eligibility of beneficiary families.

Totally damaged houses:

UNDP is aiming to expand its Early Recovery contribution to assist the national endeavours in launching the reconstruction agenda reaching all essential sectors, and focusing primarily on Housing. For addressing non-refugee needs, UNDP will assist in carrying out reconstruction of totally damaged housing units utilizing the self-help modality and direct implementation depending on the nature of cases.

This reconstruction effort will take into consideration the other sector challenges such as energy security, water availability and environmental obstacles. It will focus on adopting eco-sustainable solutions and alternative/innovative reconstruction schemes for reducing electricity consumption, improving energy efficiency, enhancing the insulation and thermal comfort, and recycling water and wastewater to cope with the current challenges and relieve the environmental burdens in the Gaza Strip.

3.2 Water, Sanitation and Hygiene Sector

a) General background and context

- » Prior to the crisis, it was estimated that 97% of the people in Gaza (population of 1.8 million) had access to water supply networks. Water is abstracted from groundwater sources through deep wells and delivered to consumers at the household and institutional level through carriers and distribution networks. Storage reservoirs form an integral part of the system. However, in spite of high coverage, the service is intermittent and ground water is highly contaminated by chlorides (saline) and nitrates with levels above the recommended international water quality guideline. This has resulted in the growth of private enterprises using desalination plants and water tankers to distribute drinking water to customers. Such private vendors are often poorly regulated. To overcome this problem, PWA plans to establish medium scale desalination plants in Gaza city as well as in Khan Younis and the Middle Area. The plan includes the construction of ground water blending tanks, water carriers and a system for monitoring water quality.
- » As for the wastewater sector, it is estimated that 66% of the people in Gaza had access to sewage collection systems prior to the crisis.³ The sewage is collected in pumping stations, which pump the sewage to one of the four sewage treatment plants, sewage lagoons or discharge directly into the sea. All existing treatment plants in Gaza strip are overloaded resulting in partial treatment of the sewage, which is dumped into the sea or infiltration basins. The existing plants need to be upgraded and maintained until the major three regional plants are in operation. Untreated sewage is a major source of ground water contamination and other health hazards. The local authorities have instructed the public not to bathe at the Gaza seashore for the last four seasons.

b) Damage assessment

- » UNDP established field survey teams to conduct the damages assessment of all the targeted areas and to record the damages in the water and wastewater infrastructures in full cooperation with different municipality staff all over the Gaza Strip. The recorded physical, technical and environmental remarks were based on visual and operation inspections. The recorded forms were uploaded on servers to establish a unified database for the damages. Office engineers checked the field filled forms before uploading to the system database, which have full facility components' information in order to assess each damaged facility. The Coastal Municipalities Water Utility Damage assessment report was taken into consideration in cross checking the data collected from the ground.
- » The main damages revealed in the survey are as follows:
 - › 15 wells were partially damaged and 11 wells were totally damaged in Gaza, Beit Hanoun, Middle Area and Rafah.
 - › 11 water reservoirs were partially damaged and 5 tanks were completely damaged. The reservoirs are located in Beit Hanoun, Gaza, Middle Area, Khan Younis and Rafah.
 - › A total of 20,000 metres of water network pipes of PE, UPVC and steel ranging in size from 50 mm to 315 mm, were damaged in Beit Hanoun, Gaza, Middle Area, Khan Younis and Rafah Governorates.
 - › A total of 15,000 metres of sewage networks and carrier lines ranging from 6' to 20' were damaged.
 - › 12 sewage pumping stations were partially damaged in the five Gaza governorates.
 - › Two desalination units were totally damaged and four were partially damaged. The units were damaged in the Middle Area, Khan Younis and Rafah.
 - › Three wastewater treatment plants underwent partial damages.

³ CMWU 2012

- » At the household level, there has been severe damage to water and sanitation infrastructure. This has resulted in damage to roof water storage tanks, solar water heaters and sanitary installations in people's homes. Small electrical water pumps have been destroyed and electrical installations have also been affected. As reported by the WASH cluster, 60-70% of the network in Gaza city west of Salah Al Deen is functioning and reinstatement of damaged parts was only repaired in a temporary manner. This does not apply for some areas particularly affected such as Al Shuja'iya, Khuzaa and Rafah eastern areas that were nearly all destroyed. Many areas now rely on water tankers for their water supply. IDPs who have lost their homes have placed additional strains on the WASH facilities of host families and shelter schools. The destruction of household infrastructure will not only affect people's ability to practice good hygiene behaviour, but will also have amplified impact on vulnerable groups including women, children, elderly and those living with disabilities. The situation has worsened due to the targeting of the fuel tanks of the Gaza power station plant, which decreased the hours of power supply to 8 per day. In turn, 20% of people in Gaza have an irregular supply of water where interruption of water services may last for five days.
- » According to UNRWA there are a total of 18 UNRWA school buildings that continue to serve as Collective Centres for approximately 42,500 internally displaced persons (IDPs). Schools were connected to the main water supply and wastewater collection networks. However, due to the high salinity level, drinking water was delivered by water tankers and stored in stainless steel tanks. Hygiene education for children was supported by the Ministry of Education.
- » Wastewater has contaminated a number of areas in Gaza, Beit Lahia and Beit Hanoun after sewage networks and carrier lines were targeted by direct bombing during the hostilities. A number of areas were flooded by raw sewage and mixed with the drinking water supply system.
- » The crisis has created huge problems with rubble from damaged buildings and domestic refuse, which has been left uncollected for many weeks. Unexploded ordinances (UXOs) have been reported at the main refuse disposal sites and in the rubble of destroyed buildings and these pose potential risks. Domestic refuse and the presence of rubble create potential breeding sites for insects, which may lead to the transmission of diseases.



c) Methodology

Prior to the assessment, CMWU was approached and requested to share one focal engineer to guide the verification and assessment of the WASH sector. All municipalities were visited and the data submitted by their teams was then verified where all locations were uploaded using the GPS on tablets. The collected information was crosschecked with the report prepared by CMWU. A database programme was developed to host the collected field data into a unified form.

