

Gaza Solid Waste Management Project

Addendum No. 2 to the GSWMP Environmental & Social Impact Assessment

Environmental and Social Management Plan For Khan Younis Solid Waste Transfer Station (associated facility)

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ESMP for the Proposed
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الملخص التنفيذي

إن صندوق تطوير وإقراض البلديات هي الجهة المخولة لتنفيذ مشروع إدارة النفايات الصلبة في قطاع غزة والذي يهدف إلى تحسين خدمات إدارة النفايات الصلبة في قطاع غزة. يعد إنشاء محطة ترحيل النفايات في خان يونس من أحد أهم مكونات البنية التحتية للمشروع. تبلغ المساحة الإجمالية لأرض محطة الترحيل 10 دونمات، بينما تم بناء محطة الترحيل على ثلاث دونمات فقط (46×65 م). و تم إنشاء محطة ترحيل خان يونس من قبل وكالة غوث وتشغيل اللاجئين بتمويل من البنك الإسلامي للتنمية، بينما سيتم إدارة تشغيل المحطة بواسطة بلدية خان يونس بالتعاون مع مجلس الخدمات المشترك في محافظات خان يونس ورفح والمنطقة الوسطى.

يهدف هذا التقرير إلى إجراء تدقيق بيئي و تقديم خطة إدارة بيئية وإجتماعية لمحطة ترحيل النفايات في خان يونس، ويحتوي التقرير على قاعدة البيانات الأساسية (Baseline Data) بالإضافة إلى الآثار المتوقعة من المشروع (Expected Impacts) وكذلك الإجراءات التخفيفية المقترحة (Mitigation Measures) وأخيراً خطة الرقابة والمتابعة (Monitoring Measures) خلال فترة تشغيل المحطة. ويحتوي التقرير أيضاً مراجعة بيئية لمرحلة الإنشاء.

تنقسم قاعدة البيانات الأساسية إلى ثلاث أقسام رئيسية وهي:

- **البيئة الفيزيائية:** وتحتوي على وصف لطبغرافية وجيولوجية الأرض، المساحات المائية، الضوضاء، الرائحة، الانبعاثات الجوية، جودة الهواء و جودة مياه الخزان الجوفي.
- **البيئة البيولوجية:** وتحتوي على وصف مواطن الحيوانات والنباتات في المنطقة.
- **القضايا الاجتماعية والاقتصادية:** وتحتوي على وصف للوضع الاقتصادي في المنطقة، و عدد السكان ونسب ومؤشرات زيادتهم، و كميات إنتاج النفايات في المنطقة ومحتويات النفايات، الصحة العامة للمجتمع، وكذلك عمليات جمع ونقل النفايات.

وقد تم إجراء لقاءات مجتمعية و إستبيانات للسكان، وكذلك زيارات لمحطة الترحيل، حيث تم توزيع عدد حوالي 100 إستبيان للسكان المحليين والذي عكس قلة معلوماتهم عن طبيعة عمل محطات الترحيل.

إن قاعدة البيانات المتوفرة وبالإضافة لما تم استخلاصه من الإستبيان يتطابق بشكل كبير مع ما تم ذكره في دراسة تقييم الأثر البيئي والاجتماعي لمشروع إدارة النفايات الصلبة في قطاع غزة عام 2012، وقد تم تحديث بعض البيانات من مصادر أخرى مثل بلدية خان يونس التي قدمت مستندات عن جودة المياه الجوفية و مواقع أبار المياه البلدية، وكذلك دراسات حديثة عن جودة المياه في مدينة خان يونس، مع العلم بأن هذه الدراسة لم تقم بإجراء أي فحوصات للمياه أو الهواء أو التربة. البيانات الأساسية اللازمة لإستكمال الدراسة متوفرة بشكل عام و هي بجودة مقبولة.

وقد تم خلال الدراسة توقع مجموعة الآثار البيئية التي قد تنجم عن تشغيل محطة ترحيل النفايات في خان يونس والتي قد تكون إيجابية أو سلبية وممكن إجمالها كالتالي:

- **عملية إدارة النفايات الصلبة:** من المتوقع أن يكون للمحطة الجديدة أثر إيجابي على إدارة النفايات الصلبة، وذلك من خلال تسهيل عمليات إدارة النفايات في مدينة خان يونس بتكاليف أقل و آثار بيئية أقل بالمقارنة مع الوضع السابق.
- **الخوان الجوفي:** من الممكن أن يتلوث الخوان الجوفي من العصارة المتجمعة، ويمكن أيضاً أن يتلوث من ناتج الحفرة الإمتصاصية بسبب عدم وجود شبكة صرف صحي في المنطقة.
- **جودة الهواء:** من الممكن أن تتغير جودة الهواء بفعل حركة شاحنات النفايات على الطرق الغير معبدة وخلال عمليات تحميل وتفريغ النفايات.
- **الضوضاء:** من المتوقع أن ينتج تلوث ضوضائي نتيجة تشغيل المحطة، وكذلك حركة شاحنات نقل النفايات.
- **مواطن النباتات والحيوانات:** تم ملاحظة بعض أشجار الفواكه في الأراضي القريبة من موقع محطة الترحيل والتي قد تتأثر من عملية تشغيل المحطة.
- **المواصلات وحركة المرور:** من المتوقع أن ينتج تأثير سلبي أو تشويش على حركة المرور على الطرق الرئيسية والذي قد يؤدي لارتفاع نسب الحوادث المرورية، وزيادة خفيفة للإزدحام المروري بسبب مرور شاحنات جمع ونقل النفايات وتطايير بعض من محتوياتها على الشوارع.
- **صحة المجتمع المحلي:** من المتوقع أن ينتج أثر كبير على صحة السكان والمزارعين، وهذا التأثير قد يكون بسبب الأغبرة المتصاعدة بسبب حركة شاحنات النفايات الثقيلة أو انتشار الحشرات والقوارض في المنطقة.

- **الصحة والسلامة المهنية للعمال:** وقد يتضمن هذا الأثر الخطر الفيزيائي من سقوط العمال من أعلى أو إصابتهم وجروحهم، وكذلك الخطر من حركة أليات النفايات الثقيلة، وخطر تعامل العمال المباشر مع النفايات.

يحتوي هذا التقرير أيضا على تفاصيل التدقيق البيئي لمرحلة إنشاء محطة ترحيل النفايات في خان يونس، فقد تم إجراء مراجعة عامة للإجراءات التخفيفية التي تتخذها المحطة وذلك عن طرق مراجعة تصاميم المحطة التي تمت من قبل وكالة غوث وتشغيل اللاجئين والمستندات ذات العلاقة حول كميات إنتاج النفايات في خان يونس ومحتوياتها. وقد تم أيضا مقابلة المقاول ومراجعة الإجراءات البيئية وإجراءات السلامة المهنية التي تم إتخاذها خلال فترة الإنشاء. وتم أيضا عقد زيارات للموقع ومطابقة التصاميم. فقد وجد أن المقاول إمتثل للمعايير التصميمية علما بأن التصاميم متماشية مع المتطلبات البيئية، حيث المحطة مسورة بالكامل بحائط من الباطون ومغطاه بمعرش أعلى منطقة العمل، ومرصوفة بطبقة من الباطون، كما تحتوي على شبكة منفصلة لتجميع العسارة.

وقد تم إقتراح خطة إدارة ومراقبة بيئية وإجتماعية عند تشغيل محطة ترحيل النفايات في خان يونس بالإعتماد على الزيارات الميدانية للمحطة، وقاعدة البيانات البيئية والإجتماعية، وكذلك عقد اللقاءات مع صندوق تطوير وإقراض البلديات والجهات الشريكة، وأخيرا الإستبيان الموجه للمجتمع المحلي. ويمكن تلخيص هذه الخطة عبر النقاط التالية والتي تحتوي على الإجراءات التخفيفية لكل أثر متوقع:

- **المياه السطحية والجوفية:** يجب تركيب نظام جمع للعسارة الناتجة عن النفايات وذلك لتجنب تلويث المياه السطحية أو الجوفية، كما يجب ان يتم نقل النفايات بشكل يومي من محطة الترحيل إلى مكب النفايات.
- **جودة الهواء:** يجب رش المياه خلال فترات العمل وذلك لتقليل الأغبرة، ويجب التحكم في سرعة شاحنات نقل النفايات، وإختيار مسارات مثلى لها لتقليل أثار الأغبرة التي قد تنتج.
- **الضوضاء:** يجب ان يتم تشغيل الشاحنات والألات بشكل أمثل بحيث يتم جدولة مواعيد تشغيلها وذلك لتقليل الضوضاء الناتج عنها، وكذلك يجب وضع حواجز صوتية في حال تم تلقي شكاوي متعلقة بالضوضاء.
- **المواصلات والحركة المرورية:** يجب على شاحنات النفايات ألا تعمل خلال فترة ساعة الذروة، ويجب وضع رقابة محكمة على أي حوادث تحدث ويتم تسجيلها وأرشفتها، وعقد استبيانات دورية حول حركة شاحنات النفايات.
- **صحة المجتمع المحلي:** يجب إبلاغ السكان المحليين بمواعيد عمل المحطة والخطط الإدارية لها، ويجب عزل مناطق العمل وتحديد لها، وتطبيق إجراءات السلامة لحماية السكان من الإصابات وحماية الممتلكات المحاذية من الضرر.
- **الصحة والسلامة المهنية للعمال:** يجب على العمال إتباع الإرشادات وإتباع إجراءات السلامة والأمان، وكذلك الإستحمام كلما لزم الأمر. يجب على العمال الإلتزام بلبس ملابس الوقاية مثل سماعات الأذن الواقية، القبعات الواقية، الفيسات ذات اللون المميز، وغيرها من أدوات الحماية والتي تحمي العامل من التعرض للإصابة أو الضرر، كما يجب أن يتوفر صناديق الإسعاف الأولى في موقع العمل مع أشخاص مدربين على اجراء الإسعافات الأولية، وأخيرا يجب وضع خطط واضحة للانسحاب من الموقع في حالات الطوارئ.

وتشمل أنشطة الرصد والمراقبة عمليات التشاور مع الجيران والمجتمع المحلي، والتي يجب أن يتم توثيقها مع الصور خلال فترة تشغيل المحطة. إن خطة الإدارة البيئية التي تم إقتراحها اشتملت بشكل واضح على تعريف للإجراءات التخفيفية المطلوبة والجهات المسؤولة عن تنفيذ كل منها، كما اشتملت على طريقة مراقبة ورصد تنفيذ الإجراءات التخفيفية و الجهات المسؤولة عن إجراء المراقبة وكذلك عدد مرات المراقبة. كان من مسؤولية شركة المقاولات أن تقوم بكافة الإجراءات التخفيفية خلال فترة إنشاء المحطة، بينما كان على وكالة غوث وتشغيل اللاجئين أن تراقب مدى إمتثال شركة المقاولات للإجراءات المطلوبة بشكل دوري. أما فيما يتعلق بمرحلة تشغيل المحطة، فإن مسؤولية إجراء الوسائل التخفيفية تقع على عاتق مجلس الخدمات المشترك بالشراكة مع الشركاء المحليين مثل بلدية خان يونس، بينما تقوم سلطة جودة البيئة و صندوق تطوير وإقراض البلديات بمراقبة تنفيذ هذه الإجراءات، كما سيكون هناك دور فاعل للمجتمع المحلي في مراقبة أنشطة التشغيل عن طريق عقد الجان المجتمعية الخاصة بالمشروع زيارات دورية لمحطة الترحيل.

2. EXECUTIVE SUMMARY

The Municipal Development & Lending Fund (MDLF) is the delegated implementation agency for Gaza Solid Waste Management Project (GSWMP) which aims at improving the solid waste services in Gaza Strip. The key infrastructure components of the GSWMP include Khan Younis Transfer Station. The total site area is 10,000 m² with facility footprint of about 3,000 m² (65×46 m). The construction of Khan Younis solid waste transfer station is currently being implemented by UNRWA with a fund from Islamic Development Bank, whereas the Khan Younis municipality will operate it in close cooperation with the JSC KRM.

This report presents Environmental and Social Management Plan (ESMP) for the Khan Younis Transfer Station, which includes the baseline data, expected impacts, and the proposed mitigation and monitoring measures during operation phase of the Site, and it includes an environmental review of the construction phase. This site specific ESMP is an addendum to the ESIA of the GSWMP cleared in 2012. Khan Younis transfer station is an associated facility financed and constructed by UNRWA.

The environmental and social baseline data is divided into three parts:

- **Physical Environments:** including the description of the site topography, Geology, Geomorphology, Surface water, Noise, Odor, Atmospheric emissions, ambient air and quality Groundwater.
- **Biological Aspects:** including the description of fauna and flora.
- **Socio-economic Aspects:** including the description of general population and demographical indicators, Khan Younis population, waste generation, solid waste composition, community health, and transportation of waste materials,

A Public Consultation and Social Survey were used including consultation meetings, site visits, and questionnaire distributed to around 100 households that revealed of local residents is composite of marginalized and poor communities that has little information about the benefits of the transfer station.

The baseline data is mostly available in previous ESIA of GSWMP, which was conducted in 2012, an update is carried out from other sources such as documents shared by Khan Younis Municipality about groundwater quality, and recent studies about air quality in Khan Younis city, knowing that no water/air/soil tests are carried out during this study. In general, the available data is satisfactory.

The main potential impacts on physical environment, biological environment and socioeconomic aspects during the operation phase include the impacts on:

- **Solid Waste Management:** The new transfer station will have positive impact on the solid waste management process; it will facilitate the waste management in Khan Younis with less operational costs and less environmental impacts comparing with the previous situation.
- **Groundwater:** The groundwater may be affected from the collected leachate and polluted surface water that will be disposed using septic tanks because there are no wastewater networks in area.
- **Ambient air quality:** Air quality will be affected by the movement of trucks on unfinished roads during loading and unloading of wastes, emissions from rehabilitation of access roads, and migration of sand and dust from the sand dunes from the surrounding area.

- **Noise:** Noise emissions due to operation work, and increased levels of noise from the movement of vehicles and trucks movements.
- **Flora and Fauna:** At the surrounding agricultural areas, some types of vegetables and fruits were observed and need to be protected from possible contaminants migration.
- **Transportation and Traffic:** negative impacts on the transportation and traffic include disruption of traffic movement on the main roads, probability of accidents, limited increase of traffic volume by transfer trucks and waste spillage from vehicles.
- **Local community health:** High impacts will be occurred on the community health and farmers in the surrounding area, this may include, dust resulted from movement of heavy machinery, odor and gas emissions would cause nuisance to surrounding community, impacts of heavy machinery movement, the presence of pathogens, vectors and insects.
- **Worker health and safety:** This may include physical hazards from falling and injuries, risks from movement of heavy machinery, physical hazards from contact with disturbances, impacts on workers' health from contact with substances and waste.

Environmental Audit of the construction phase was also conducted in this report. Environmental review of all mitigation measures is carried out by reviewing the transfer station design done by UNRWA and related documents about waste generation in Khan Younis and waste composition, meeting the contractor and investigating about the environmental and safety mitigation measures followed during the construction phase, and conducting site visits for verification. It was found that the contractor complied with the design criteria, knowing that the design meet with the environmental requirements to mitigate any environmental impacts on the surrounding environment or the local community. The transfer station is fully closed and fenced by concrete walls, covered by steel shed, tilted by concrete ground, and a separate leachate collection system is installed.

The Environmental and Social Management and monitoring plan was proposed based on the conducted field visits, baseline environmental and social data and the interviews with MDLF, related stakeholders and questionnaire. The following is summary of the main mitigation measures for the main receptors that will be the responsibility of the Contractor:

- **Surface water and Groundwater:** Leachate collection system should be constructed and tested efficiently, and the disposal should be proper to avoid groundwater or surface water pollution, in addition to transfer wastes from the transfer station to the landfill in daily basis.
- **Ambient air quality:** Water spray of the operation site to minimize dust, control the speed of the transporting vehicles, select transportation routes to minimize dust impact on sensitive receivers.
- **Noise:** Optimize the use of machines and noisy equipment, movement of vehicles should be scheduled carefully to minimize the impact of noise from construction machinery, optimize the use of noisy machine, and use acoustic barriers as necessary if complaints from neighbors were received.
- **Transportation and Traffic:** Restrict transport trucks travel to the hours outside the rush hours, strict monitoring to the road accidents as part of the monitoring plan , conduct monitoring survey to get the feedback of roads users and address any

concerns, and other appropriate means to direct traffic safely through and around the project zone.

