

Kurdistan Regional Government - Iraq
Ministry of Construction and Housing



Preliminary Infrastructure Damage Assessment

Shingal - 2015



Kurdistan Regional Government - Iraq

Ministry of Construction and Housing (MOCAH)

1. Introduction

Shingal (Kurdish: Şengal/Şingal/Şingar), also known as Sinjar (Arabic: , Sinjar; Latin: Singara), is a town in Sinjar District, Nineveh Province, Iraq near Mount Sinjar. Its population in 2013 was estimated at 88,023. The town is mainly inhabited by Yazidis Kurds, with Shingali Muslim, Arab and Assyrian minorities.

In August 2014, ISIS/Da'esh suddenly attacked Kurdish areas of Nineveh and Erbil provinces. As a result they seized the city of Sinjar on 3 August. During the following days, ISIS militants perpetrated the Sinjar massacre, killing 2,000 Yazidi men and taking Yazidi women into slavery, leading to a mass migration of Yazidi residents. According to a UN report, 5,000 Yazidi civilians were killed during ISIS's August offensive.

On the night of 20 December 2014, in the course of a first offensive to retake it from Islamic State militants, Kurdish forces Peshmerga pushed into the city of Sinjar. However, the Kurdish advance into the city was delayed, as they faced fierce resistance from the ISIS militants inside the southern half of the city. On 13 November 2015, a day after launching a major second offensive, Peshmarga and Yazidi militias backed by US airstrikes, entered the city and fully regained its control from ISIS.

2. Background

In 2014, the terrorist group ISIS/Da'esh advanced rapidly in securing control over large portions of territory both in Iraq and in Syria. In summer 2014, ISIS took hold of Mosul, one of Iraq's largest cities, and announced the capital of its self-proclaimed. ISIS/Da'esh's expansionist goals and massacres of Iraqi forces, Syrian adversaries and civilians, in particular on ethnic and religious grounds, turned the terrorist group into a significant threat to the entire region in a matter of months. ISIS relies on significant financial resources stemming from control over oil fields and refineries in Iraq and Syria, over banks in captured cities, smuggling of antiquities, ransoms from hostage-taking, as well as alleged funding from some states in the region. It has also drawn a significant flow of fighters into its ranks. In August 2014, the United States (US) began launching a series of military airstrikes in Iraq against ISIS forces. On the margins of the NATO summit in Wales (4-5 September 2014), the US pushed for the formation of a coalition of the 'willing and the capable' to deal with ISIS. Nine other NATO allies (France, UK, Denmark, Germany, Canada, Turkey, Italy, Poland) and partners (Australia) joined the US call for action. Currently, the US-led coalition counts more than 60 nations, contributing in different ways to the fight against ISIS, including military strikes, training, and military aids in Syria and Iraq against the terrorist group's positions but the only fighters on the ground against ISIS in Iraq have been

Iraqi army, Iraqi Shiite militias and Iraqi Kurds forces Peshmarga and most effective fighters is Peshmarga indeed, in many ways.

Ministry of Interior of the Kurdistan Regional Government (KRG) was instructed to conduct a rapid damage assessment. The assessment showed a severe destruction of the city caused by heavy fighting, airstrikes and IEDs planted by ISIS. The city is heavily damaged and the majority of the private homes are looted. Public and private assets were either destroyed or looted including equipment, furniture and machinery of government institutions, private property, material possessions and livestock of local people and the property of businesses. Public buildings, schools, hospitals and social service infrastructure destroyed. The nature and scale of the damage varies from one area to another. The neighborhoods surrounding public buildings in the city centre are completely destroyed as many of the multi-storey public buildings and facilities were used as operational base and fighting positions for ISIS. The local shops and markets are leveled to the ground, some due to the fighting and others burned or blasted selectively and deliberately by ISIS.

3. Objective

The purpose of the assessment is considered as a necessary step after the liberation of Shingal district in November 2015, the preliminary damage assessment were conducted by Ministry of Construction and Housing of the Kurdistan Regional Government (KRG). The assessment draw and measure the level of destruction and damage inflicted on the city of Shingal, and make a list of priority for rehabilitation, and early recovery. The findings presented in this report will assist the KRG in mobilizing the required resources at the local, national and international levels to assist the city administration in restoring basic public services and facilitate the return of IDPs to their home. In this assessment the district, sub districts, and villages that belong to Shingal were included and considered as extension and complementary to the one that conducted by KRG's Ministry of Interior.