The estimate was based on the ground survey findings and inspection of each facility to know exactly what damages had been incurred and the costs were based on UNDP experiences and recent tenders of similar items. In case of special items, rate estimates were drawn from local market suppliers through experienced UNDP engineers for analysis.

There is a large discrepancy between UNDP estimated cost of the damages and the CMWU damage assessment report which is largely attributed to the inclusion of USD 15M out of 33M to cover unseen damages, vehicles and IT. During the survey team visit there were no signs of leakages that can indicate probable underground damage; however, it is fair to mention that some areas are not occupied by people at the moment that would be able to attest of the state of existing utilities.

3.3 Transportation networks: Roads, Ports and Crossings

a) General background and context

- » The transportation sector plays an important role in supporting the development process by facilitating the efficient movement of people and goods. The transportation network in Gaza is limited to the road, as there are no seaports, airports, railways, bridges or tunnels. Bridges are merely simple bridges linking the provinces.
- » Moreover, there is no direct airspace connection with the outside world. Gaza International Airport started operating in 1998 as the first airport in Palestine to serve the movement of air transportation for passengers and cargo to and from Palestine. However, the airport is no longer operational because of the extensive damage caused by the Israeli forces during the Second Intifada. There was a railroad in the Gaza Strip linking between Egypt in the north and Turkey in the south, but it stopped working in 1973. In 1994 plans were made to establish a railroad on the east side of the Gaza Strip, but those plans failed. By virtue of Presidential Decree in January 2000, a Seaports Authority was established to create, manage, run and develop Palestinian ports. Both the Governments of the Netherlands and France pledged to fund part of the cost of the first phase of the project whose construction cost amounted to USD 69 million. However, according to the political conditions the Gaza Strip experiences, work on the project has fully stopped, and the Palestinian government has worked to pay attention to the fishermen port in the west of the Gaza Strip. After the signing of the Oslo Accords and until the Second Intifada, a large portion of donor funds were spent on the expansion of road networks, the construction of new roads and the rehabilitation of some of the existing streets.



- » The Gaza Strip has the following land border crossings:
 - › Beit Hanoun crossing, also called Erez (to the north of the Strip): Intended for difficult cases of illnesses, and through which pass diplomats, journalists and foreign missions, and allows movement of citizens (workers, traders, businessmen and VIPs) with severe limitations, and very few numbers into Israel or the West Bank.
 - › Kerem Shalom commercial crossing is located to the south of the Gaza Strip and is dedicated for the import of commercial goods and construction materials.
 - › Rafah crossing (on the Egyptian border) is the only passage devoted to the movement of individuals outside the Gaza Strip, which links the Strip with Egypt.
 - › Al-Mintar crossing, also called Karni (northeast of the Strip), is currently closed completely, and was intended for commercial traffic to and from the Strip, as well as for the export of vegetables to the West Bank.
 - › Sufa crossing (south-east of the Strip) is currently closed completely and was previously for the import of construction materials.
 - › Al-Shuja'iya crossing, also called "Nahal Oz" (east of Gaza) is a deserted and closed crossing. It was dedicated to the entry of workers and goods and was transferred to a military site.
- » Movement of people, goods and services in the Northern Gaza Strip and Rafah Governorate remain difficult as a result of the massive destruction, in particular in border areas such as Shijaiya, Beit Hanoun and Khuzaa.
- » Many roads built with inter-locking tiles have also suffered substantial partial destruction during the war and in the aftermath of the war, tiles are being removed from the roads by residents.
- » Commercial and industrial sectors have difficulty conducting business operations without reliable transportation facilities.
- » Public and private vehicles were a target in hostilities whether directly or indirectly.

b) Damage assessment

The below table documents the damages to roads under the management of Municipalities.

Damages to road networks managed by municipalities

Governorate	Length in kilometres		Damaged area in square metres		Cost (USD)
	Interlock 8cm	Asphalt 6cm	Interlock 8cm	Asphalt 6cm	
North	1.2	5.2	12,400	54,400	2,496,610
Gaza	6.5	9.1	77,000	107,470	6,957,910
Middle	1.2	5.1	9,690	40,770	2,627,910
Khan Younis	2.1	13.1	21,165	130,540	5,688,425
Rafah	0.1	3.6	600	28,530	1,240,220
Total	11.1	36.1	120,855	361,710	19,011,075

Furthermore the following damages were recorded for regional roads under the management of Ministry of Public Works and Housing.

Damages to road networks managed by MOPWH

Location	Length in kilometres	Damaged area in square metres	Cost (USD)
Salah Al Deen Regional Road - First Phase	0.66	5,740	337,370
Salah Al Deen Regional Road - Third Phase	0.1	512	28,786
Easter Road - Al Karama	2.7	18,900	793,800
Total	3.46	25,152	1,159,956

The damage to the transportation sector during the recent war is rated major compared with earlier hostilities in the Gaza Strip. Many key roads were shredded by IDF bulldozers or military vehicles, such as tanks.

The damage to roads was most significant in Eastern Gaza, namely, Shijaiya neighbourhood, Khan Younis Governorate, namely, Khuzaa, Bani Suhaila and Qarara and North Governorate, namely in Beit Hanoun. The concentration of destruction is the road network to the eastern side of Salah Al Deen Road. In total, approximately 39.56 km of asphalted roads and 11.1 km of interlock-tiled roads were destroyed throughout the Gaza Strip, resulting in approximately USD 20,171,031 of physical damage to roads (valued at replacement cost).