- **Local community health:** Inform residents and the public and commercial areas of work schedules as well as with the management plans prepared by the contractor, identify and isolate operation zones, and implement safety measures to protect people from injury and adjacent property from damage.
- **Worker health and safety:** Follow the instructions and guidance, and safety and security, provide temporary shoring as appropriate and needed, provide adequate hearing protection hard hats safety goggles brightly colored vests and other appropriate safety equipment to protect workers and visitors from injury, provide all required safety personal protection equipment, provide first aid kits on construction sites and ensure the presence of personnel with the minimum first aid skills at construction site all times, provide emergency paths and exits where needed, and wear all proper safety equipment at all times.

Monitoring activities includes document consultation with neighbors and corresponding local council, keep records and description for review and approval, taking same-point vantage photographs prior, during operation. The monitoring management plan includes the responsibility of conducting the mitigation measure, monitoring responsibility, approach of monitoring, and frequency of monitoring. It was the responsibility of Contractor to conduct all mitigation measures in the construction phase, while the UNRWA monitored the compliance with the mitigation measures frequently. At the operation phase, JSC-KRM will be responsible for conducting the mitigation measures with local partners such as Rafah Municipality. MDLF and EQA will monitor the compliance with the mitigation measures during operation of the transfer station, and regular site visits will be conducted by the community social committee to monitor the operation of the transfer station.

1. INTRODUCTION AND ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN OBJECTIVES

Transfer stations are centralized facilities where waste is unloaded from smaller collection vehicles and re-loaded into larger vehicles (including in some instances barges or railroads) for transport to a disposal or processing site. This transfer of waste is frequently accompanied by some removal, separation, or handling of waste. In areas where wastes are not already dense, they may be compacted at a transfer station. Transfer stations represent sound practice when there is a need for vehicles servicing a collection route to travel a shorter distance, unload, and return quickly to their primary task of collecting the waste. Although, transfer stations have many advantages and benefits, Transfer stations and transfer points can also cause problems for human health and the environment if they are not well managed; these problems such as potential noise, air emissions, leachate, oil leakage from the collection and transfer vehicles, and odors. So that an Environmental and Social Management Plan (ESMP) should be followed during the construction and operation of transfer stations to decrease the expected adverse impacts by applying appropriate mitigation measures.

In this study, an Environmental and Social Management Plan will be carried out for Khan Younis Transfer Station as addendum to the main Environmental and Social Impact Assessment Study for Gaza Solid Waste Management Project which was conducted in 2012 by Municipal Development and Lending Fund and approved by Palestinian Environment Quality Authority (EQA). Khan Younis transfer station is an associated facility financed and constructed by UNRWA.

1.1 Project Background

As most other public services, solid waste management services in Gaza Strip is currently under great stress. The situation has been gravest imposed due to the currently closure and economic restrictions. With support from UNRWA and other international donors, most of the municipal waste in Gaza is still being collected. With this support, solid waste collectors are assigned on a temporary basis, using mainly donkey carts and pushcarts to collect about 90% of all generated waste.

Gaza Solid Waste Management Project (GSWMP) aims at improving solid waste management services in the Gaza Strip. The key infrastructure components of the GSWMP include the sanitary landfill in Al Fukhary (Rafah governorate) with capacity to serve 3 governorates out of Gaza's 5 governorates until year 2027; and construction of three transfer stations: in Khan Younis, Rafah and Deir Al Balah.

1.2 Site Description

Khan Younis Solid Waste Transfer Station Site is located in the southern of the city. The total site area is 10,000 m² with facility footprint of about 3,000 m² (65×46 m). The transfer station is bound from the east by 18m road (structural street No. 30). The construction of Khan Younis transfer station was implemented by UNRWA, whereas Khan Younis municipality will operate it in close cooperation with JSC-KRM. Figure (1) shows the location of the transfer station.

The design components for Khan Younis transfer station, the proposed movement of incoming and outgoing vehicles and the area of unloading are presented in Figures (6) and (7). The transfer station is tiled, fenced and covered with a steel shed. It contains a separate leachate, sanitary drainage and storm water collection systems, and a storage tank for the collected leachate as shown in Figure (8), other components are:

- Ramped Entrance 50 meters long for the vehicle's unloading the solid waste that coming from Khan Younis areas.
- Unloading area with 4 meters height with Ground slab of 15cm reinforced concrete.
- Exit area for the vehicle's uploading for role on/off vehicles to transfer the solid waste to Al Fukhary landfill. This area Ground slab of 15cm reinforced concrete.
- Control and Gard room on the upper level of the site.
- Retaining wall and boundary walls.
- Roll on/off Containers, and solid waste containers area.

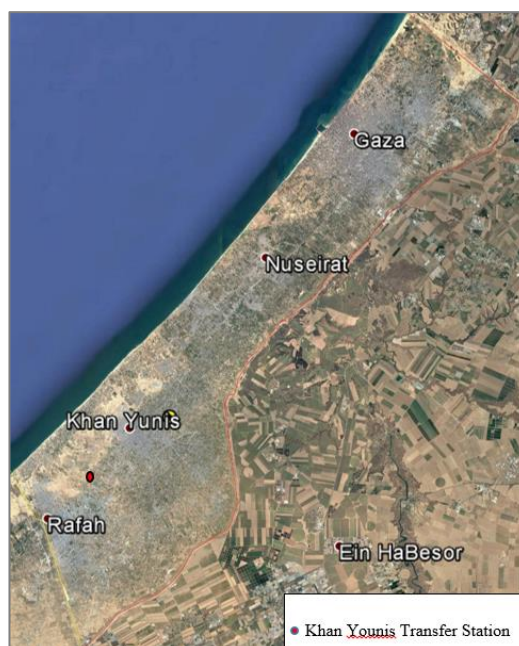


Figure 1. The location of Khan Younis TS

1.3 The Existing Situation and Surrounding Environment

1.3.1 Field Visit

Field visit was conducted by the consultant in cooperation with MDLF to the transfer station site for initial evaluation of the existing situation and the expected impacts on the surrounding residential and agricultural areas. In addition to that, a social survey was conducted through questionnaire for the residents close to the TS (less than 500 m) and residents on the main roads where the trucks movements to and from the TS will go through.



Figure 2. Khan Younis Transfer Station during construction. September 2016



Figure 3. Access road to Khan Younis Transfer Station. September 2016

1.3.2 Contractor Meeting

The as built drawings of the final constructed site were received by UNRWA. The contractor was met for investigating the construction phase duration and activities details. The contractor (Saed Sons Co. LTD.) signed the contract with UNRWA in September, 2015 to construct Khan Younis waste transfer station, but the work was not started on time due to the objection of some people in the region to construct a solid waste transfer station, MDLF, JSC-KRM, and Municipality of Khan Younis conducted some community meetings aimed to firstly, explain the scientific mechanism of waste transfer station for local community, its economic advantages, and its environmental and social concerns with possibility of the mitigation measures, and secondly, to consult with people to choose appropriate acceptable site. The public consultation was successfully crowned by choosing another acceptable site, which is about 1 km far from the initial site as seen in Figure (4)



Figure 4. Public Consultation Meeting (held by Culture and Free Thought Association on 21st of September 2015, 129 persons attended)

The construction activities lasted for 15 months included the duration of selecting a new site and delays of materials import. The construction activities started with the excavation works, backfilling of the tipping area and constructing the retention walls, passing through the casting of the foundation of the ramp and lower ground in parallel to tilting the upper tipping area (8 cm interlock) and constructing the networks of leachate, storm water, and sanitary, and finishing with constructing the steel shed and finishing works.



Figure 5. Construction of Khan Younis Transfer Station

During early construction stages, four trucks and two loaders were used mainly for excavation and backfilling the tipping area. Another JCP excavator used later for constructing manholes, and crane was used during construction the steel shed. All of the used vehicles were licensed and insured in line with the UNRWA regulations. The used construction vehicles didn't make any traffic jam due to the light use of the existing access road by people.

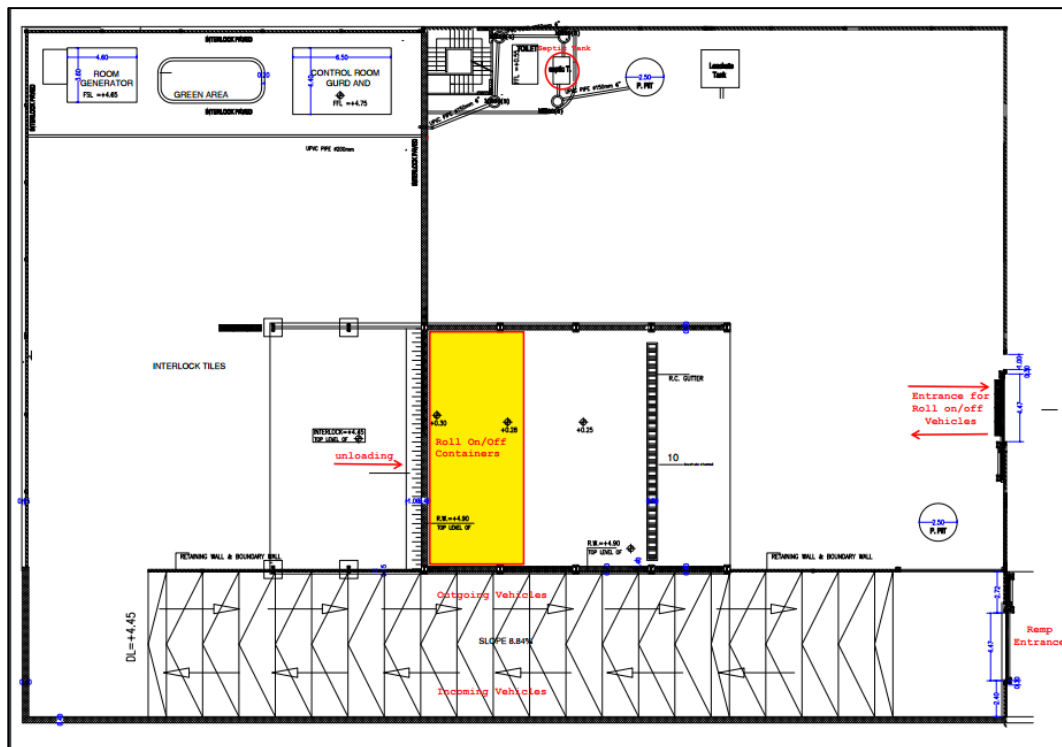


Figure 6. Layout and elevation of the transfer station in Khan Younis(UNRWA, 2016)

The contractor was committed to using the safety measures in line with UNRWA regulations during the construction phase, knowing that UNRWA supervised the construction phase. No accidents were reported in the site during construction, and no workers were injured according to the contractor testimony. The used vehicles were maintained periodically, and workers were wearing the PPE.

The construction of Khan Younis transfer station required about 7,000 m³ of soil, 800 m³ of cement, and various quantities of steel, tilting materials and base course. All of excavated soil was used in the construction with additional 400 m³ imported from the local market, the backfilling layers compacted every 25cm. The quantities of cement, steel, and base course were imported from Israel using the UNRWA System.

The transfer station included a separate leachate collection system connected with a leachate tank, the leachate collection pipes are made of PVC with 6 inches diameter, as well the sanitary collection system which is connected to the septic tank., The storm water collection pipes are made of PVC with 8 inches diameter, and connected with a percolation pit (Depth = 7 m). The area of the transfer station site is not connected to the sewerage system, and the nearest municipal water network is located about 1,300 m far from the transfer station site. The transfer station included water connection system to be used once a water source is selected. The leachate tank has a capacity of 8 m³ and was fully constructed by concrete with 25 cm depth of the base and walls and bearing (B 400). The percolation pit and septic tank were filled by aggregates and backfilled by 40 cm of gravel.

UNRWA handed over the waste transfer station in January, 2017 to the Municipality of Khan Younis. The construction period experienced delays. The work was not started on time due to number of reasons including: 1) the novelty of this type of projects in Gaza and the fact that this is the first transfer station in Gaza Strip, 2) challenges related to importing steel shed materials, and 3) the objection of some representatives from the neighborhood to construct a solid waste transfer station in their area. On the latter, MDLF, JSC-KRM, and Municipality of Khan Younis conducted community meetings that aimed to explain the scientific mechanism of waste transfer station for local community, its economic advantages, and its environmental and social concerns and the developed mitigation measures to deal with them. Secondly, the community meetings aimed to consult with local people to help in the selection of appropriate acceptable site. The public consultation resulted in a very successful outcome which is the selection of another acceptable site, which is located about 1 km far from the initial site.

Leachate will be stored in a separated leachate tank and evacuated to the Khan Younis WWTP when filled up.

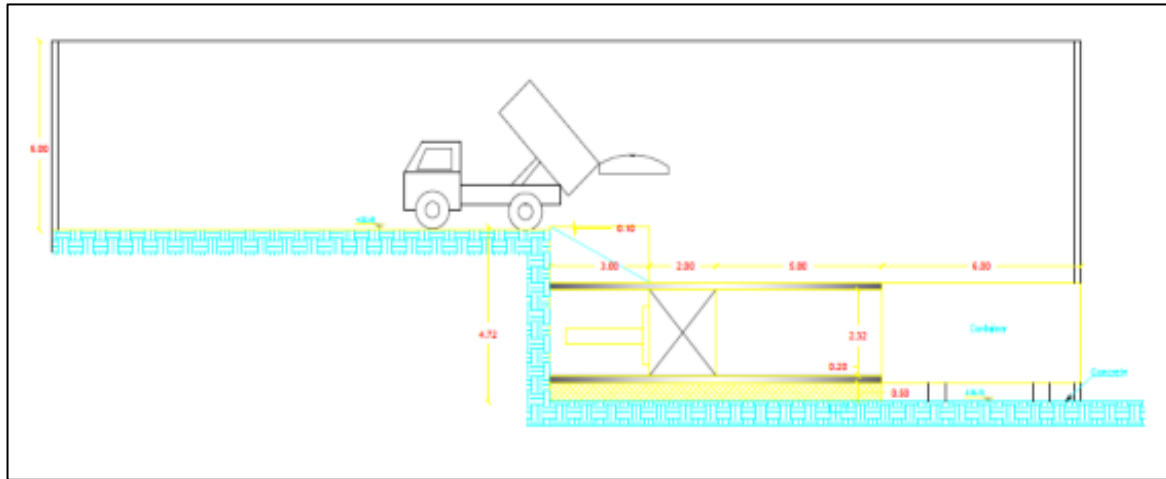


Figure 7. Cross section in Khan Younis transfer station (UNRWA, 2016)

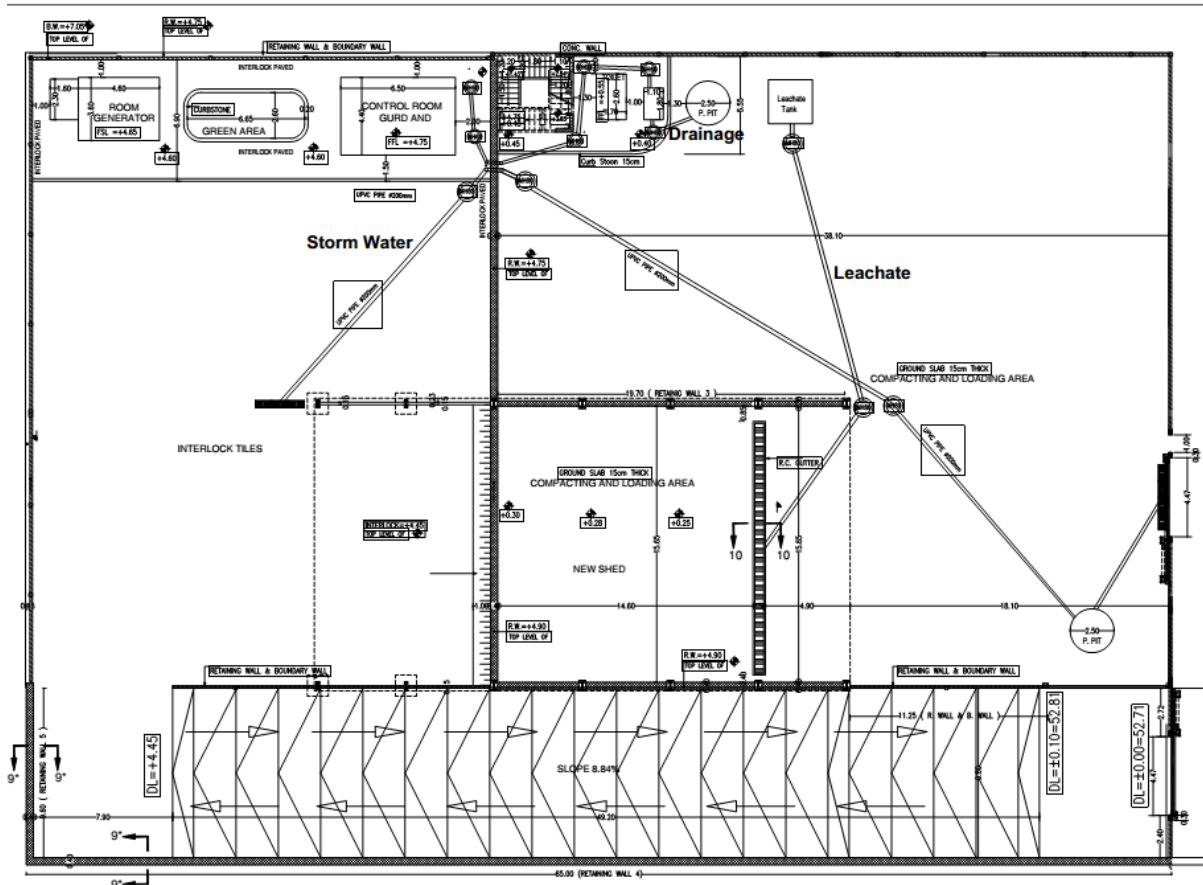


Figure 8. Networks of the transfer station in Khan Younis (UNRWA, 2016)

1.3.3 ESMP Objectives

This report is prepared for carrying out an Environmental and Social Management Plan (ESMP) for Khan Younis Transfer station. This will include the proposed mitigation and monitoring measures during operation phase of the Transfer Station, based on the existing baseline information, the conducted social survey and the expected potential impacts

significant on the physical environment, biological environment, socioeconomic, cultural and heritage and human health.