4. The Assessment

Prior to the start of this preliminary Infrastructure Damage Assessment, coordination and consultation with all stakeholders (Ministry of construction and Housing, general directorate of roads and bridges in Duhok, the governorate of Duhok and the Mayor of Shingal) was ensured in the development of the forms and the decision to limit the scope of the assessment to infrastructure damages. Throughout the Assessment, all stakeholders were consulted in Shingal districts and Duhok province for guidance and advice. The following sectors were covered in the assessment: Housing, WASH, Transportation, Energy, Education, Health, Municipal infrastructure and Public buildings. The city of Shingal and the area were visited by a high official committee composed of deputy ministers, directorate generals and expert engineers in the Ministry of Construction and Housing to assess the extent of the damage. Although each sector was approached slightly differently depending on its nature, there was a common approach. A unified approximate scheme for valuation of costs was established, building on previous similar experience. Consultation was made with specialists/stakeholders for specific sectors whenever needed.

Moreover, the data collected is preliminary and further comprehensive assessment is required to quantify full scale of the damage. The costs calculated for restoration of basic public services is estimated against prices in the local market. The assessment was conducted thru a field mission to Shingal and the area in order to visit most of the hard hit and destroyed sites. Information used in this report was collected through the team's site visits and interviews as well as assessments and information collected by the local administration.

5. Results of Infrastructure Damage Assessment

5.1. Housing Sector

The housing sector was severely affected by the recent war. According to the Initial Rapid Assessment conducted by KRG Ministry of Construction and Housing, it was estimated that 50% of the housing stock was affected. However, the Infrastructure Damage Assessment is showing an increase from the original estimated numbers. While all those displaced by the war were considered displaced people (DPs), reaching as many as 500,000 people (according to UNHCR) at the height of the conflict (80 percent of the population) in entire Shingal district which also includes many sub-districts and villages.

a) *General background and context*

The detailed assessment process of the housing sector needed a large number of engineers and other resources. Needs and damage assessments are still ongoing due to vast damages incurred, large region of Shingal and the lengthy duration of the fighting. The main actors in the assessment are the Ministry of Construction and Housing. 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. According to this assessment, Houses were classified to three groups big, medium and small.

b) *Damage assessment*

Table 5-1 illustrates the cases assessed throughout the region

No.	Sector	Province	Estimated cost of reconstruction USD\$	Total estimated cost USD\$	Level of damage
1	1250 Small Houses	Nineveh/Shingal	36,885	46,106,250	100%
2	1250 Medium Houses	Nineveh/Shingal	45,082	56,352,500	100%
3	2250 One Story concrete houses	Nineveh/Shingal	24,590	55,327,500	100%
4	250 Two Story concrete houses	Nineveh/Shingal	40,984	10,246,000	100%
5	1500 Clay Houses	Nineveh/Shingal	12,300	18,450,000	100%
6	500 Big Houses	Nineveh/Shingal	53,280	26,640,000	100%
			213,122,750		

Table 5-1 Housing Sector Damage Assessment

c) *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-build modality which has been utilized extensively over the past years by UN agencies in delivering support to the Housing Sector. 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, MOCAH 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. MOCAH manages the process and provides technical support, quality control and assurance.

5.2. Transportation Sector

a) General background and context

The transportation sector plays an important role in supporting the rehabilitation and resettlement process by facilitating the efficient movement of construction materials, people and goods. The transportation network in Shingal district is limited to the road, as there are no seaports, airports, railways, bridges or tunnels. Bridges are merely simple bridges linking the cities.

b) Damage Assessment

Table (5-2) presents the Level of damage and estimated cost for rehabilitation of transportation network in Shingal.

No	Sector	Province	Estimated cost of Reconstruction USD\$	Year of destruction	Level of damage
1	Roads within the city	Nineveh/ Shingal	4,918,033	2014	70%
2	Duhuk –Shingal main Road	Nineveh/ Shingal	2,459,016	2014	70%
			7,377,049 (seven million and three hundred seventy seven thousands and forty nine US dollar.		