Although most damaged roads have been reopened, they are in a primitive state (without asphalt) and debris



obstructing the flow of traffic through residential neighbourhoods has been removed by the Ministry of Public Works and Housing. However, specific internal roads in Shijaiya, Beit Hanoun and Khan Younis where there has been massive destruction remain closed to traffic.

The losses in vehicles were also noticeable during the hostilities and the following tables articulate the damages as follows:

Damages to Private Vehicles in 2014

Governorate	Qty	Type Of Damage		Type Of Vehicle							Total Cost USD
		Completely	Partial	Public transport	Private	Commercial	Trucks	Motorcycle	Equipment	Other	
Rafah	224	59	185	72	120	21	9	16	1	5	561,100
Khan Younis	705	367	338	94	193	66	12	323	6	11	1,398,290
Middle	352	87	265	75	166	33	18	47	2	11	665,390
Gaza	1,583	401	1,182	383	634	-	102	147	49	74	3,913,847
North Gaza	548	93	455	166	210	47	28	22	7	68	972,116
Total	3,412	1,007	2,425	790	1,323	167	169	555	65	169	7,510,743

Damage to Government, Civil Defence and Health Sector Vehicles

Item	Qty	Type of Damage		Value of Damage		
		Total	Partial	Completely	Partial	Total Cost USD
Ministry of Health	10	3	7	120,000	14,000	134,000
Red Crescent	12	5	7	200,000	14,000	214,000
Government	69	12	57	197,800	57,050	254,850
Civil Defence	16	3	13	120,000	26,000	146,000
Municipalities in Gaza	79	14	67	955,000	497,300	1,452,300
Total	186	37	151	1,592,800	608,350	2,201,150

The total damage to vehicles is USD 9,711,893 covering 3,598 vehicles in different sectors. Many services were adversely affected by the damages in particular the civil defence and municipalities disrupting vital services to a great proportion of the population.

c) Methodology

The lists of damaged areas were reported by respective municipality. One UNDP senior engineer and three PCU engineers went together with municipality representatives to locations documenting the extent of damage to each one on the list and surveying the area for any missing damage.

The Ministry of Transport sent the lists of damaged vehicles for private and public sectors. All public sectors data was verified by the stakeholders themselves and spot checks were carried out by the surveyor excluding the private cars. Costs for repairs and replacement were estimated by UNDP engineers and as per the recent similar items included within the UNDP project.

The UNDP and PCU team consequently reviewed and verified the data entered into the server where costing of roads follow the rates approved for the sector and miscellaneous items costs were based on local market and similar items implemented through earlier UNDP projects. The classification of damages to roads was done according to the following criteria:

- » Minor damage: damages of less than or equal to 10% of the road area.
- » Major damage: damages of more than 10% and less than or equal to 35% of the road area.
- » Severe damage: damages of more than 35% and less than or equal to 70% of the road area.
- » Total damage: damages of more than 70% of the road area.

3.4 Energy and Electricity

a) General background and context

- » Gaza has great potential to enjoy a cost efficient and reliable electricity power supply that can bridge the existing deficit in power supply, meeting the future demands as well as significantly contribute to the recovery of its economy. However, due to the imposed blockade, the Gaza population has been deprived from exploring their rights to develop Gaza energy resources.
- » The electricity power supply in the Gaza Strip faces a chronic shortfall in power supply where the majority of the population has experienced blackouts for two-thirds of the day over the past seven years. Prior to the most recent hostilities, there were three sources of electricity power supply in the Gaza Strip: 1) Gaza Power Plant which generates up to 65MW; 2) imported electricity from Israel through 12 feeder lines up to 120 MW; and 3) imported electricity from Egypt up to 27 MW. Prior to July 2014, the total power supply was estimated at 212 MW, which constitutes a deficit of 45% of the current peak demand of 350 MW.
- » During the July-August 2014 assault, the fuel tank of the Gaza Power Plan and 12 feeder lines of power supplies from Israel were totally destroyed resulting in a complete blackout throughout Gaza. Reparation of the feeder lines with Israel was quickly fixed by Gaza Electricity Distribution Company (GEDCO) during September-October 2014, leaving Gaza with a deficit of 65% of the current peak demand of 350 MW. By year 2020, the electricity demand is estimated at 550 MW, which constitutes more than three times the current power supply.
- » The Gaza Power Plant produces electricity at high prices because of the high price of gasoil used for the plant, compared to the electricity purchased from Israel and Egypt.
- » The substantial shortfall in electricity power supply over the past seven years has dramatically undermined the livelihood and living conditions of the population in Gaza and impacted the delivery of water supply, wastewater treatment, and health and educations revives of the population.

b) Damage assessment

Assessment of damages to the energy sector

Estimated Quantities	Estimated Cost in USD of Repair/ Reconstruction
Networks damages	20,765,768
Warehouse damages	15,076,814
Power plant damages	10,000,000
Gaza North Substation damages	10,000,000
Total USD	55,842,582



The electricity sector suffered the brunt of the destruction. Electricity infrastructure in many areas has been uprooted and completely destroyed, including transmission and distribution lines, cabling, electricity poles and transformers.