The main objectives of the study are:

- Environmental and social impacts during the operation of the proposed extension on Khan Younis Transfer Station.
- To propose mitigation measures to eliminate the environmental and social impacts for the above mentioned site.
- To develop Environmental and Social Management Plan (ESMP) for the proposed site and the necessary mitigation measures that would be considered and implemented during the operation phase.

The specific objectives of the study include:

- To be in conformity of the World Bank safeguard policies, taking into consideration the environmental and social regulations of the Palestinian Environment Quality Authority (EQA);
- To be based on information and data from field surveys and investigations as appropriate;
- Recognize the environmental and social impacts of the transfer station, recommend control, mitigation and monitoring measures to be addressed during the implementation of the Project;
- Final draft of the ESMP will be disclosed in electronic format on MDLF website; JSC Facebook page, Khan Younis Municipality website; and the World Bank InfoShop. The ESMP document in hard copy format will be available in MDLF office – Khan Younis Branch; JSC-KRM main office; and Khan Younis Municipality.

2. DESCRIPTION OF LEGAL AND INSTITUTIONAL FRAMEWORK

2.1 Description of Legal Framework

National and international guidelines for environmental assessment are reviewed in addition to the most pertinent regulations and standards governing health and safety. The following are the main laws and guidelines:

2.1.1 Local Government Law, 1/1997

According to Local Government Law no.1/1997 waste collection and disposal are the responsibility of local councils, which was clearly stated as follows:

- Waste collection from streets, houses and public areas, transportation and regulated disposal is the responsibility of the local council.
- Protection measures for safe public health shall also be taken by the council, this includes the implementation of an efficient waste collection system.
- The law provides for municipalities the possibility to form JSCs through which they can join forces and collaborate onto the delivery of municipal services including collection and disposal. Regulations to give effect to this law were adopted the following year.

2.1.2 Palestinian Environmental law 7, 1999

The Environmental Law of Palestine (PEL) includes a framework for environmental protection including SWM and sets roles and responsibilities for the EQA as follows:

- To build up a national solid waste management strategy and takes responsibility of monitoring its implementation (Article 7).
- To minimize waste generation and promote recycling and reuse. At the bottom of the waste hierarchy, waste shall be disposed of in regulated and properly selected sites (Articles 8 to 10). However, no regulations or instructions on how to implement these measures are issued to date.
- To ensure a safe disposal of hazardous wastes and to prohibit the import of such waste to Palestine (Articles 11 to 13). However, no waste acceptance criteria have been developed for hazardous wastes, no identification list for hazardous wastes has been also identified.
- To prohibit the incineration of garbage and solid waste unless performed according to Ministry's instructions and standards (Articles 23).

2.1.3 Regulations complement the Environmental Law

a. Solid Waste Management Regulations (2004)

The Solid Waste Management Regulations, issued by the EQA in 2004, are the first trial to develop regulations that aims to complement the Environmental Law, these include the following key guidelines related to waste collection:

- MSW collection is the responsibility of municipalities and village councils, as well as ensuring that this the process does not have health and/or environmental implications.
- It is prohibited to dispose of waste outside the street containers designated for this purpose. These containers should be closed and manufactured out of a metallic or similar material. The number of these containers should be sufficient and waste has to be collected at least three times per week in urban areas.
- It is the responsibility of industrial, commercial and agricultural waste generators to arrange for the collection and transport of their wastes to the designated treatment/disposal areas. This has to be pre-arranged with the authorities.

2.1.4 Joint Service Council (JSC) Regulations, 2006

The JSC regulations were issued by the MoLG in 2006, they set the managerial system and authorities for the JSCs. The work of the JSC shall be organized by the Ministry of Local Government in coordination with the councils of concern.

2.1.5 Palestinian Reform and Development Plan (2008-2010)

The Palestinian Reform and Development Plan 2008 - 2010 (PRDP) is a national plan which sets out Palestinian Authority medium term agenda for Palestinian reform and development. Among the primary objectives set out in the PRDP is "strengthen public institutions" which is of support to "good governance" as one of PA national goals. This is to increase the capacity of public sector organizations in delivering basic health services which will have a direct positive effect on the daily life of the citizens as has been stated by PRDP. This is also in line with "strengthen local government" policy and objective set out in PRDP. That is work with local government unit to empower and increase the accountability and effectiveness through intensive capacity building.

2.1.6 National Strategy for Solid Waste Management in the Palestinian Territory, 2010

The National Strategy for Solid Management in the Palestinian Territory was endorsed by the Cabinet in May 2010 and represents the first cross-sectoral strategy for solid waste in Palestine. The strategy aims at establishing the framework to all decisions, programs, activities, and mid-term investment plans to develop the solid waste sector in Palestine.

At institutional level, the strategy confirmed the urgent need to address major issues like:

- Ineffective legislative framework
- Lack of standards for various stages of SWM
- No division of tasks and responsibilities among various stakeholders
- Lack of resources (human, financial, organizational capacity) in the instates involving in SWM
- No unified system to manage data related to SWM
- No unified system to manage data related to SWM
- Insufficient public awareness in SWM issues and weakness of participation.

Among the strategy's policies are the following:

- Policy (1) – Strategic Objective 1: Development and update of the legislative framework supporting integrated SWM

- Policy (2) – Strategic Objective 1: Strengthen the organizational framework of national institutions and supporting their complementary roles in SWM.
- Policy (3) – Strategic Objective 2: Establishing an integrated, coordinated, and sustainable institutional approach to support institutional capacity building in the SWM sector.
- Policy (4) – Strategic Objective 3 : Developing the current management systems for SW collection and transport , in order to improve the quality and effectiveness of services and its availability to all citizens
- Policy (5) – Strategic Objective 3 : Safe and efficient disposal of SW in regional sanitary landfills servicing all communities
- Policy (6) is concerned with diverting waste from landfills through waste minimization, reuse and recycling. The MoLG shall play a vital role as the key executing party for achieving most of the strategic objectives. This shall be considered in any new institutional set-up for SWM in GS. The municipalities in GS are the main parties responsible for the SWM at all stages including primary collection, secondary collection, and landfill management.
- Policy (7) – Strategic Objective 3 : Prohibiting the use of random dump sites and closing or rehabilitating the existing sites to limit their environmental and health risks.

Monitoring the implementation of the solid waste management strategy has been assigned to the national team for solid waste management by a Ministerial Council Cabinet Decision in 16 May 2010. This is the steering committee which develops the solid waste management strategy and is chaired by the Minister of Local Government. Policy (14) of the strategy promotes private sector participation in SWM projects.

2.1.7 Laws Relevant to Private Sector Participation in the Solid Waste Sector

The Investment law: As stipulated in this law, financial incentives are given in the form of tax reductions to companies which have a capital exceeding 100,000 USD. Solid waste management projects may also benefit from these tax reductions but upon approval from the Ministerial Cabinet. This approval process is not required from other projects.

The Local Authority Law: The law gives the right for the Local Government Units (LGUs) to sign contracts with private sectors to participate in SWM projects but only for a period of less than three years. Projects of more than three years require an approval from the Minister of Local Government.

2.1.8 Land Ownership Law 3, 2011

- Law 3 Year 2011 concerns with land ownership, acquisition and compensations. This law comes to amend Law 2 Year 1953. The law considers all the regulations and procedures related to the acquisition of private land for the purpose of public interest projects. It defines the meaning of public interest projects and presents the entitlements requirements including land registries and ownership documents needed to prove the affected person entitlement to compensation. It also regulates the cases where disputes over ownership may occur.

2.1.9 Projects Approval Requirements

Article 45 of the PEL; “The Ministry (EQA), in coordination with the competent agencies, shall set standards to determine which projects and fields shall be subject to the environmental impact assessment studies. It shall also prepare lists of these projects and set the rules and procedures of the environmental impact assessment”.

Article 47 of the PEL states that; “The Ministry (EQA), in coordination with the competent agencies, shall determine the activities and projects that have to obtain an environmental approval before being licensed. This includes the projects that are allowed to be established in the restricted areas”.

According to the PEL and the Palestinian Environmental Assessment Policy (PEAP) which was approved through resolution No: 27-23/4/2000, the project proponent must first obtain an initial approval from the appropriate ministry or local planning committee. The proponent then submits an application for environmental approval to the EQA. The EQA notifies the appropriate permitting authorities that an application for environmental approval has been received. The application should also list what environmental and other permits must be obtained and complied with, indicate how the expected conditions of these permits will be fulfilled, and include a signed statement by the proponent that these conditions will be fulfilled.

Based on the application submitted to the EQA, screening criteria are used to determine whether an initial environmental evaluation would be sufficient for the project of concern or whether a comprehensive EIA is required. Under these screening criteria, the GSWMP falls under the category of major projects and therefore it is required to submit an EIA. An Inter-Ministerial Committee is formed to approve the EIA, following which an environmental clearance is given to the project. The EQA is expected to liaise with the institutions of concern with respect to the project.

2.1.10 Role of the Environmental Assessment (EA) Inter-Ministerial committee in EIA approval

The project owner must first seek an initial approval from the competent authority on the proposed project.

- After obtaining initial approval from the competent authority, the project owner must apply for an environmental approval from the MEnA branch offices.
- An initial environmental assessment shall be conducted in order to approve/reject the proposed location for the project.
- The project shall be compared against the newly proposed classification systems. Then it is determined whether or not the project will need an initial environmental assessment or a full EIA study.
- For an initial environmental assessment, the feedback shall be given in a period of 14 business days. For a full EIA study, the EIA report shall be revised by the branch office, environmental protection department, environmental assessment

department, environmental approval department. The feedback shall be given within 21 business days.

- Upon approval of the EIA study, copies of the report will be distributed on the environmental assessment committee in the different ministries and relevant authorities. The EA committee shall discuss the EIA report and give recommendations.
- The recommendations of the inter-ministerial EA committee shall be addressed in a period of maximum 28 business days. The EA committee will review again the final version and send feedback in period not exceeding 21 business days.

An Environmental Approval may specify:

- Required measures to mitigate adverse environmental impacts or capture potential environmental benefits, including a compliance schedule. This may include land compensation measures issued by the Higher Planning Council after reviewing the project. The procedures involve the Ministry of Finance, the MoLG and municipalities of concern.
- Measures that the proponent must implement in order to comply with relevant standards and requirements.
- Monitoring and reporting duties of the proponent.

The project proponent shall express the commitment to the standards and requirements for the protection of the environment and to apply all the required mitigation measures addressed in the EIA. As well as, ensuring the legal commitment towards the EIA.

2.1.11 World Bank Safeguard Policies and Guidelines

The World Bank (WB) has ten environmental and social policies referred to as the Bank's "Safeguard

Policies". As according to the WB Operational Policy on Environmental Assessment (OP 4.01), an environmental and social category is assigned to an investment project after appraisal and before public disclosure during the International Finance Corporation project/investment cycle. Projects are assigned a category of A, B, or C, in descending order of environmental and social sensitivity. The Gaza Solid Waste Management Project (GSWMP) falls under the environmental Category (A) which includes landfill subprojects. These types of projects require a detailed ESIA and should include the following:

- Environmental and social baseline describing the existing environmental and social conditions prior to the project being constructed and operating.
- Identification of potential environmental and social impacts resulting from the project of concern.
- Comparison of alternatives sites, scenarios, technologies and designs.
- Mitigation Plan for potential impacts including monitoring.

Among the remained nine safeguard policies of the WB, other four policies are relevant to the GSWMP and these are listed and discussed below:

Involuntary Resettlement (OP 4.12)

The WB Operational Policy OP 4.12 on Involuntary Resettlement deals with involuntary resettlement in wider terms than the physical displacement of people due to development projects. It rather considers individuals who might be subjected to other sorts of adverse economic impacts on their livelihoods. The overall objectives of the Bank's policy on involuntary resettlement are:

- Involuntary resettlement should be avoided where feasible, or minimized, exploring all viable alternative project designs;
- Where it cannot be feasibly avoided, resettlement activities should be conceived and executed as sustainable development programs, providing sufficient investment resources to enable the displaced persons to share the project benefits.
- Displaced persons should be meaningfully consulted and should have opportunities to participate in planning and implementing resettlement programs and compensation measures; and,
- Displaced persons should be assisted in improving their livelihoods and standards of living or at least in restoring them, in real terms, to pre- displacement levels or to levels prevailing prior to project implementation, whichever is higher.

The World Bank's Policy on Access to Information

This policy details the Bank's requirements for making operational information available to the public. The Bank reaffirms its recognition and endorsement of the fundamental importance of transparency and accountability to the development process. In addition, timely dissemination of information to local groups affected by the projects and programs supported by the Bank, including non-governmental organizations, is essential for the effective implementation and sustainability of projects.

Underlying the policy is the principle that the World Bank (namely the International Bank for Reconstruction and Development and the International Development Association) will disclose any information in its possession that is not on its list of exceptions.

The policy also outlines a clear process for making information publicly available and provides a right to appeal if information-seekers believe they were improperly or unreasonably denied access to information or there is a public interest case to override an exception that restricts access to certain information.

Natural Habitats (OP 4.04)

The WB does not finance projects that degrade or convert critical habitats. Effects on noncritical habitats would be tolerated only if no alternatives are available and if acceptable mitigation measures are in place. It is essential to apply a precautionary approach to natural resource management to ensure opportunities for environmentally sustainable development.

Physical Cultural Resources (OP 4.11)

Many physical cultural resources are not documented, or protected by law, therefore, it is important that a project's potential impacts on physical cultural resources be considered at the earliest possible stage of the project planning cycle. Consultation is an important means of identifying such resources, documenting their presence and significance, assessing potential impacts, and exploring mitigation options.

The task team (TT) advises the borrower on the provisions of OP 4.11 and their application as an integral part of the Bank's environmental assessment (EA) process as set out in OP/BP 4.01, Environmental Assessment. The steps elaborated below follow the project cycle processes of screening, developing terms of reference (TORs) for the EA, preparing and reviewing the EA report, and project appraisal, supervision and evaluation.