Table 5-2 Transportation Sector Damage Assessment

5.3. Water, Sanitation and Hygiene Sector (WASH)

a) General background and context

Prior to the war, it was estimated that 80% of the people in Shingal area (population of 600,000) 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 tanks form an integral part of the system. The challenge is large area of coverage; this can be addressed by using water tankers to distribute drinking water to customers as an argue solution.

b) Damage Assessment

It needs basic renovation such as repair of the water supply network, wells, pools and provision of required equipment to make it operational again.

Table (5-3) presents the Level of damage and estimated cost for rehabilitation of Wash sector in Shingal.

No	Sector	Province	Estimated cost of reconstruction in USD\$	Year of destruction	Level of damage
1	Water supply network	Nineveh/Shingal	10,245,902	2014	70%
2	Directorate of irrigation	Nineveh/Shingal	492,000	2014	70%
3	Directorate of Shingal's water	Nineveh/Shingal	615,000	2014	100%
4	Directorate of Shingals wells	Nineveh/Shingal	410,000	2014	100%
5	Project of Shingal's water operation	Nineveh/Shingal	205,000	2014	60%
			11,967,902		

Table 5-3 WASH Sector Damage Assessment

5.4. Health sector

a) General background and context

Even before the latest crisis, health services in Shingal have many constraints due to limited health facilities, financial constraints and medical supplies. Most medical equipments have been damaged or looted. Most existing health facilities were in need of rehabilitation, medical equipments and upgrading in order to ensure quality services and to meet the needs of early recovery.

b) Damage assessment

The assessment was conducted of 4 health facilities identified by the Ministry of Health (MoH) with the following damages as shown in table 5-4:

No	Sector	Province	Estimated cost of reconstruction in USD\$	Year of destruction	Level of damage
1	Shingal general hospital	Nineveh/Shingal	6,147,541	2014	70%
2	First health center in Shingal	Nineveh/Shingal	122,951	2014	25%
3	second health center in Shingal	Nineveh/Shingal	163,934	2014	30%
4	General directorate of health in Shingal	Nineveh/Shingal	122,951	2014	20%
Total			6,557,377		

Table 5-4 Health Sector Damage Assessment

5.5. Electricity sector

a) General background and context

The main source of electrical power in Shingal was coming from Mosul city. Currently, the city has no power source, and the best solution options were proposed by the Director of Electricity; is connecting the city to the Kurdistan 132kv transmission line and/or buying electrical power from the private sector as declared in rapid assessment that conducted by KRG Ministry of Interior.

b) Damage assessment

The electricity network is seriously damaged especially in areas near the local offices and main streets where heavy fighting took place.

Annex 1 below illustrates the damage and the immediate restoration needs of the electricity sector in Shingal.

5.6. Education sector

a) General background and context

Education in Shingal has long been characterized by poor infrastructure and limited resources even before the crisis. About 35% percent of population were uneducated and have of educated portion had only finished the intermediate school level.

b) Damage assessment

The school buildings are partially damaged but the greatest harm is caused by looting and destruction of equipment and furniture in all schools. Most of the schools require minor rehabilitation, and furniture supplies. On the contrary, the building and two warehouses of the Directorate of education were completely destroyed and burned down and need new building.

Annex 2 below shows the level of damage inflicted on education sector.

5.7. Public buildings

a) General Background and Context:

ISIS used public building as operation bases for fighting that is why severe damage Public buildings under consideration in this assessment include many Iraqi and KRG property which are belong to different ministries as showed in the annex 3.

b) Damage assessment

As an average 70% of the public buildings were damaged. Annex 3 demonstrates the damage of public buildings.

Annex 3 below shows the level of damage of public building.

5.8. Private shops

The private shops experienced the largest destruction and is the sector that has been the most affected during the recent crisis. 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 totally damaged during the fighting as shown in table 5-5.

No	Sector	Province	Estimated cost of reconstruction USD\$	Year of destruction	Level of damage
1	700 Small market	Nineveh/Shingal	8,606,557	2014	100%
Total			8,606,557		

Table 5-5 Private shops Sector Damage Assessment

6. Summary

Table 6-1 shows the total cost needed for each sector and overall total fund needed to reconstruct and rehabilitate Shingal.