- » During the 51 days of conflict, the residents of the Gaza Strip suffered continuous shortages of electricity, fuel and gas where all feeder lines from Israel were damaged and the Gaza substation was directly hit damaging the fuel tanks and filtering system in addition to the damage to boilers and heat recovery steam generators.
- » The warehouse of GEDCO was bombarded destroying transformers, steel and wooden poles, wires, cables and accessories, switches, switchgears and distribution boards, computer accessories, office furniture and stationery, buildings and vehicles, tools and equipment and 220 KV transmission materials.
- » As a result of severe damage to the network, 15–20% of the Gaza population have no access to electricity and will have no supply until spare parts and materials are available and the infrastructure can be rebuilt.
- » Due to partial damage to the network, 20–25% of the population have no electricity. Whilst efforts to reconnect them are underway, limited spare parts means that supplies are being reconnected using unconventional means that do not follow accepted international standards.
- » At the time of writing of this report, the Gaza Power Plant is still out of service making Gaza dependent only on the supply from Egypt and Israel. Outages exceed 18 hours per day, severely disrupting the provision of basic services including health and water throughout Gaza.
- » Commercial and industrial areas likewise have limited or no electricity supply, eliminating or significantly diminishing the ability of businesses to operate.
- » Repair of damages to the electricity network from the conflict is contingent upon materials that must be imported into the Gaza Strip: border closures therefore significantly impair repair and reconnection efforts.
- » Prior to the conflict only around 20% of the population paid their electricity bill. It is anticipated that this figure will decrease further due to the worsening of the economic crisis. This revenue loss will diminish GEDCO's ability to purchase spare parts and materials, reconnect areas and delivery services.
- » As a result of the damage to the electricity transmission and distribution network and resulting disruption to supplies, combined with the ongoing block on spare parts for the Gaza Power Plant and other elements of electricity system, even essential services upon which all people in Gaza rely, such as hospitals, and water pumping and waste water processing stations, cannot be guaranteed electricity supply. This clearly poses health and environmental risks.⁴
- » As updated by OCHA, most of the 28 gas stations are only able to operate partially. It is estimated that at this time of the year, Gaza needs at least 1,500 tons of cooking gas per week but only 800–1,000 tons are allowed. Thousands of empty gas cylinders are accumulated at the cooking gas stations waiting to be refilled. The rationing system introduced in 2009 remains in place but has been further enforced.

4 (OCHA report 16–22 Sept 2014 Protection of Civilians)

3.5 Education Sector

a) General background and context

- » Education in Gaza has long been characterized by overcrowding and unsafe conditions with approximately 37.3 students per class.
- » The 2008 assault resulted in 217 schools and 60 kindergartens being damaged, including 18 facilities damaged beyond repair. The ongoing blockade has prevented the urgently needed reconstruction of damaged schools and construction of new ones.
- » The annual increase of students in Gaza is nearly four percent (approximately 10,000 new students) and 79 percent of Governmental schools and 88 percent of UNRWA schools operate on a double shift system.
- » In 2012, the UN estimated that 200 additional schools were needed to meet current needs and another 190 schools would be needed by 2020.

b) Damage assessment

The following table displays the results of the survey conducted by UNDP and PCU in close coordination with Ministry of Education:

Damages to educational facilities during 2014 hostilities

Type of Facility	Governorate	Totally Damaged	cost \$	Severely Damaged	cost \$	Major Damage	cost \$	Minor Damage	cost \$	\$ Total (USD)
Education schools	Gaza	3	2,057,005	4	1,591,185	6	435,954	78		
	North	2	1,607,130	0	0	2	80,990	39		
	Khan Younis	0	0	0	0	3	197,589	8		
	Rafah	0	0	0	0	2	79,565	7		
	Middle	1	100,000	1	162,113	1	51,537	19		
	Total	6	3,764,135	5	1,753,298	14	845,635	151	1,021,410	7,384,478
Education Kinder Gartens	Gaza+ north	8	400,000	1	20,910	9	109,095	44	103,595	
	Total	8	400,000	0	20,910	9	109,095	44	103,595	633,600
Universities and Colleges	All governorates	3	6,177,000	3	655,720	6	367,530	7	162,223	
	Total	3	6,177,000	3	655,720	6	367,530	7	162,223	7,362,473
Education centres	All	0	0	0	0	0	0	5	1,016,703	
	Total	0	0	0	0	0	0	5	1,016,703	1,016,703
Total cost for damages of education sector USD										16,397,254

There are a total of 520 facilities within the education sector in Gaza, including schools, kindergartens, universities and colleges, and education centres. 261, or half of these, were damaged during the recent hostilities. The Ministry of Education and Higher Education (MOEHE) started the school year on 14 September 2014, three weeks later than the scheduled school start of 24 August 2014. However, damage is widespread and severe in the primary and secondary education sector across many government and UNRWA schools: 6 schools were totally destroyed, 169 schools were damaged and a further 113 schools were used as shelters for IDPs. Damage was greatest in the Gaza governorate, particularly in the east, where three schools were totally destroyed, 4 were severely damaged and 83 with partial damages. In total, over 559,000 students have been affected by damage to Gaza's schools and universities.

In addition, half of all universities in Gaza were damaged, including Al Aqsa University, Palestine Technical College, the Technology and Science University, and Islamic University. The impact on students will be long-term and will result in further over-crowding and potentially irregular schedules for Government and UN students, who may have to travel further – and at greater cost – to alternate schools.

Educational resources, technologies, supplies and hygiene facilities were also damaged or destroyed on a large-scale, particularly following the destruction of the Ministry of Education and Higher Education (MoEHE) warehouse; replacing them will be complicated due to shortages of fuel and materials, leading to sharp increases in educational costs.



c) Methodology

This assessment of the education sector was carried out by UNDP engineers in close cooperation with the Ministry of Education engineers. MoEHE sent a damage report to UNDP which was re-assessed and was found 90% correct. The assessment included Governmental and private schools, universities and kindergartens. It is worth noting that kindergartens that are not registered with the Ministry of Education were not surveyed. Schools that were used as shelter are included in the assessment as the relevant maintenance needs are considered a direct result of hostilities. The locations of schools were documented using GPS with guidance from the Ministry of Education.