Environmental, Health, and Safety (EHS) Guidelines follow the IFC performance standard 3. General EHS Guidelines: Environmental Waste Management address Industry Sector Guidelines including waste management facilities. Facilities that generate and store wastes should practice the following:

Facilities that generate and store wastes should practice the following:

- Establishing waste management priorities at the outset of activities based on an understanding of potential Environmental, Health, and Safety (EHS) risks and impacts and considering waste generation and its consequences.
- Establishing a waste management hierarchy that considers prevention, reduction, reuse, recovery, recycling, removal and finally disposal of wastes.
- Avoiding or minimizing the generation waste materials, as far as practicable.
- Where waste generation cannot be avoided but has been minimized, recovering and reusing waste
- Where waste cannot be recovered or reused, treating, destroying, and disposing of it in an environmentally sound manner

2.2 Description of Institutional Framework

2.2.1 Palestinian Environment Quality Authority (EQA)

EQA has developed the Palestinian Environmental Strategy (PES) 2000-2010, with the objective to identify and analyze the main environmental problems and their causes in Palestine, to define environmental targets and to present series of prioritized measures that will lead to reaching these targets. The implementation of the strategy requires the monitoring of the environmental conditions in the Palestinian territories and the enhancement of public awareness of the people regarding environmental protection and conservation. EQA is primarily concerned with the development of regulations, strategies, management plans and monitoring programs, with an aim of sound use and conservation of the environmental resources in Palestine. EQA is also responsible for approving the Environmental Impact Assessments for solid waste projects. One other major role and responsibility that EQA emphasizes upon is public awareness promoted through educating and training environmentalists and the public.

2.2.2 Solid waste Joint Service Council for Khan Younis, Rafah and Middle Area (JSC KRM)

In 2010, the Palestinian Cabinet issued a Decree to endorse a National Strategy for Solid Waste Management (2010 – 2014), which emphasized the development of regional sanitary landfills, to be managed by waste management JSCs established according to principles of economy of scale, cost efficiency and sustainability. The majority of dump sites in Gaza have now exceeded their capacity and there is an impending threat to water aquifers and the wider environment. In January 2012, UNDP completed a “Feasibility Study and Detailed Design for Solid Waste Management in the Gaza Strip”. In 2014, this was developed into a SWM Plan for Gaza Strip which foresees support to both infrastructure development and institutional strengthening. This package of support is tied to the integration of Gaza Municipalities into NG-SWC and Rafah Municipalities into MG-SWC (including land acquisition and development of a new sanitary landfill in Al Fukhari Municipality plus transfer stations and waste management equipment). In 2012 Rafah signed up to join what has been renamed the “Joint Service Council of solid waste management for the governorates of Khan Younis, Rafah and Middle areas- JSC KRM” this council included 17 local authorities. In addition, UNRWA has been providing waste services for camps while UNDP has occasionally been involved in the delivery through primary and secondary collection on behalf of Municipalities with limited capacities (UNDP, 2015). JSC KRM is responsible for secondary collection and final disposal of the solid waste

2.2.3 UNRWA

UNRWA is serving the whole refugee population which comprises around one third of GS population. UNRWA is responsible for the primary and secondary collection and disposal of waste inside the refugee camps only. They are offering the service free of charge to the refugees living inside the camps. UNRWA is paying for the municipalities for the cost of waste disposal at the dumpsites. The interview conducted with UNRWA, Gaza City revealed that UNRWA pays USD 4.5/ton for waste disposal at Johr al Deek and Deir El Balah dumpsites and USD 3.5/ton for waste disposal at Rafah dumpsite. UNRWA deposits an average of 180: 200 ton/ day.

2.2.4 Khan Younis Municipality

Khan Younis municipality provides solid waste management services to its inhabitants in addition to the JSC KRM for the secondary collection and final disposal. It makes use of 70 workers employed by the municipality for waste collection, who are engaged in door-to-door waste collection largely on a daily basis. In addition, 55 workers are employed through external donor employment programs.

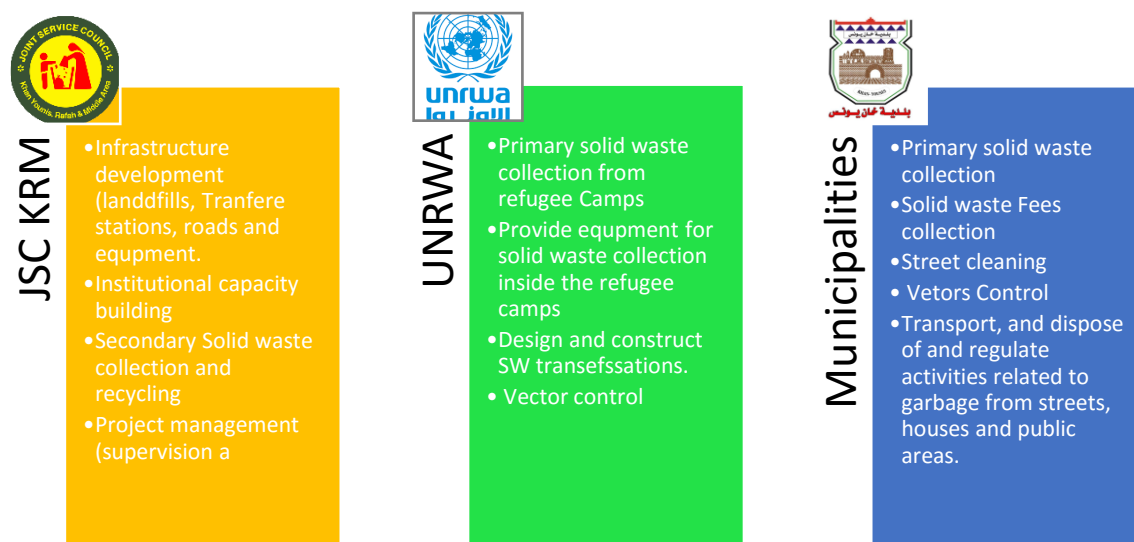


Figure 9. Institutional setup for solid waste management in General

2.2.5 Municipal Development and Lending Fund (MDLF)

MDLF is implementing the GSWMP in the Southern region of Gaza with its financing partners: the France Development Agency (AFD), the European Union (EU), and the World Bank in addition to the Kingdom of Sweden. UNDP and IsDB (through UNRWA) is contributing to the overall Gaza Strip programmatic approach with focus on Gaza and North Gaza Governorates and on short-term measures, primary collection, and the construction of one transfer station (by IsDB/UNRWA) in the Southern region (Khan Younis).

The objective of the project is to improve solid waste management services in the Gaza Strip. This objective would be met through the provision of more efficient, environmentally and socially sound waste disposal systems, and by initiating measures to improve Gaza and the West Bank's overall solid waste management system. The following are the project Development Objective (PDO) Level Results Indicators.

- Percentage of solid waste collected from the targeted population, disposed in a new sanitary landfill developed under the project.
- Percentage of increase in fees collected annually within the member municipalities forwards cost recovery.
- Number of people in urban areas with access to regular solid waste collection under the project.
- Number of waste pickers whose lives depend on the existing solid waste context and who are integrated into livelihood and social inclusion programs under the project.
- Contaminated land or dump-sites closed and rehabilitated under the.
- Direct project beneficiaries (number) of which females (percentage).

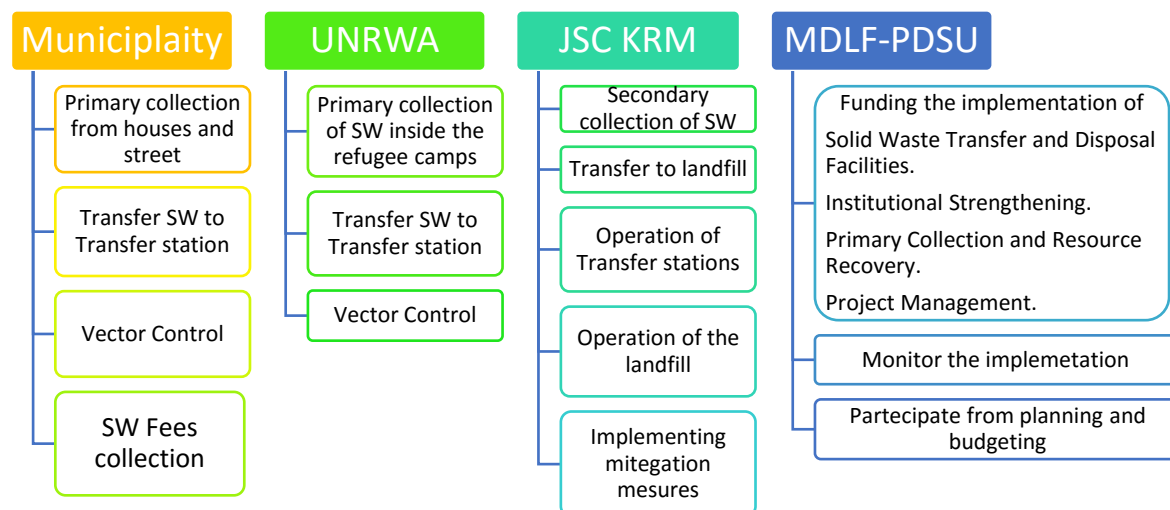


Figure 10. Institutional setup for Solid waste Transfer station management

3. ENVIRONMENTAL AND SOCIAL BASELINE CONDITIONS

Most of the environmental and social baseline data were available in the ESIA of the GSWMP¹. The environmental baseline data that were studied include: meteorologically conditions; ambient air quality; soil characteristics; geological survey; water resources; geophysical survey and fauna and flora, whereas the social baseline data studied the neighboring communities of the temporary waste storage site in Al Namsawi neighborhood, Khan Younis city. The interviews and consultation activities conducted in 2012 as part of the ESIA revealed that local residents are suffering from odor and inconvenience resulting from the practice of burning waste on-site, the increase of rats, mosquitoes and flies in Al Namsawi waste storage site.

An update has been addressed in this report to show that Al Namsawi waste storage site is completely closed and cleaned while the Khan Younis transfer station of this study is located around 1 km of the closed site at Al Namsawi. The update has been done mainly for physical and socio-economic aspects such as updating the ambient air quality and ground water quality, etc. Consultation meetings were conducted in 2015 arranged by Khan Younis municipality, UNRWA, MDLF and JSC KRM in the presence of the local community, and local NGOs.

Moreover, under this study, structured questionnaire was undertaken to collect primary data directly from surrounding local community in order to garner their perceptions about the project's predicted impacts. Other important tools included under this study are informal/unstructured interviews with the contractor.

2.3 Physical Aspects

Topography

Gaza Strip topographical area is characterized by, elongated ridges and depressions, dry streambeds and shifting sand dunes. The ridges and depression generally extend in a NNE-SSW direction, parallel to the coastline. They are narrow and consist primarily of sandstone (Kurkar). In the south, these features are tending to be covered by sand dunes. Land surface elevation in the southern governorates of the Gaza Strip (Khan Younis and Rafah Governorates) ranges from zero meter to about 100 m above mean sea level (AMSL), as shown in Figure (11).

¹ Environmental and Social impact assessment (ESIA) for Gaza Solid Waste Management Project:
http://www.mdlf.org.ps/Files/Docs/GSWM%20ESIA_FINAL_19sep2012.pdf

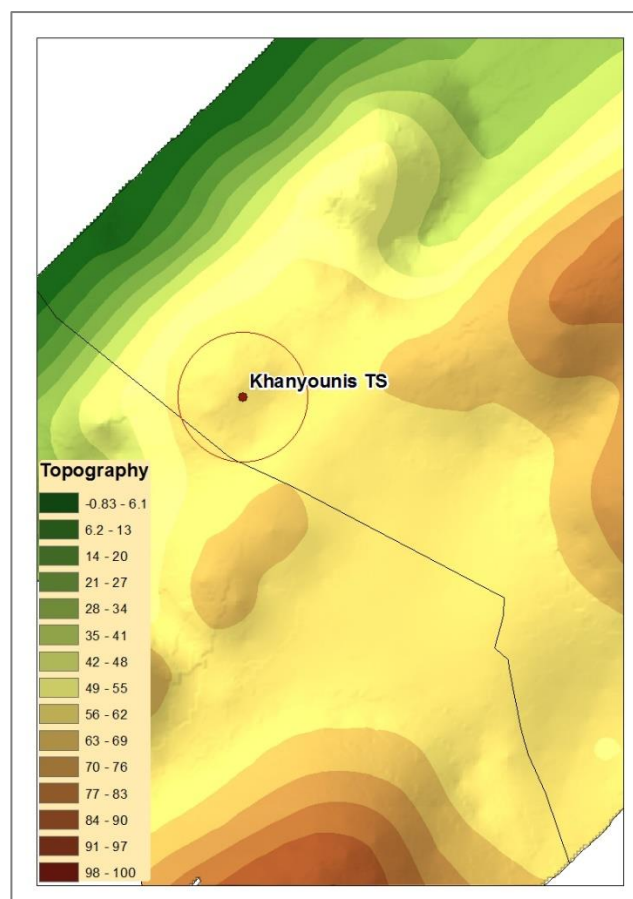


Figure 11. Topography map

The ridges and depressions show considerable vertical relief, in some places up to 60 m. Surface elevations of individual ridges range between 20 m and 90 m AMSL. Two high ridges appear on the topography map in the southern Gaza strip. Khan Younis Transfer station located in Al Namsawi Area which is 30 to 45 m AMSL as shown in Figure 10 above.

Geology and Hydrology

Gaza aquifer is part of the regional coastal aquifer, which lies along the southeastern edge of the Mediterranean Sea and extends from the foothills of Carmel Mountain southward to Gaza and northern Sinai (Figure 12). It is composed calcareous sandstone, unconsolidated sands, and layers of clays. In the Gaza Strip, the aquifer extends about 15-20 km inland, where it overlies chalks and limestone or the Sakiye Group. The Sakiye Group is a 400 to 1000m thick sequence of marls, marine shales, and clay stones.

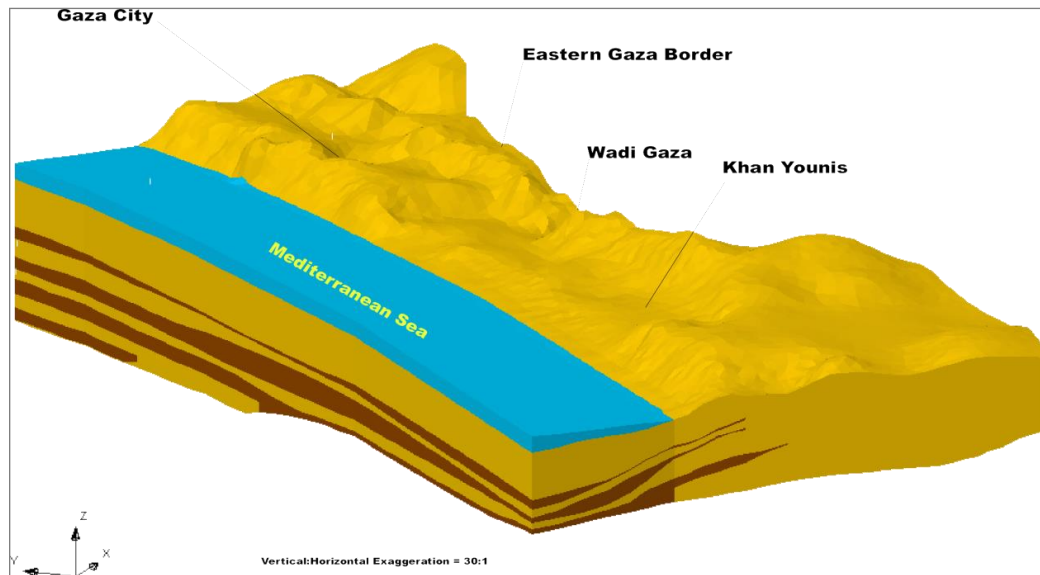


Figure 12. Geological presentation of the Gaza Strip

The ground mainly exists of sandy and silty materials. Drillings led to the following results:

- The first soil layer encountered is Clayey Silts (ML) with a depth varying from 0 – 10 m. The average water content is 10%
- The second soil layer, encountered is a Fine Sands (SP) up to depth of 11 m. The average water content is 5%
- Third soil layer with a thickness of two meters is Clayey Silts (ML) and started from depth from 11 m up to 13 m. The average water content is 13%
- The fourth soil layer, is a silty Sand (SM) from 13 m deep up to 18 m deep. The average water content is 7%.
- The soil type in the fifth layer is Silt-Clay-Sands Mixtures and started at depth started from 18 up to 21 m. The average water content is 5.3%.
- The sixth soil layer is gravelly Sands from a depth 21 up to 26 m. The average water content is 5.3%.
- The seventh layer is silty Sands from 26 m up to depth of 29 m. The average water content is 10%.