No	Sector	Total estimated cost of rehabilitation US\$
1	Transportation network	7,377,049
2	Water supply network	11,967,902
3	Health	6,557,377
4	Electricity	22,882,261
5	Education	36,784,557
6	Public buildings	18,343,000
7	Housing ,private property	213,122,750
8	Private Shops	8,606,557
Total		325,641,453

7. Annexes

Annex 1: Damage of Electrical sector

No	Sector	Province	Estimated cost of reconstruction in USD\$	Year of destruction	Level of damage
1	Electricity Directorate building	Nineveh /Shingal	205,000	2014	25%
2	Shingal electricity Maintenance Directorate building	Nineveh /Shingal	82,000	2014	15%
3	Electricity distribution station	Nineveh /Shingal	410,000	2014	100%
4	Power conversion unit	Nineveh /Shingal	164,000	2014	100%
5	Maintenance of the electricity networks in Shingal	Nineveh /Shingal	20,491,803	2014	100%
6	Transformer (10MVA, 33/11KV)(	Nineveh /Shingal	737,705	2014	70%
7	Transformer (250KVA, 11/0.4KV) with accessories	Nineveh /Shingal	389,344	2014	50%
8	Transformer (100KVA, 11/0.4KV) with accessories	Nineveh /Shingal	47,541	2014	20%
9	ACSR Aluminum Conductor (120/20mm2)	Nineveh /Shingal	110,656	2014	40%
10	AAC Aluminum Conductor (95mm2)(	Nineveh /Shingal	114,754	2014	40%
11	MV pole (11m)(	Nineveh /Shingal	65,574	2014	10%
12	LV pole (9m(	Nineveh /Shingal	118,852	2014	40%
13	33KV Transmission Line Tower	Nineveh /Shingal	20,492	2014	10%
14	ABC Cable (Twisted Cable)(	Nineveh /Shingal	24,540	2014	10%
Total			22,882,261		

Annex 2: Damage of education sector

No	Sector	Province	Estimated cost of reconstruction USD\$	Year of destruction	Level of damage
1	Shingal educational store	Shingal	246,000	2014	100%
2	Shingal educational building	Shingal	147,541	2014	
3	Kurdistan highschool	shingal	738,000	2014	
4	Chyay shingal school	Shingal	192,700	2014	25%
5	Bahar school	Shingal	192,700	2014	25%
6	Shamalik school	Shingal	738,000	2014	100%
7	Tal banat school	shingal/qaerawan	1,147,541	2014	
8	Tal qasabschool	shingal/qaerawan	737,705	2014	
9	Wardyah school	shingal/wardiyah	246,000	2014	30%
10	Zhyan school	shingal	902,000	2014	100%
11	Talinaz school	shingal	902,000	2014	100%
12	Kola bara school	shingal	192,700	2014	25%
13	Sar haldan school	shingal	902,000	2014	100%
14	Samyan school	shingal	902,000	2014	100%
15	Aras school	Shingal/Qahtaniyah	738,000	2014	100%
16	Zrafki school	Shingal/Qahtaniyah	738,000	2014	100%
17	Hayali school	Shingal/Qahtaniyah	737,705	2014	
18	Rezan school	Shingal/Qahtaniyah	737,705	2014	
19	Cani Sark school	shingal	192,700	2014	25%
20	Naseeryah school	shingal	192,700	2014	25%
21	Omed school	shingal	192,700	2014	25%
22	Rambosi school	Shingal/Qahtaniyah	192,700	2014	25%
23	North Rambosi school	Shingal/Qahtaniyah	192,700	2014	25%
24	Con rofi school	Nineveh/Shing	475,410	2014	