Costs for repairs and replacement are estimated by UNDP engineers as follows:

- » The cost of totally damaged schools is estimated to be USD 750,000 for a school that accommodates 24 classrooms.
- » The partial damages are assessed according to the standard priced bill of quantity prepared for the assessment and reviewed by the Ministry of Education with UNDP engineers.
- » The prices of miscellaneous items of the damages were collected from the local market and compared with unit prices of similar items included within recently implemented contracts.

d) Early recovery and reconstruction

All 169 schools that were partially damaged during the conflict are currently under rehabilitation with funds committed by donors. The education sector is currently challenged by the lack of land available for the construction of new schools. Therefore, as part of the early recovery activities, reconstruction of damaged schools on the same land is ranked with high priority to relieve the challenges of the education sector. The chronic over-crowdedness and double shifts in schools could be tackled with building extensions to the existing schools to increase their capacity and provide enough space to the students and at the same time secure better environment for the children for proper comprehension of the school curriculum. Hence, the early recovery initiatives of UNDP aim to cover two areas of intervention:

1. The reconstruction of four schools that incurred total damages to all or part of its buildings.
2. Construction of 95 additional classrooms in 13 schools in Khan Younis. This intervention will include the provision of necessary equipment and furniture, since the Ministry of Education warehouse was destroyed during the recent hostilities.

3.6 Health Sector

a) General background and context

- » Even before the latest assault, health services in Gaza were strained by a rapidly increasing population, financial constraints and scarcity of medical supplies.
- » Medical equipment experienced frequent breakdowns caused by power interruptions and water impurities, among other factors.
- » Most existing health facilities were in need of rehabilitation and upgrading in order to ensure quality services and to meet the needs of a growing population.

b) Damage assessment

The assessment was conducted of 87 health facilities identified by the Ministry of Health (MoH) and WHO with the following damages:

Types of damages within the assessed health facilities attributed to hostilities in 2014

Item	Type of Damage					Not affected
	Surveyed	Totally Damaged	Severely Damaged	Major Damage	Minor Damage	
Health facilities (Hospitals, Clinics, etc.)	87	5	4	16	52	10



Cost of damaged health facilities

Governorate	Hospitals		Clinics		Total Number	Cost USD
	MOH	NGOs, PMMS	MOH	NGOs, PMMS		
North Gaza	1	2	9	5	17	184,711
Gaza	3	7	13	4	27	11,582,949
Middle Gaza	1	0	12	1	14	334,660
Khan Younis	0	2	6	2	10	95,239
Rafah	4	0	4	1	9	43,493
Total Number	9	11	44	13	77	12,241,052
Cost USD	681,595	10,080,496	1,383,074	95,887		

77 of the 87 assessed health facilities had been damaged during the recent hostilities with an estimated total cost of USD 12,241,052.

c) Methodology

The damage assessment of the health sector was carried out jointly by UNDP and MoH engineers, appointed by the Ministry of Education and Higher Education (MoEHE) sent a damage report to UNDP which was re-assessed by UNDP engineers. Costs for repairs and replacement were estimated by UNDP engineers.

The type of damage was defined as follows:

1. Minor damage: Damages with cost less than or equal to USD 5,000
2. Major Damage: Damages with cost more than USD 5,000 but the facility is still functional and operational (even partially).
3. Severe Damage: Damages with cost more than USD 5,000 but the facility is not functional and operational and needs to be repaired to be operational.
4. Total Damage: The facility is damaged and cannot be repaired even if it is still standing, because its physical structure is no longer safe. Hence the damage cost was estimated at USD 600 per square metre.



3.7 Private Sector

a) General background and context

The private sector employs the largest workforce and is the sector that has been the most affected during the recent hostilities. It consists of small scale enterprises including food industries, furniture, construction, metal, wood, small business and commerce, several of which are located in either rented or owned properties that were partially or totally damaged during the hostilities. The effects of all these have resulted in an untold hardship on the national economy; people's sources of income have been cut leading to an increase in prices of goods and services, increase in an already deteriorated unemployment situation, scarcity of basic amenities, food insecurity, communication breakdown, hike in transportation, industries grounded to zero, commercial activities virtually at the point of paralysis, agricultural fields devastated and abandoned and shortage of cash as a result of a moribund economy. Whether directly or indirectly affected, many have suspended their production because of lack of electricity and fuel shortage during the siege.

All of the above have resulted in unbearable financial losses that have caused the closure of many businesses, suspension of some production and the dismissal of workers because of the inability to pay wages.

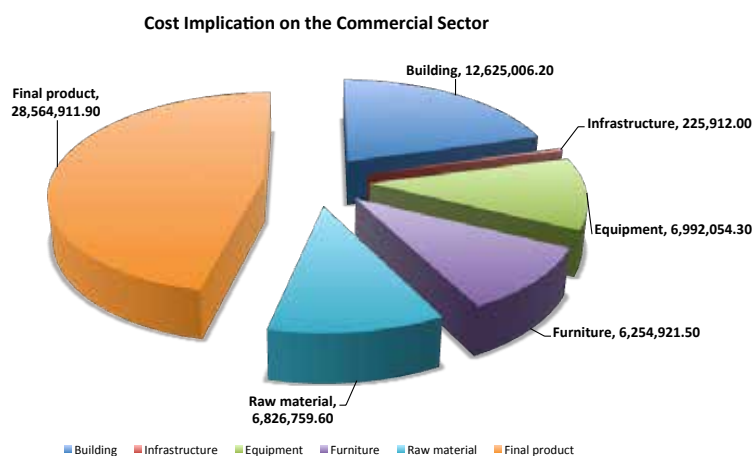
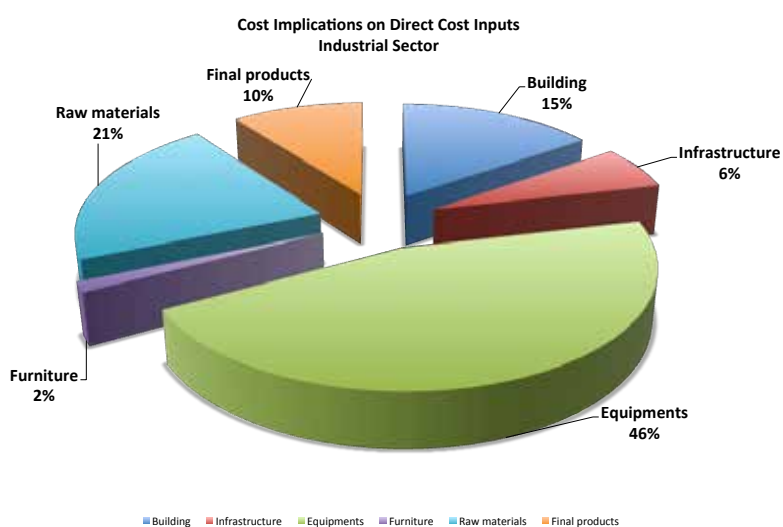
b) Methodology