Soil

The soil in the Gaza Strip is composed mainly of three types, sands, clay and loess. The sandy soil is found along the coastline extending from south to outside the northern border of the Strip, at the form of sand dunes. The thickness of sand fluctuates from two meters to about 50m due to the hilly shape of the dunes. Along the coast there is a zone of varying thickness with rather uniform dune sands 20 to 40 meters in depth while more inland there are zones consisting of loess loamy soils. The sand dunes extend up from 4 to 5 km inland, and are wider in the north and in the south than in the center. Further inland to the east, the soil becomes less sandy with more silt, clay, and loess.

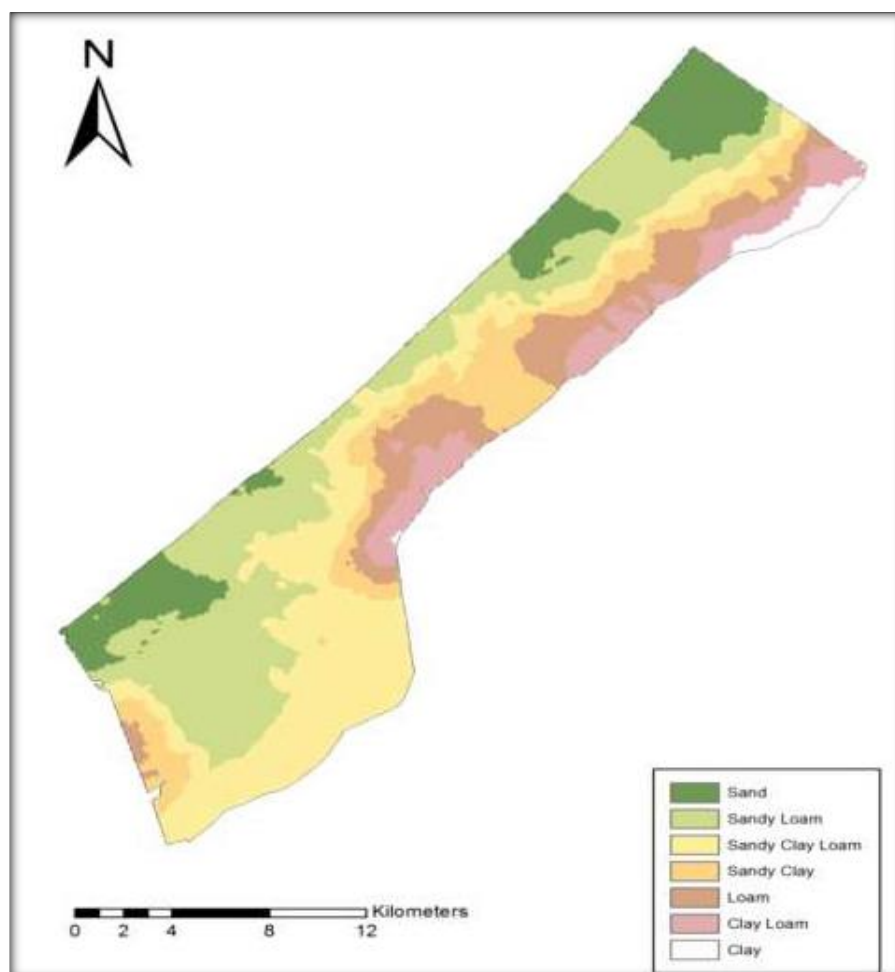


Figure 13. Soil Texture

Most of the Gaza Strip areas are covered by quaternary soil of alluvial clay and silty clay deposits increasing in depth toward the east with a maximum thickness of 25 meters. Loess soils cover some of the south eastern areas of Gaza strip and valley floors. As shown in the above Figure (13), the soil texture of Khan younis Transfer Station site is mainly sandy to sandy loam.

Groundwater

Groundwater Level

Ground water is the most precious natural resource in the Gaza Governorates as it is the only source of water supply for domestic and agricultural use. Under natural conditions, groundwater flow in the Gaza Strip is towards the Mediterranean Sea, where it discharges to the sea. However, pumping over 50 years has significantly disturbed natural flow patterns. Large cone of depression was formed in the south where water levels reach 18 m below mean sea level near Khan Younis TS as shown in Figure (14).

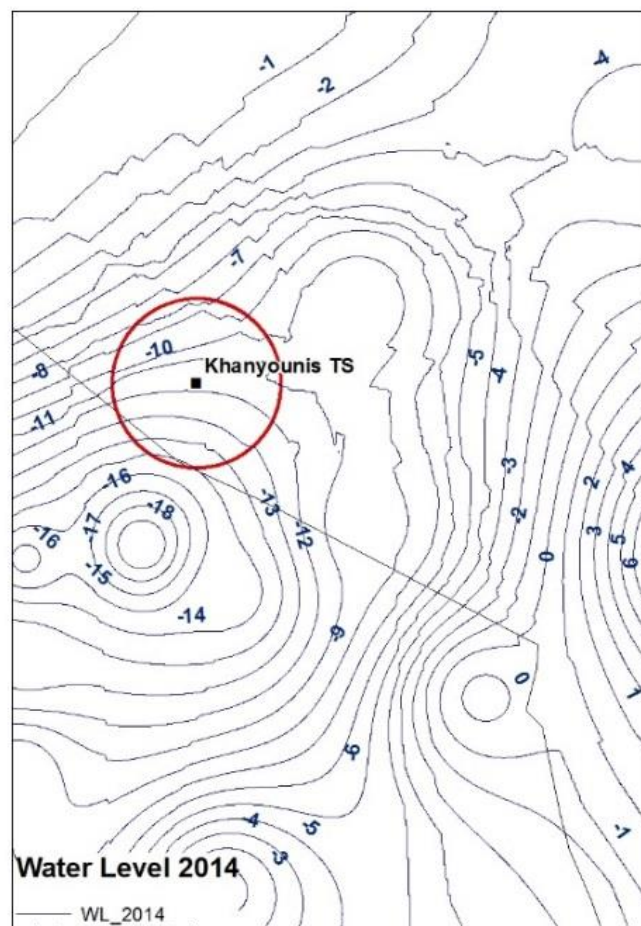


Figure 14. Groundwater Level (PWA, 2014)

Groundwater Quality

Water quality of the coastal aquifer underlying Gaza has deteriorated harshly. The main groundwater quality problems are elevated chloride and nitrate concentrations. Chlorides are indication of the water salinity, and nitrates are indication of the presence of organic fertilizers, wastewater, sewage sludge and artificial fertilizers. In this report the water quality is reviewed with respect to chloride and nitrate. For simplicity, the reference level over which the water is to be considered a source and under which the water is to be considered a sink is set as follows based on the World Health Organization drinking water guidelines:

- 50 mg/l for NO_3
- 250 mg/l for Cl^-

PWA with coordination with MoH analyzes groundwater samples for a set of chemical parameters which includes Cl^- and NO_3 in addition to other parameters. Figures (15) and (16) show the Chloride and Nitrate concentration respectively in the groundwater of Khan Younis and Rafah Governorates for the year 2015.

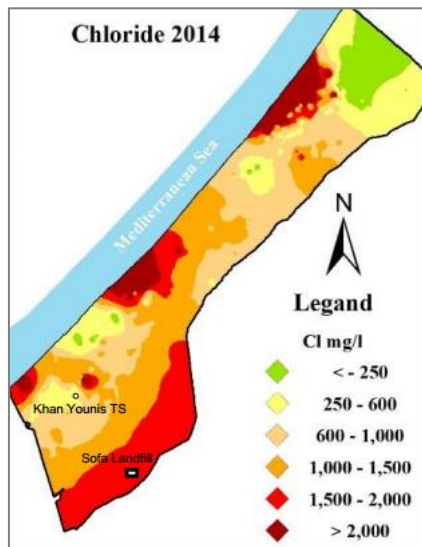


Figure 15. Chloride concentration in (PWA, 2014)

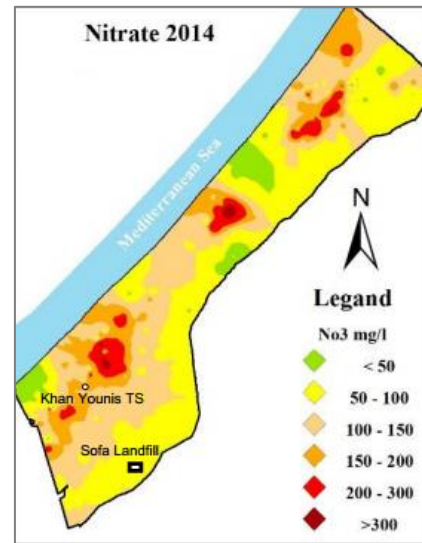


Figure 16. Nitrate concentration in (PWA, 2014)

From the above Figure (15), the chloride concentration of the groundwater in the site of Khan Younis Transfer station is varying from 250-600 mg/l, in which Nitrate is varying from 150-200 mg/l as shown in Figure (16).

Groundwater Wells

Khan Younis municipality owns 34 municipal groundwater wells, only 29 of them in service to cover all the city. The nearest groundwater well (Al Naem well) is about 1,300m far from the new constructed transfer station. There is no groundwater wells within radius 1,000 m of the transfer station site. Figure (17) shows the distribution of the groundwater wells in the city.

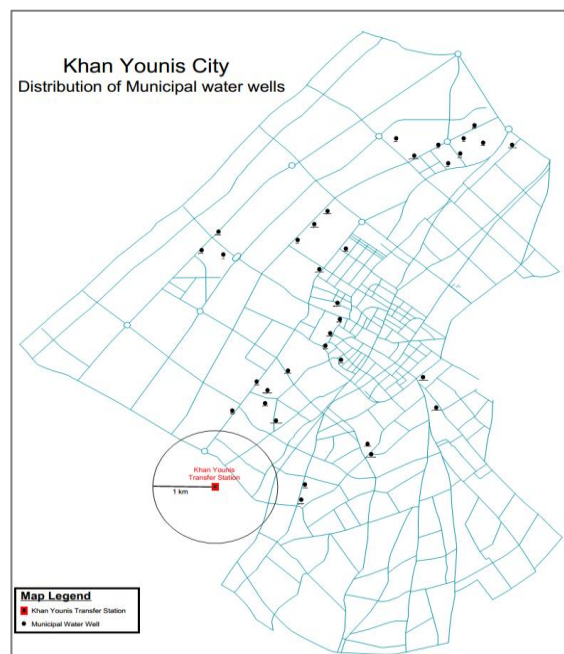


Figure 17. Groundwater wells distribution in Khan Younis city (Municipality of Khan Younis, 2016)

Surface Water

Three small Wadies (Gaza, Beit Hanon and Salqah) cross the Gaza Strip from east to west but have little water in winter and dry in summer. Before 1976, flooding in the Gaza valley caused the closure of the main (North-South) Gaza highway for few days each year. Wadi Al Salqah which is crossing Deir Al Balah city, the estimated distance is more than 20 km to the north.

The potential for increased risk of flooding is not applicable as there is no big surface water catchment area in the vicinity of Khan Younis Transfer Station. However, there is potential for occasional surface water flows during the winter/wet season.

Ambient Air Quality

According to available information, the issue of air pollution in the Gaza Strip is attributed to the density of motor vehicles, and especially to the number of old vehicles.

Toxic gases, including Sulphur Dioxide and Carbon Monoxide, which harm the respiratory system, are released into the air as a result of the use of the large numbers of people who run home generators to compensate the shortage in electricity caused by Gaza's inability to run its power plant full-time due to the acute shortage of fuel. It is estimated that there are about 100,000 of these generators in use and that they consume about 500,000 liters of fuel per day (Birzeit University, 2016). The following Figure (18) shows the variation in SO₂ concentration in Gaza

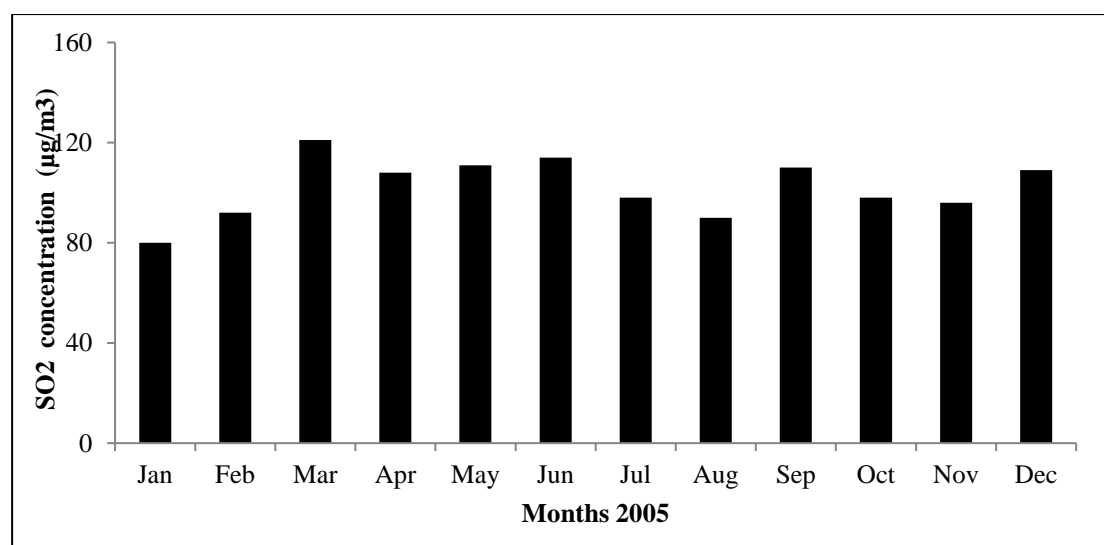


Figure 18. SO₂ Concentrations in Middle Zone of Gaza in 2005 (EPRI, 2016)

Figure (19) shows a comparison for NO_x concentrations between Gaza Strip governorates, which indicates that Gaza City has the highest concentration of NO_x as it is the most populated area in the Gaza Strip. On the other hand, Khan Younis governorate has the lowest NO_x concentration which is about 18 µg/m³.

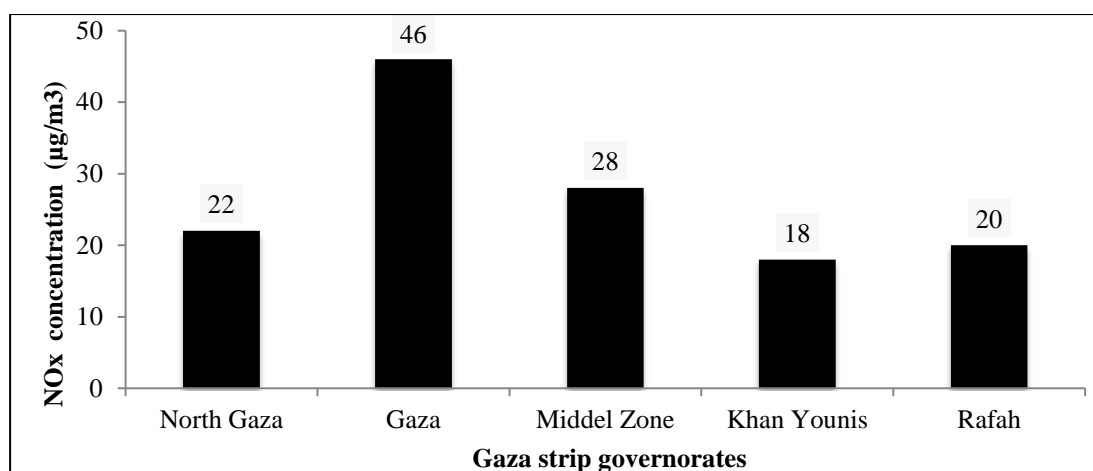


Figure 19. NOx Concentrations in several Gaza Governorates in 2015 (EPRI, 2016)

The nearest measured concentrations of Carbon Monoxide (CO) and Suspended Particle Matter (SPM) air samples taken in 1997 at the market in Khan Younis city center (about 5 km from the transfer station). Concentration results are presented in Table (1) (preliminary EA study in 1997). The market is regarded as a high area for air pollution in the governorate. No recent air quality measurements were found nearest the transfer station.