		al			
25	Ashkafta Sharqee school	Nineveh/Shingal	192,700	2014	25%
26	Sinjar inistitute	shingal	1,147,541	2014	
27	Qandil school	shingal	192,700	2014	25%
28	Old tal Qasab school	Shingal/qayrawan	192,700	2014	25%
29	Seeba Shekhdry school	Shingal/Qahtaniyah	737,705	2014	
30	Karzark school	Shingal/Qahtaniyah	737,705	2014	
31	Sakeenyah school	Shingal/snoony	229,508	2014	
32	Dookari school	Shingal/snoony	1,147,541	2014	
33	Haydar school	Shingal/snoony	192,700	2014	25%
34	Khazanyah school	Shingal/snoony	393,443	2014	25%
35	Kursi school	Shingal/snoony	192,700	2014	25%
36	Colka school	Shingal/snoony	192,700	2014	25%
37	Boric school	Shingal/snoony	737,705	2014	50%
38	Daholla school	Shingal/snoony	737,705	2014	50%
39	Hardan school	Shingal/snoony	737,705	2014	50%
40	Zor ava school	Shingal/snoony	737,705	2014	50%
41	Kohbal school	Shingal/snoony	737,705	2014	50%
42	Khansoor school	Shingal/snoony	737,705	2014	50%
43	Snoony school	Shingal/snoony	737,705	2014	50%
44	Bara jory school	Shingal/snoony	737,705	2014	50%
45	Kharab bazar	Shingal/snoony	901,700	2014	50%
46	Shenwar high school	Shingal/Qairawan	192,700	2014	25%
47	Khanasoor high school	Shingal/shimali	192,700	2014	25%
48	Snoony highschool	Shingal/shimali	192,700	2014	25%
49	14 tabakhy high school	Shingal/shimali	192,700	2014	25%
50	Kherokh(bork high school)	Shingal/shimali	192,700	2014	25%
51	Balistan high school(dhulla)	Shingal/shimali	192,700	2014	25%
52	Sarkaftin high school (dukare)	Shingal/shimali	192,700	2014	25%
53	Bereen school (kohbal)	Shingal/shimali	192,700	2014	25%
54	Azadi (domiz)high school	Shingal (domiz)	192,700	2014	25%
55	Tal Aziz (Sharqi)school	Shingal (Qahtaniyah)	192,700	2014	25%
56	(Kari beder) high school	Shingal/Solagh	737,705	2014	50%
57	Kaynok school	Shingal	192,700	2014	25%

58	Dler school	Shingal/ qayrawan	192,700	2014	25%
59	Khamleen school	shingal	192,623	2014	
60	Bashook school	Shingal / Qayrawan	901,639	2014	25%
61	Shingal educational directorate (Arabic)	shingal	1,560,000	2014	70%
62	Shingal educational directorate(kurdish)	shingal	3,280,000	2014	100%
63	Technical inistitute in Shingal	shingal	2,870,000	2014	100%
Total			36,784,557		

Annex 3: Damage of public buildings sector

No	Sector	Province	Estimated cost of reconstruction in USD\$	Year of destruction	Level of damage
1	Shingal court	Nineveh/ Shingal	1,640,000	2014	100%
2	Real property (registration Dept.)	Nineveh/ Shingal	1,000,000	2014	100%
3	Archaeology building	Nineveh/ Shingal	615,000	2014	100%
4	E & Transport Diroctorate in Shingal	Nineveh/ Shingal	574,000	2014	100%
5	Directorate of civil Stature in Shingal	Nineveh/ Shingal	164,000	2014	30%
6	Lalish Yezidi Center	Nineveh/ Shingal	123,000	2014	30%
7	Directorate of Agriculture inShingal	Nineveh/ Shingal	123,000	2014	100%
8	Extinguish fires Directorate	Nineveh/ Shingal	410,000	2014	100%
9	Shingal council Majority building	Nineveh/ Shingal	1,230,000	2014	100%
10	Directorate of public	Nineveh/ Shingal	820,000	2014	100%

	prosecution in Shingal	Shingal			
11	Notary directorate in shingal	Nineveh/ Shingal	328,000	2014	80%
12	orphanage	Nineveh/ Shingal	410,000	2014	70%
13	Directorate of statistics (NBS)	Nineveh/ Shingal	410,000	2014	75%
14	Directorate of air adversity	Nineveh/ Shingal	410,000	2014	80%
15	Police directorate	Nineveh/ Shingal	1,230,000	2014	100%
16	Police station in Shingal	Nineveh/ Shingal	410,000	2014	100%
17	Shingal Mayoralty building	Nineveh/ Shingal	1,640,000	2014	100%
18	Shingal prison	Nineveh/ Shingal	820,000	2014	100%
19	Veterinary directorate in shingal	Nineveh/ Shingal	410,000	2014	100%
20	Shingal bank	Nineveh/ Shingal	1,066,000	2014	60%
21	Agriculture bank in shingal	Nineveh/ Shingal	820,000	2014	80%
22	Rashid bank in shingal	Nineveh/ Shingal	820,000	2014	80%
23	General park of taxi and public buses in shingal	Nineveh/ Shingal	820,000	2014	30%
24	Shingal municipal belongs to the central government	Nineveh/ Shingal	820,000	2014	70%
25	Municipal of shingal belongs to the Kurdistan Regional Government	Nineveh/ Shingal	1,230,000	2014	50%
	total		18,343,000		