The Ministry of National Economy in collaboration with UNDP, the Palestinian Federation of Industries, Chamber of Commerce and Business Men Union conducted a survey to assess the impact and damages to private sector facilities in order to have an idea of the cost implication and the needed assistance for future interventions and reconstructions process.

Twelve committees were formed to conduct the survey of all facilities in all five governorates of the Gaza Strip. Each committee consisted of four persons (2 from the Ministry, 1 from UNDP and 1 concerned institution/union) who represented the above-mentioned institutions. In addition, one team of 15 people based in the Ministry's building was formed for filling situation surveys and data entry. Additionally to these teams, one technical committee was formed from technical and experienced staff of the Ministry of National Economy and UNDP to review site reports of damages and losses and to evaluate prices of each damage and loss.

Repartition of Direct Cost components: Based on Economic sector and geographical zones

Sector	Input	Cost (USD)
Industrial	Building	17,031,521.00
	Infrastructure	6,896,129.70
	Equipment	51,169,196.70
	Furniture	1,592,708.30
	Raw material	23,742,746.70
	Final product	11,414,739.50
Commerce	Building	12,625,006.20
	Infrastructure	225,912.00
	Equipment	6,992,054.30
	Furniture	6,254,921.50
	Raw material	6,826,759.60
	Final product	28,564,911.90
Service/Tourism	Building	3,909,932.80
	Infrastructure	61,242.00
	Equipment	1,931,203.00
	Furniture	4,057,966.00
	Raw material	1,011,169.00
	Final product	2,565,860.00
	Grand total (USD)	186,873,980.10



3.8 Al Waqf

a) General background and context

- » More than one thousand mosques are managed by the Ministry of Waqf in Gaza. The buildings are generally funded through private donations.
- » Prior to the conflict, new mosques had been built in multiple floors to accommodate space for women and provide the community with different services such as kindergartens, libraries and health clinics.
- » The mosques are managed and maintained by the employees of the Ministry.
- » Some of the mosques are historical ones telling the history of Islam and Arabs in Gaza.
- » During the recent hostilities, there was damage to mosques in every governorate within the Gaza Strip. Estimates show that there was substantial damages to one third of the mosques in Gaza.

b) Damage assessment

The below table provides a summary of the damages and costs to Waqf facilities during the recent hostilities in July and August 2014.

Damage to Waqf facilities

Governorate	Totally damaged		Severely damaged		Major damage		Minor damage		Total damages per Governorate	
	No.	Cost USD	No.	Cost USD	No.	Cost USD	No.	Cost USD	No.	Cost USD
North	16	4,760,000	2	40,689	7	275,350	37	423,285	62	5,499,324
Gaza	32	19,170,000	0	0	11	304,018	40	356,265	83	19,830,282
Middle	8	4,130,000	0	0	1	24,010	28	127,041	37	4,281,051
Khan Younis	17	6,827,500	3	101,149	8	200,317	51	333,105	79	7,462,071
Rafah	3	1,650,000	1	44,305	1	118,201	17	62,226	22	1,874,732
Total for Gaza Strip	76	36,537,500	6	186,143	28	921,896	173	1,301,922	283	38,947,460

According to the data, 27% of the mosques were totally damaged, a noticeably high percentage compared with other sectors which also reflects in a high number of quantities of materials needed for reconstruction. Two totally damaged mosques that were assessed consist of cultural heritage, namely, Al Mhkama Mosque in Jabalia and Al Montar Mosque in Shijaiya. Three other mosques categorized as cultural heritage had minor damages, namely, Abu Saleem in Deir Al Balah, Al Dhofar Demri in Shijaiya and Ali Bin Marwan in Al Daraj. The data include all damages to Waqf facilities that incurred damages such as cemetery, administrative buildings and markets.

The final result of the damage assessment revealed that 265 mosques, 6 cemeteries, 9 administrative buildings, 2 commercial buildings and 1 religious institute related to the Ministry of Waqf were damaged (out of a total of 283 damaged facilities, 76 properties were totally damaged, 6 severely damaged, 28 majorly damaged and 173 sustained minor damages).

c) Methodology

The damage assessment was undertaken by a team made up of engineers from UNDP, PCU, Ministry of Public Works and Housing and the Ministry of Waqf which visited all damaged mosques and other facilities in all five Governorates of the Gaza Strip.

The classification of damages depended primarily on the nature of damage as follows:

- » Minor damage: damages to doors and windows in addition to cracks in the plastering.
- » Major damage: damages in the premises beyond doors and windows while the facility can still be used.
- » Severe damage: damages in the skeleton structure that can be repaired but the facility cannot be used before rehabilitation.
- » Total damage: facilities that cannot be repaired and/or are completely in rubble.

The cost of completely damaged mosques were rated at USD 500/m² and partial damages were priced according to the standard approved priced bill of quantities while special items under miscellaneous were rated through the market price and in reference to previous similar items. After finalizing the field damage assessment, the office work review was conducted to verify accuracy of surveyed data in terms of all technical aspects.