Table 1. Results of air quality survey (source: UNDP/PAPP, 2009)

		Sat.	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.
SPM (µg/m³)	Upper *	0.05-0.25	0.2-0.1	0.1-0.5	0.1-1	0.1-1	0.2-0.4	0.05-0.25
	Lower**	0.1	0.5	0.3	0.4	0.4	0.15	0.15
CO (µg/m³)	Upper	0-5	0-10	0-10	0-20	0-10	0-10	0-10
	Lower	1	2	2	4	2	1	2

*Upper value: ppm/1 hr average for SPM and ppm/8 hr average for CO

**Lower value: Daily average of measured values.

Noise

The proposed project site is located in open rural areas with no industrial activities undertaken in the vicinity of the sites. Major noise sources site are basically the traffic volume and natural sources, such as the occasionally strong winds. The nearest noise measurements were taken in 2012 in Al Namsawi previous random dump site, Khan Younis waste transfer station site is located in the same region with distance no more than 2 km. The lowest noise level being measured was 51dB recorded at around 3pm, and the highest was 67dB recorded at around 12pm. The mean daily value was 66dB, standard deviation of 12dB. No noise measurements were taken inside the transfer station. However, the physical observations show low noise levels.

Metrological Conditions

Climate

The proximity of the Mediterranean Sea has a moderating effect on temperatures and promotes high humidity throughout the year. There are two well defined seasons: the wet season starting in October and extending into April, and the dry season from May to September. Peak months for rainfall are December and January. There is an abundance of sunshine in Khan Younis Governorate with an average radiation of 5000 – 7500 kcal/m²/day in the summer. The mean annual solar radiation amounts to 2200 J/cm²/day. (PCBS, 2016)

Temperature

The average daily mean temperature in Gaza Strip ranges from 25 0C in summer to 13 0C in winter, with the average daily maximum temperature range from 29 0C to 17 0C and the minimum temperature range from 210C to 9 0C, in summer and winter respectively (PCBS, 2016)

Humidity

The daily relative humidity fluctuates between 65% in daytime and 85% at night in summer and between 60% and 80% respectively in winter (PCBS, 2016).

Wind

Figure (20) shows the average wind speed from 1997 till 2007. There is a considerable variation in the wind speed during the daytime, and the average maximum wind speed velocity is about 3.9 m/s. Storms can occur in winter when maximum wind speeds reach about 18 m/s. In winter the prevailing wind direction is SW with an average speed of 4.2 m/s and during summer the prevailing winds are from the NW sector (MENA, 2001).

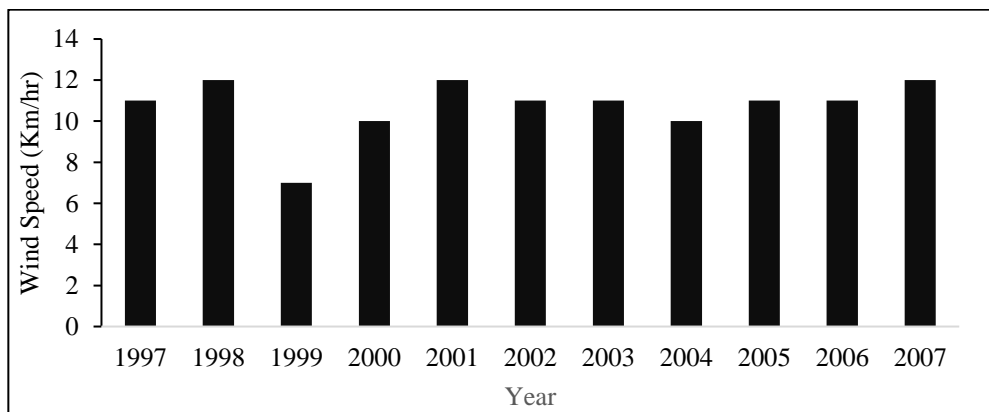


Figure 20. Average wind speed for year 1997-2007 in km/h

Precipitation

Rainfall during the season 2015-2016 is 352 mm on average for the hole strip and 236. Rainfall is unevenly distributed and varies considerably by governorates from the North to the South. The average rainfall is calculated over the period 2015-2016 for 3 stations: Deir

Al Balah, Khan Younis and Rafah rainfall stations. Figure (21) shows an average precipitation of 256-273 mm in the site of Khan Younis Transfer Station.

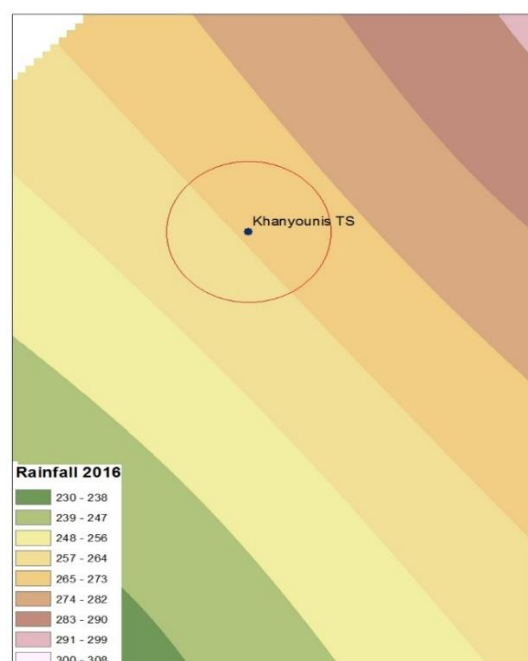


Figure 21. Annual Average Rainfall Data for Khan Younis and Rafah Governorates

Land Use and Urban Planning

Most of the populations in the southern part of Gaza (mainly Rafah and Khan Younis governorates) are living in very dense built-up areas with lack of basic facilities, services and infrastructures. The built-up areas include almost all areas used for human settlements, such as residential, commercial, industry, public and private service, public open space etc. as shown in following Table (2).

Table 2. Land use category in the Gaza Strip, Source : IUG, 2014

Land Use Category	Area_km ²	% of the total area
Built-up areas	91.51	24.87
Citrus orchards	36.45	9.90
Greenhouses	8.14	2.21
Horticulture	17.74	4.82
Mixed agriculture	113.30	30.79
Natural vegetation/rainfed	16.01	4.35
Olives	48.13	13.08
Sand	35.39	9.62
Water	0.87	0.24
Total Area of Gaza	367.54	

Studying the Regional Plan of Gaza Governorates 2005, Urban development areas are to include land for most of the required purposes; residential, manufacturing industry,

commercial, public and private services, without further subdivision, which will be undertaken through local planning processes.

The land is scarce and the pressure on it is increasing rapidly for all kinds of uses; urban, industrial, and agricultural uses. Agricultural land occupies about 72 km², which is about to 65% of the total area of the Khan Younis governorate. It is expected that future expansion will be for the domestic use only (PCBS, 2016).

On June 8, 2016, the session of the Central Committee for Buildings and Organization of Cities No. 11 of 2016 had authenticated changing the use of assigned land parcel (No. 3 of parcel 2375) from agricultural use to public purpose (transfer station for solid waste) as shown in Figure (22) and more details in Annex 2.A It sets out the notice procedures for any complaints according to the announcement issued by the Central Committee published in two journals (Palestine and Al Hayat) on Feb. 01, 2016 as of the article (18) of the Cities Regulation Law. A decision issued and the announcement of changing the land use from agricultural to solid waste transfer station as shown in Annex 2.B.

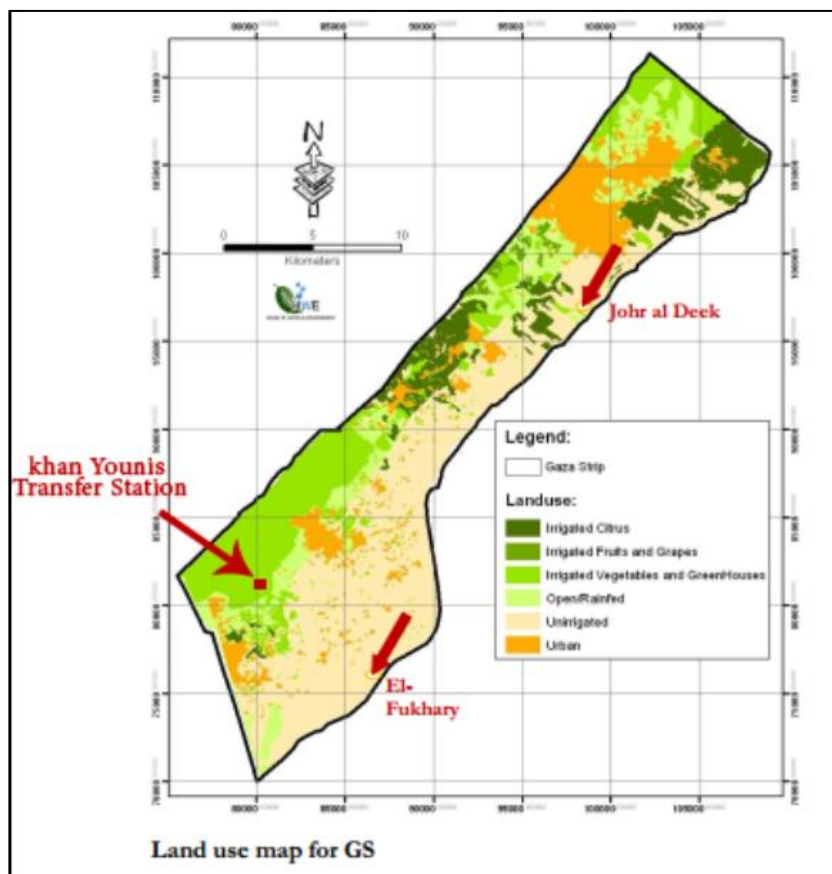


Figure 22. Gaza Strip Landuse map (Source: ESIA of GSWMP, 2012)

Khan Younis transfer station is about 3,000 m, and 3,500 m far from the dense residential areas of Rafah and Khan Younis consequently, and it is far about 7,700 m, and 13,000 m from Sofa dump site, and Dier Al Balah Landfill consequently as seen in Figure (23, 24). There is no residential area nearby, but some of illegal small residence units are located in eastern of transfer station, some of them live permanently in their informal units and others are using their informal units temporarily. The street is a buffer zone between the transfer

station and those residents and the transfer station and its associated activities will not have any impact on the informal uses of the land. The mentioned community could be impacted by the default operational impacts of the transfer station and to reduce the impacts, the Environmental and Social Management Plan's mitigation measures which listed on Table 8, will be implemented firmly there. For example the waste will not be stored in the area for long hours, and the work will be during the daytime.

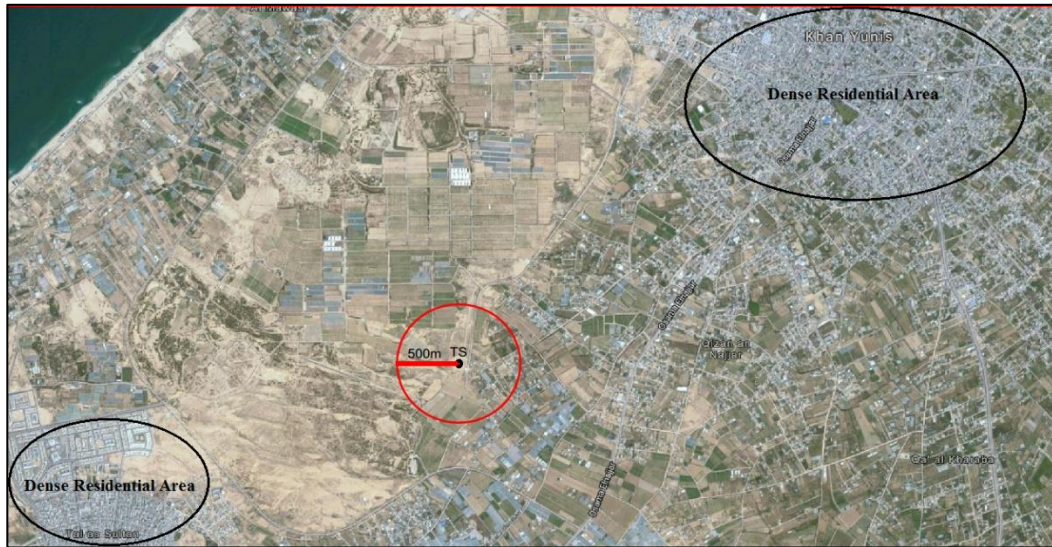


Figure 23. The Distance between Khan Younis transfer station and dense residential areas



Figure 24. The Distance between Khan Younis transfer station and dumpsites.

Khan Younis governorate has some of waste collection points which is used temporary to facilitate the work of donkey carts, these locations are changeable and not permanent, and the waste is transferred regularly (most likely in the same day) to the landfill. Locations are shown in Figure (25) as received from JSC by a field survey.

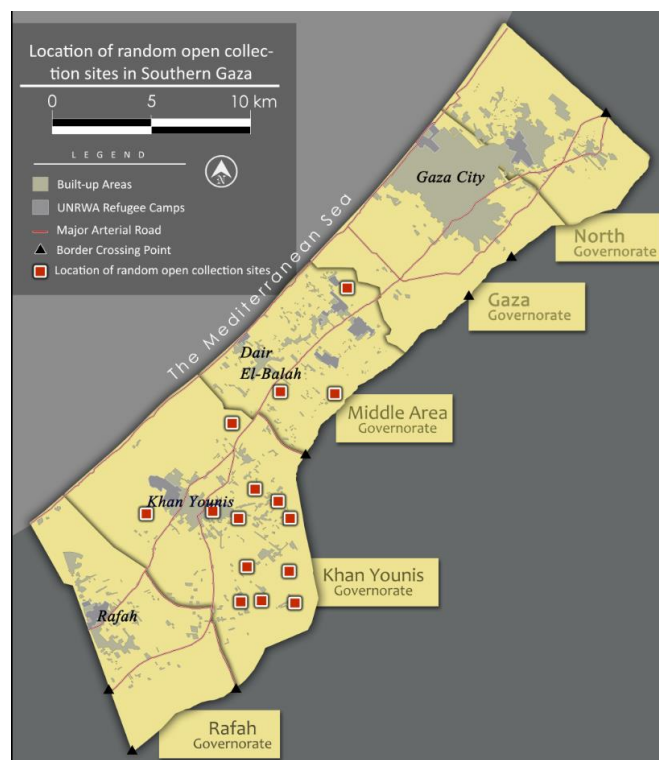


Figure 25. Temporary daily waste collection points in Khan Younis and Middle Area in 2016
(These locations could be changed or removed)

Vegetation Cover

The site is dominated by sandy dunes where no significant vegetation was observed. Desert herbs and wild plants were observed along the access road to the site as shown in Figure (26).



Figure 26. Vegetation cover near the site

Cultural Heritage and Archaeological Resources

The cultural heritage environment means the historical and/or geographical settings of a certain historical site or area which is essential to the understanding of the site/area and which enhance the identity and character of the site or area. The value of these historical monuments and is embodied in the material demonstration of its stones, structures often beneath the visible surface or other materials represents events and man behaviors theoretically or practically. It should be kept and maintained accurately in a way to reflect its harmony historically and geographically with their origins.

Palestinian cultural heritage suffered tremendously from miserable negligence and consequent deterioration. During the first years of the Palestinian authority; there were some attempts to integrate these cultural objects in the overall development schemes in order to introduce cultural and economic benefit of their existence.

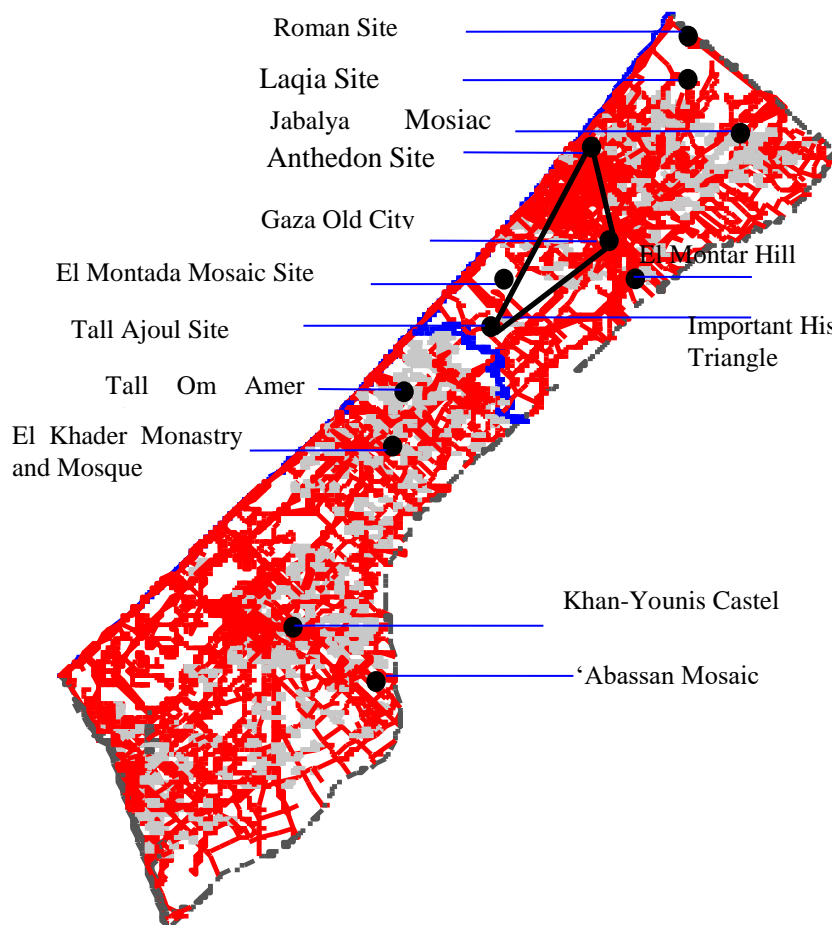


Figure 27. Overall Map for the Historical sites Attractions in the Gaza Strip

The Archeological sites and historical buildings vary between monuments, mosaic sites, mosques, churches and others. Generally speaking, these sites and buildings are suffering from the absence of adequate legislation of preservation of antiquities and monumental buildings.

These sites are located all over Gaza. Particularly; in the coastal zone they are concentrated in the Deir al-Balah area, on both sides of Wadi Gaza, and by the ancient port of Gaza City as shown in the above Figure (27). Sites from our century are mainly found in the cities, especially in the old city of Gaza. And no existence of cultural heritage site beside Khan Younis Transfer station.

Roads and Transportation

The project team did not conduct direct car counts on the local roads of project area. However, the Khan Younis Transfer Station area can be considered a very low traffic rate area taking into consideration that it is mostly a rural / agricultural areas. Most of local roads within the project area are not paved. The access road is partially paved and has difference in elevation not exceeding 2.0 m. The paved part of the road is narrow and will not be adequate for the Solid Waste vehicles, therefore, it should be reconstructed. Figure (28) shows the built- up areas and the local and main roads at the transfer station site, it is clear that there is rare residential areas around the site and the main roads is more than 1 km faraway.

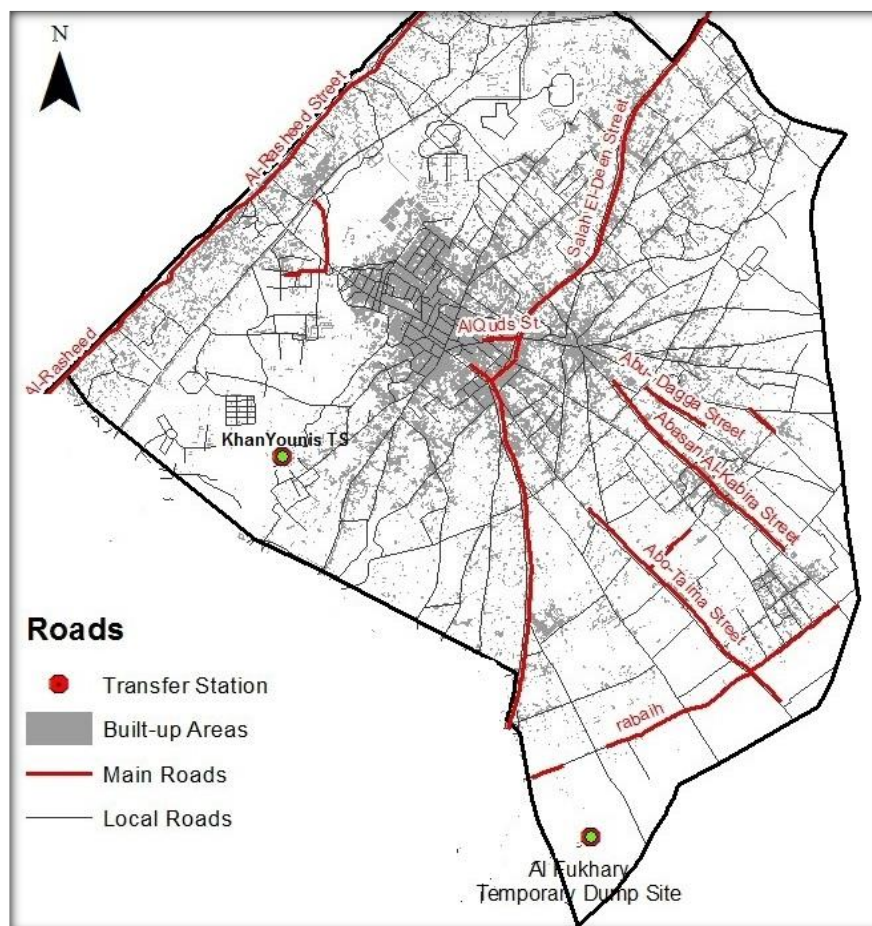


Figure 28. Local and main roads



Figure 29. Access road to the site

2.4 Biological Aspects

Fauna and Flora

No rare, sensitive or endangered fauna or flora species were observed during the visits to the site and that would be negatively impacted by the construction and operation activities of the transfer station as sand dune is surrounding the three sides of the transfer station building and the fourth side view on the access road.

2.5 Socio-Economic Aspects

General Population and demographical indicators

By the mid of 2016, the PCBS had estimated the total permanent residents in Gaza Strip by 1,881,135 inhabitants. Gaza residents comprises of 39% of the total Palestinians in the West Bank and Gaza Strip. The Male to female ratio is 51% to 49%. The natural population growth rate in 2016 was 3.4%. The following Table (2) shows the demographic data of Gaza Strip.

Table 3. Population and demographical data in the Gaza Strip

Indicators		Statistics based on PCBS 2016
Total population		1,881,135
Population by Residence	% of Urban Population	82.8%
	% of Rural Population	1.1%
	% of Camp Population	16.1%
Population by sex	% of Male Population	50.8%
	% of Female Population	49.2%
Birth rate (%)		36.3%
Death rate (%)		3.4%
Growth rate (%)		3.4%
Density of population (inhabitants/km ²)		5070
Sex ratio (%)		103.3%
Dependency ratio (%)		82.7%
Life Expectancy at Birth (Males)		71.5
Life Expectancy at Birth (Females)		74.4
Average Household Size		5.7
Population by Age Group (%)		
0-14		42.8%
15-64		54.8%
Over 65		2.4%

Khan Younis Population

Rapid population growth and limited land resources result in a very high and increasing population density. Figure (30) below shows the total population in the Rafah and Khan Younis Governorates.

In 2016, About 352,000 inhabitants are living in Khan Younis Governorate which consists of seven municipalities: Khan Younis, Bani Suhaila, Abasan El-Kabira, Abasan El-Jadida, Quarrara, Al Fukhary and the Khuza'a (PCBS, 2016).

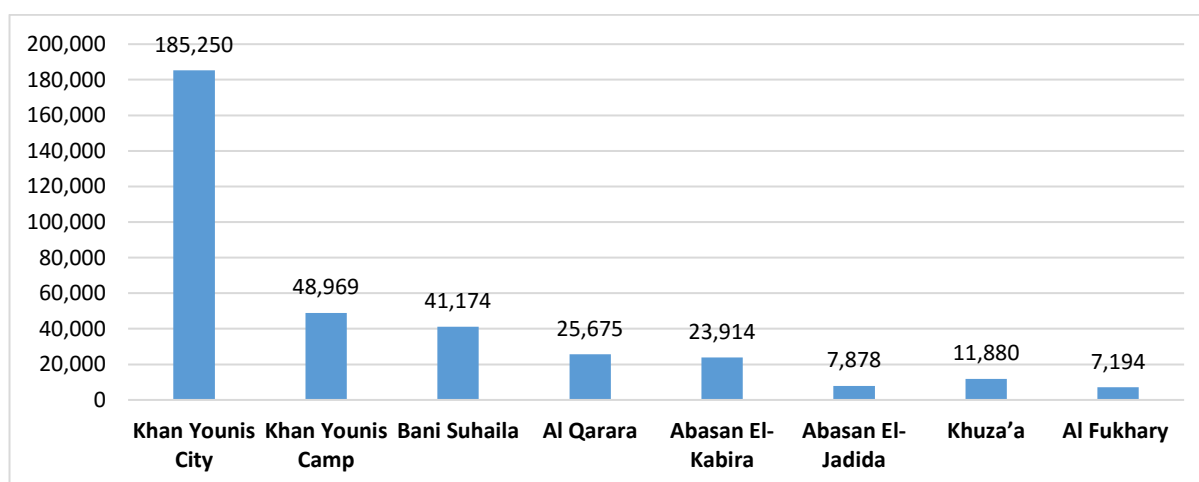


Figure 30. Population of Khan Younis Governorates for 2016 (PCBS, 2016)

The characteristics of the population of Khan Younis governorate have the same nature as Gaza Strip as a whole. By the mid of 2016, about 81% are living in urban area, 6% are rural, and 13% live in the refugee camps. In this regard, the percentage of Youth represents 30.0% of the total population in Palestine: 37.4% of them are adolescents aged (15-19) years and 62.6% are youth aged (20-29) years. The sex ratio among youth is 104.1 males per 100 females, (PCBS, 2016).

The newly constructed transfer station would basically serve the population of Khan Younis municipality (Khan Younis city and Khan Younis Refugee camp) with a total population of about 234000 inhabitants and expected to reach 260,000 inhabitants by the year 2020.

Employment

PCBS (2016) estimated the average unemployment rate in the Khan Younis to 42.5% in which 58.2% females and 37.8% males.

Table 4. Unemployment rate in Gaza governorates (PCBS, 2016)

Governorate	Unemployment rate (%)		
	Total	Among Female	Among Male
North Gaza	41.7	59.5	37.7
Gaza	36.5	59.3	31.0
Deir El Balah	48.0	58.9	44.3
Khan Younis	42.5	58.2	37.8
Rafah	41.6	63.1	34.5
Average for Gaza	41.0	59.6	35.9

Community Health

A baseline Study on Water Quality and Public Health in the Gaza Strip was conducted in 2015 by the Gaza-Program Coordination Unit (G-PCU) at the PWA, to explore the health impacts attributed to the existing poor quality of water in the Gaza Strip. The study highlighted a recorded increase in nitrate concentration, which may cause methaemoglobinaemia in infants. The study also concluded that high nitrate level in water is associated with the breakout of parasitic infestations in the years of 2011 and 2012. Most of the project area, including Khan Younis and the refugee camps in the middle Governorate, is recording high Nitrate concentrations in the municipal supplied water of more than 200 mg/l (higher than the less stringent drinking water quality standard of PWA).

The majority of hepatitis A virus (HAV) infection still takes place in early childhood, where it is asymptomatic, self-limiting and leaves life-long immunity. Palestine as one of developing countries is still endemic for acute hepatitis A. In the year 2014, there was a decrease of reported number of cases compared to the previous two years. During 2014, a total of 860 cases were reported with an incidence of 48.8 per 100.000 population while during 2013, a total of 1248 cases (73.3 per 100.000 population) were reported and 1010 cases (61.4 per 100.000 population) were reported in the year 2012. This decrease could be explained by the underreporting during the war on Gaza during this year (MOH, 2014).

Waste Generation

It is about 1768.2 tons of household solid waste (SW) generated per day in the Gaza Strip in 2016 in which waste generation in Khan Younis and Middle Area is 453.9 ton/day of 2016 (Feasibility Study of SW sector of Gaza Strip). This might increase to 2874.3 tons per day for Gaza Strip by 2030 and 903.9 ton/day for Khan Younis and Middle Area.

2.6 Public Consultation Meetings

The consultation process was conducted with community for Khan Younis transfer station, two consultation meetings were held and they resulted in changing the site location to another acceptable location, and a site visit was carried out by the project central social committee.

The first meeting was held in July 2015, 38 persons attended as shown in Figure (31). This meeting was coordinated by the Municipality of Khan Younis, the main partner with UNRWA which is the responsible agency for the transfer station construction. The meeting was in the presence of the Municipality of Khan Younis, representatives of the JSC KRM

and MDLF, community representatives from the neighborhood committee, dignitaries and academics in the region, and representatives of civil society organizations.

The second meeting/workshop was held by Culture and Free Thought Association on 21st of September, 2015. 129 persons attended the workshop. JSC-KRM was invited to attend the meeting to answer inquiries and questions of citizens regarding transfer station in Khan Younis. A representative of the Center for Human Rights, representatives from the neighborhood committee, local experts and representatives of civil society institutions were attended. The goal of the construction of the station was discussed and all questions were responded to.

The central social committee in Khan Younis governorate coordinated a field visit to transfer station during construction to review the implementation progress as shown in Figure (32).



Figure 31. Public consultation meeting (July, 2015)



Figure 32. Project social committee conduct a Site visit to Khan Younis TS during Construction

2.7 Social Survey

Questionnaire to the local communities at the project areas

A questionnaire was prepared to measure the satisfaction of surrounding population with the new constructed transfer station, 95 questionnaires were distributed to the respondents around the project area in Khan Younis. The questionnaire contains five parts including general information about the household, Waste Collection, Transfer Station, Air Quality, Transportation and Public Health as shown in Annex 1. The results of the questionnaire are as follows:

Geographical Distribution of Respondents

Figure (33) shows that the geographical distribution of respondents around the project area, close to the newly constructed transfer station. Around 37.9 % of residents live near the transfer station at a distance less than 500 meter and about 33.3 % besides the roads that lead to the transfer station. Most of these families (46%) are considered as large families with more than 6 persons as shown in Figure (34). Only 7% of these families had more than

10 persons. These figures are consistent with the normal distribution of the families in all over Gaza strip.

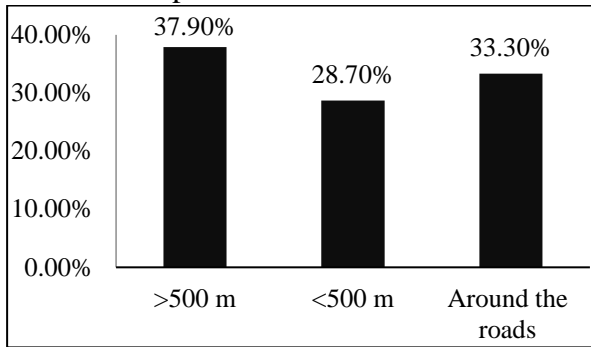


Figure 33. Geographical Distribution of Respondents

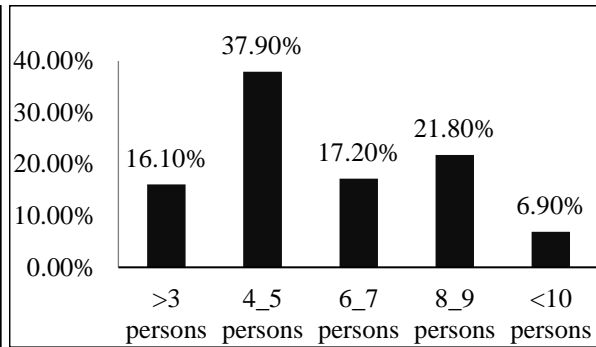


Figure 34. Family member of the residents near Transfer Station

The respondents were distributed to all age groups youth and old persons living in less than one kilometers from the transfer station. The gender distribution had been taken into consideration, however, around 50.6% of participants are males while 49.4% of them are females which reflects the strong women participation in this questionnaire as shown in Figure (35). Social survey targeted men and women above 16 years old. Around 20.7% of the participants are below 30 years old while 27.6% of them are older and between 30-50 years old as shown in Figure (36).