3.9 Municipal Infrastructure

a) Damage assessment

Municipal buildings in 25 municipalities were surveyed and the following damage was assessed.

Damaged municipality premises

Governorate	Total damage	Cost USD	Severe damage	Cost USD	Major damage	Cost USD	Minor damage	Cost USD	Damaged premises	Total Cost USD
Gaza	1	400,000	1	96,000	4	152,655	3	10,880	9	659,535
North	4	745,000	0	0	5	172,223	6	32,095	15	949,318
Middle	0	0	0	0	4	63,465	14	97,325	18	160,790
Rafah	5	2,569,000	1	125,073	3	179,242	5	39,290	14	2,912,605
Khan Younis	3	545,000	1	312,615	2	44,990	11	66,114	17	968,719
Totals	13	4,259,000	3	533,688	18	612,575	39	245,704	73	5,650,967

The assessment revealed that 42 municipal buildings serving as offices, halls, youth centres, clinics and cultural centres were targeted, adversely affecting the municipalities' limited capacities to serve people due to the prolonged siege on Gaza. Part of the damages were directed at the livelihood of the population in Gaza targeting the markets and buildings that belong to fishermen. On the other hand, the youth sector was affected by damages of sports halls belonging to municipalities, halls and libraries.

Regarding geographical aspects, Rafah registered the highest cost of damage while the middle area had the lowest cost of damage. The ability of municipalities to regularly provide the services in water and sanitation, electrical street lighting, solid waste collection and other community services such as parks, stadiums, slaughterhouses and recreational facilities have been seriously affected. Some municipalities suffered a destruction of their warehouses and storage facilities in which construction materials and spare parts necessary for maintenance were destroyed. Some municipalities have endured damages to their vehicles, maintenance equipment and machinery, and solid waste trucks which negatively impact their ability to deliver services. This effect is exacerbated by the closure of crossings and the inability of municipalities to have their aging machinery and fleets replaced or maintained due to lack of spare parts.

The following table shows the type of premises that were damaged:

Type of municipality premises assessed

	Gaza	North	Middle	Khan Younis	Rafah	Total
Garden	3	4	2	0	1	10
Garage	1	2	3	2	2	10
Market	1	1	1	0	2	5
Library	1	0	0	0	1	2
Buildings	2	6	11	15	8	42
Solid Waste	1	2	0	0	0	3
Cemetery	0	0	1	0	0	1
	9	15	18	17	14	73

b) Methodology

The lists of damaged premises were reported by respective municipality. One UNDP senior engineer and three PCU engineers went together with municipality representatives to locations documenting the extent of damage to each one on the list and surveying the area for any missing damage.

The UNDP and PCU team then reviewed and verified the data entered into the server where costing of premises follow the rates approved for the sector and miscellaneous items cost were based on local market and similar items implemented through UNDP earlier projects. The classification of damages to premises was done according to the following:

- » Minor damage: damage less than or equal to 10% of the building plan area.
- » Major damage: damage more than 10% and less than or equal to 30 % of the building plan area.
- » Severe damage: damage more than 30% and less than or equal to 50 % of the building plan area.
- » Total damage: damage to more than 50% of the building plan area.

No furniture or equipment was considered in the estimate of damage and the costing process was as follows:

1. Pricing methodology for the partial damages depends on the individual prices set in the agreed list for the housing sector. Miscellaneous items are estimated according to the local market prices and similar items costs that were included in earlier UNDP projects.
2. USD 400 per square metre was utilized to estimate the reconstruction cost of different types of totally damaged municipal buildings.

3.10 Public Buildings

a) General Background and Context:

Public buildings under consideration in this assessment include premises of:

- » Ministry of Interior, Ministry of Social Affairs, Ministry of Public Works and Housing, Ministry of Economy, Ministry of Foreign Affairs and Ministry of Agriculture.
- » NGOs in different sectors such as cultural, agricultural and youth.
- » Premises at crossings for Ministry of Civil Affairs.
- » Cultural heritage buildings (3 sites).

60% of the public buildings specially belonging to the Ministry of Interior are rented because the damaged facilities in Cast Lead operation had not yet been reconstructed. Most of the relevant premises on the borders are small in size and sometimes are linked with caravans. Main crossing buildings in Rafah and Erez utilized by Ministry of Civil Affairs suffered total or major damages.

b) Damage assessment

The following tables illustrates the summary for the damages in connection with the public buildings for categories articulated above.



Assessed damaged public buildings

Governorate	Ministries				Cultural Heritage			
	Minor	Major	Severe	Total	Minor	Major	Severe	Total
North Gaza	12	2	1	15	0	0	0	0
Gaza	16	8	2	26	0	0	0	0
Middle	6	1	1	8	2	0	0	2
Khan Younis	6	0	3	9	1	0	0	1
Rafah	4	3	0	7	0	0	0	0
Total	44	14	7	65	3	0	0	3

Governorate	NGOs				Crossings			
	Minor	Major	Severe	Total	Minor	Major	Severe	Total
North Gaza	1	1	0	2	1	0	0	1
Gaza	4	0	1	5	2	0	0	2
Middle	3	0	0	3	0	0	0	0
Khan Younis	3	0	0	3	1	0	0	1
Rafah	0	0	0	0	3	0	0	3
Total	11	1	1	13	7	0	0	7

Cost of different type of damages to public buildings

Governorate	Ministries				Total Cost USD	Crossings				Total Cost USD
	Minor	Major	Severe	Total		Minor	Major	Severe	Total	
North Gaza	52,879	59,094	116,038	1,593,100	1,821,111	35,695	0	0	90,000	125,695
Gaza	225,297	169,170	28,600	9,725,260	10,148,327	913	0	0	343,500	344,413
Middle	26,032	4,542	12,551	948,650	991,775	0	0	0	0	0
Khan Younis	26,668	0	110,649	234,500	371,817	2,001	0	0	24,000	26,001
Rafah	13,218	129,505	0	2,368,310	2,511,033	358,275	0	0	184,000	542,275
Total	344,094	362,311	267,838	14,869,820	15,844,063	396,884	0	0	641,500	1,038,384

Governorate	NGOs				Total Cost USD	Cultural Heritage				Total Cost USD
	Minor	Major	Severe	Total		Minor	Major	Severe	Total	
North Gaza	720	11,664	0	313,320	325,704	0	0	0	0	0
Gaza	4,552	0	31,788	212,800	249,140	0	0	0	0	0
Middle	8,501	0	0	90,000	98,501	12,028	0	0	0	12,028
Khan Younis	17,005	0	0	23,850	40,855	434	0	0	0	434
Rafah	0	0	0	0	0	0	0	0	0	0
Total	30,778	11,664	31,788	639,970	714,200	12,462	0	0	0	12,462

The total cost of damages to public buildings is estimated at USD 17,609,109.

50% of targeted facilities and buildings utilized by different Ministries were totally destroyed measuring 48,682 square metres in surface area. Gaza governorate suffered from the most damages during the hostilities followed by Rafah governorate. The crossings premises were also targeted as 41% of the crossings buildings were directly hit and were totally destroyed measuring 2,175 square metres, including fishermen rooms in Khan Younis and Gaza. Their equipment was also damaged, hence severely affecting their livelihood. Main crossing points for people and commodities in Rafah and Beit Hanoun were subject to damages.

c) Methodology

The lists of damaged premises were reported by respective municipality. One UNDP senior engineer and three PCU engineers went together with municipality representatives to locations documenting the extent of damage to each one on the list and surveying the area for any missing damage.

The UNDP and PCU team then reviewed and verified the data entered into the server where costing of premises follow the rates approved for the sector and miscellaneous items cost were based on local market and similar items implemented through UNDP earlier projects. The classification of damages to premises was done according to the following:

- » Minor damage: damage less than or equal to 10% of the building plan area.
- » Major damage: damage more than 10% and less than or equal to 50 % of the building plan area.
- » Severe damage: premises that can no longer be utilized for work.
- » Total damage: premises that are in rubble or should be removed.

No furniture or equipment was considered in the estimate of damage.

Pricing methodology for the partial damages depends on the individual prices set in the agreed list for the housing sector. Miscellaneous items were estimated according to the local market prices and similar items costs that were included in earlier UNDP projects. The following rates were accounted for the total damage of premises as listed below:

- » Concrete building for administration USD 350/m2
- » Concrete building for others USD 300/m2
- » Eternite building USD 150/m2
- » Iron sheet building USD 120/m2
- » For mixed buildings a proportional method was adopted
- » For the containers; the price is according to the finishing condition from USD 3,000 to USD 6,000





Annex 1

a) Localities surveyed within the Gaza Strip

Geographical area	Code	Municipalities covered within the governorate
Khan Younis governorate	K	Khan Younis, Bani Suhaila, Absan Al Jadeeda, Abasan Al Kabira, Khuzaa, Qarara and Al Fukhari
Middle governorate	M	Deir Al Balah, Al Zawaydah, Nuseirat, Al Bureij, Al Maghazi, Wadi Al Salqa and Al Musadar
North governorate	N	Beit Hanoun, Beit Lahia, Jabalia and Um Al Nasser
Gaza governorate	G	Gaza, Al Zahra, Wadi Gaza and Al Mughraqa
Rafah governorate	R	Rafah, Al Shoka and Al Nasr

b) Areas that were subject to massive destruction

Governorate	Area	Municipality
North	Beit Hanoun	Municipality of Beit Hanoun
	Ezbet Beit Hanoun	
	Al Nada Towers	
	Al-Syfa area	Beit Lahia
	Al Salam, Jabalia Al balad Omary	Jabalia
Gaza	Al-Quba	East of Shijaiya - Municipality of Gaza
	Al-Montar	
	Al-Tawfeeq	
	Al-Biltaji	
	Momer mubayed	
	Al-Sorani mountain	East of Toffah - Municipality of Gaza
	Al-Fardous	
	Al-Wafaa Hospital area	
	Abu Olba area	Al-Remal - Municipality of Gaza
Middle Area	Johr Al Deek	Wadi Gaza
	Abu Al Ajeen area	Wadi Alsalqa
	Eastern Al Musadar	Al Musadar
Khan Younis	Al-Najjar area and Abu ryda	Khuzaa
	Al Zanna Area	Bani Suhaila
	Um Mahed	Absan Al Jadeeda
	Fraheen, Shhyda, Abu Toyma, Dagat	Abasan Al Kabira
	Al Amoor	Al Fukhari
	Al-Smeiry, Al Gawoafeer, Abu Haddaf	Al Qarara
Rafah	Eastern Shoka	Al Shoka
	Al Tanoor area (Eastern Rafah)	Rafah



Annex 2

Joint Teams Working on the Damage Assessment of the 2014 Gaza Hostilities

Sector	Governorate	Engineers PCU	Helpers PCU	Senior Eng. PCU	Senior Eng. UNDP	Stakeholders from Municipalities and Ministries
Coordinator				1	1	
Housing	North	30	10	1	2	14
	Gaza	36	14	1	1	20
	Middle Area	16	7	1	2	10
	Khan Younis	17	6	1	1	8
	Rafah	11	7	1	2	8
Education	All Governorates	4			1	9
Health	All Governorates	4			1	4
Waqf	All Governorates	2			1	10
Public Buildings and Transportation	All Governorates	2			1	10
Water	All Governorates	1			2	26
Communication	All Governorates	1				2
Electricity	All Governorates					1
Municipalities	All Governorates	3			1	26
Private sector	All Governorates	12			1	51
Data management and entry, logistics	All Governorates	4			2	
Totals		143	44	6	19	199



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