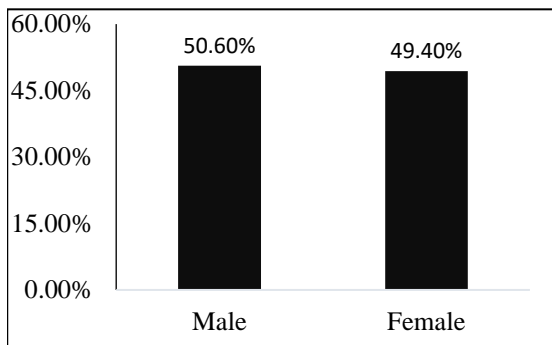


Figure 35. Gender among the local communities participated in the questionnaire

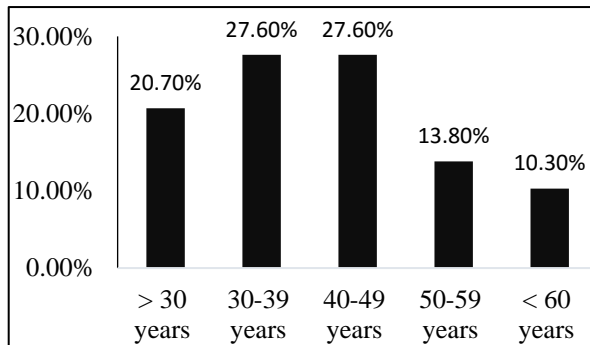


Figure 36. Age distribution among the local communities participated in the questionnaire

Employment rates

Figure (37) shows that around 55.1% of the local communities revealed that they were not employed in any sectors while around 27.6 % of them were employee and 16.1% working in agriculture. However most of them described their living conditions as bad living condition or moderate and only 18.3% of them having good living conditions as shown in Figure (38). This means that the area surrounding the transfer station are from poor families with limited employment rate.

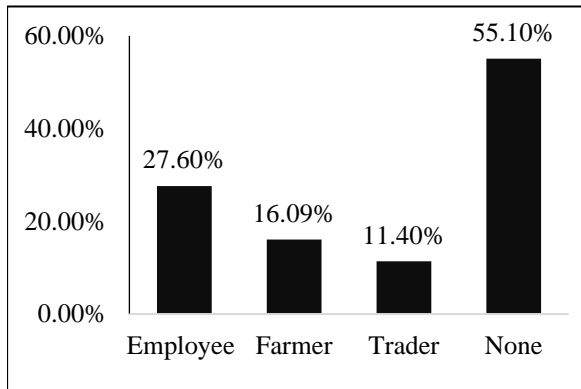


Figure 37. Employment sectors of the local communities participated in the questionnaire

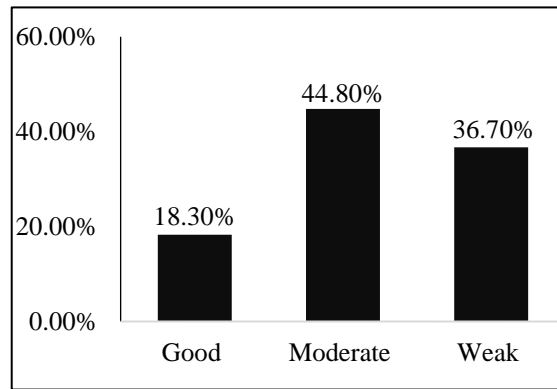


Figure 38. Living Conditions of the local communities

Solid Wastes Collection

Most of the residents near Khan Younis Transfer station are disposing their solid waste using the municipal containers. These houses are living 500 meters far away from the transfer station. While the resident living close to the transfer station, Figure (39) shows that about 28.7%, dispose their wastes by themselves to a random disposal point near their houses as there are no waste containers at their areas. Limited houses (13.8%) were served by house to house collections.

Figure (40) shows that around 39.1% of the residents are satisfied with the location and number of the solid waste containers. While 54% are not satisfied and asking for more number of containers that could be close to their neighborhood.

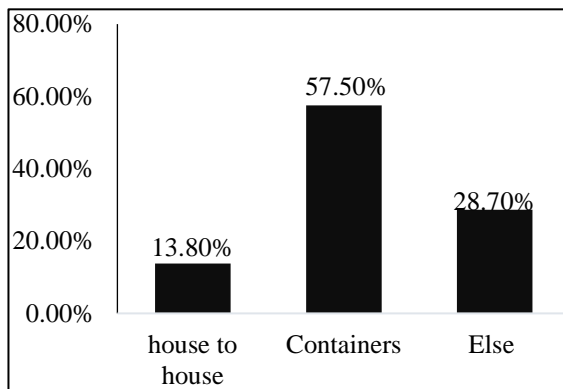


Figure 39. Waste Containers Availability near to the local community's houses participated in the questionnaire

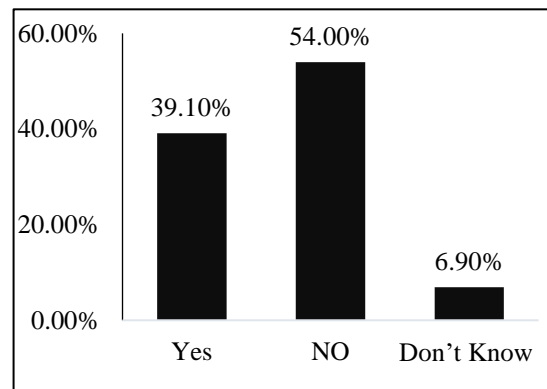


Figure 40. Is the available Solid waste containers are close to your house?

Resident Satisfaction

Figure (41) shows that only one third of the residents revealed that there are problems between the neighbors because of solid waste collection system. This refers to the limited number of solid waste containers that creates problems among the residents.

While Figure (42) shows that only 27.6% of the population living near the transfer station revealed that they are served regularly by the municipality for solid waste collection. While the majority 51.7% are not serviced by solid waste services. This make the residents

reluctant to accept the establishing the transfer station while they are not benefited from the municipal services.

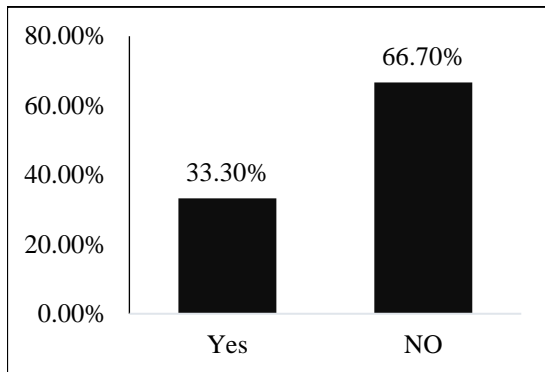


Figure 41. Is There are any problems between the neighbors because of solid waste

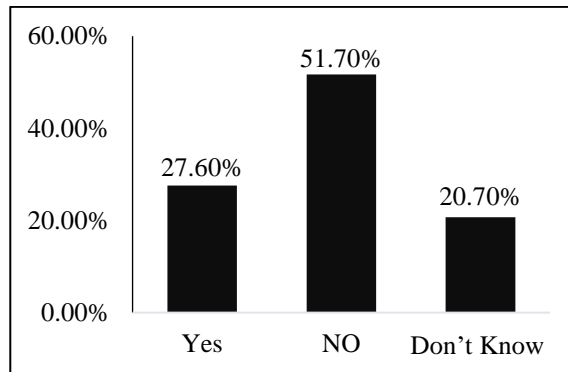


Figure 42. Does the municipal collect wastes on a regular basis

Figure (43) shows that the majority of residents (65.5%) are not satisfied for the municipal services and they describe it by “very bad” only 8% who are far away from the transfer station site are satisfied about the municipal services. Around 51.7 % said that there are no specific waste collection system from the municipality.

In order to increase the acceptance percentage, Primary Waste Collection study is currently underway to assessed the current primary collection services in Gaza Strip. The study aims to provide recommendations and solutions for increasing the areas where the collection services need to be strengthened with focusing on the regions of new transfer stations including Rafah transfer station, thus the surrounding area will be connected by the waste collection service where the solid waste primary collection will be improved. JSC-KRM will be working closely with the municipalities to ensure that this concern in addressed in a satisfactory manner. In the meantime, further community engagement and consultations activities will be targeting the neighboring communities and will be moderated by JSC. The results of the consultations should inform the process of the primary waste collection improvement.

Most of the residents (67.8%) do not have any knowledge about the final disposal of their solid waste as in Figure (44). They had no ideas about solid waste management process and do not know whether the solid waste goes to transfer station of landfill. This weakness in knowledge could affect the project negatively and needs to be strengthening through public participation and awareness complains.

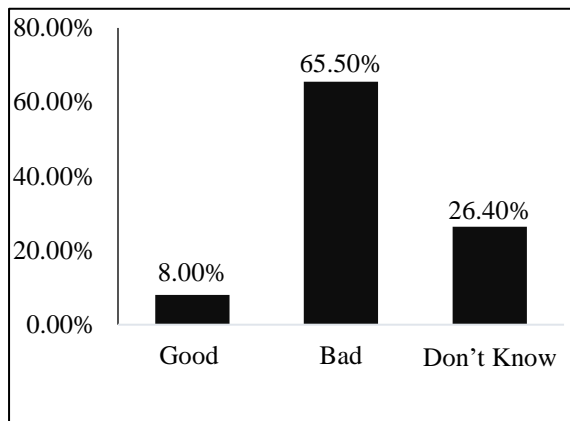


Figure 43. Evaluation of the Municipal Waste Collection System

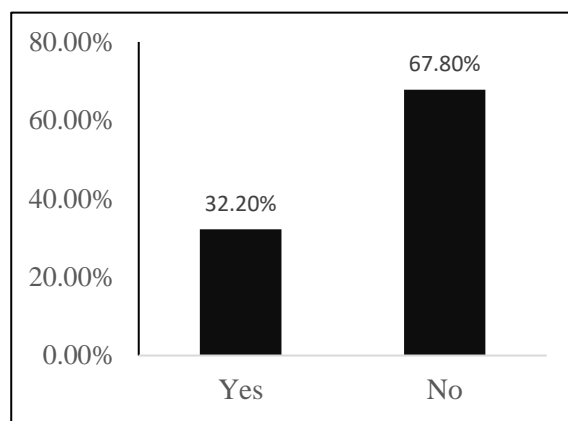


Figure 44. Knowledge of the residents about final disposal of the solid waste

Figure (45) shows that about 65.50 % of the local communities had previous information about establishing Khan Younis transfer station near their community. However most of the local communities 62.1% do not have enough understanding of the transfer station mechanism, and they suspect that it will affect them, most of those people are living close to the transfer station site. Some of the residents could change their minds and agree on establishing the transfer station under a condition of improving the solid waste collection system at their neighborhood. Only 20.7% accepted the establishment of the transfer stations, most of them are living within a significant distance to the site where limited impacts could be affected them.

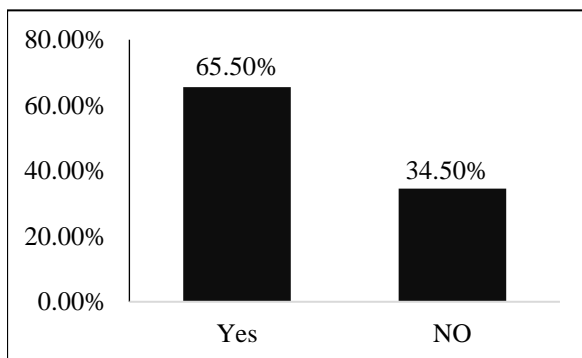


Figure 45. local communities had learnt about Khan Younis transfer station

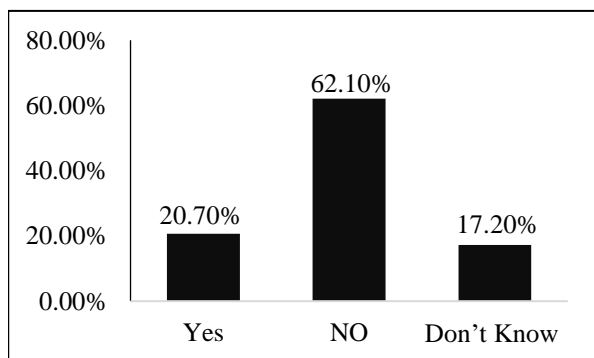


Figure 46. local communities understanding of establishing transfer station

Positive and negative impacts of the transfer stations

Figures (47) and (48) show that the majority of the local residents did not see any positive impacts of establishing transfer station at their neighborhood. However there are 16% of the local residents understand that there is positive impacts which could be create jobs and reduce garbage that randomly disposed. This little percentage of seeing positive impacts because the transferee station is not working yet and the local residents still can see the negative impacts of the randomly dump sites. Some of them still doubt that the transfer station could have positive impacts. The local residents revealed that no one came to clarify the purpose of this transfer station and they have little information about it.

Among the negative impacts mentioned by the local residents the transfer station might have bad smells, spreading flies and mosquitos, accumulation with large amount of solid waste. The local residents afraid that these issue impact their health and welfare.

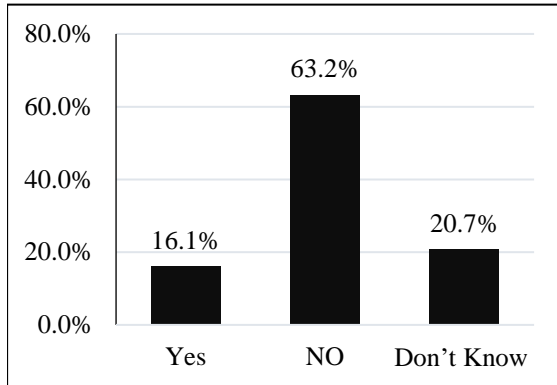


Figure 47. Is there any positive impacts of establishing Solid waste transfer station

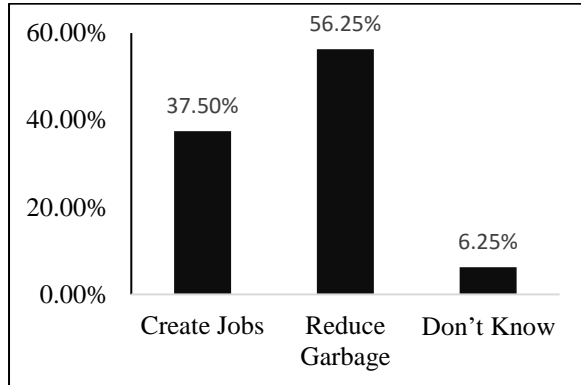


Figure 48. What is the positive impacts of establishing Solid waste transfer station

Figure (49) shows that around 53% of the residents confirmed that there are bad smells from different sites near the transfer station. The sources of these smells are mainly from the scattered waste in the region, died animals and the slaughterhouse. Most of the people confirmed that these smells are spread at afternoon and evenings. This might happen because of direct of the winds at these times from western direction. Also, local residents are suffering from burning solid waste in the region. These fires were lasted for several hours causing bad smells. 47% of residents confirmed that there is no bad smells at their neighborhood.

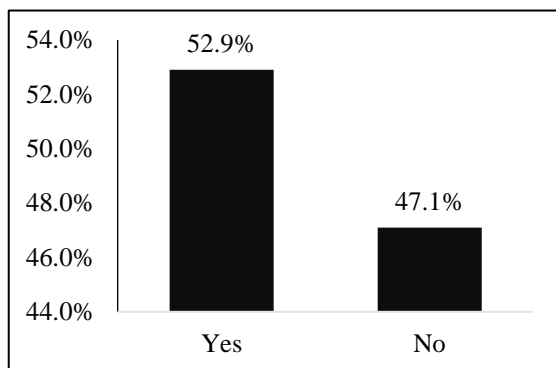


Figure 49. If you are feeling with bad smells

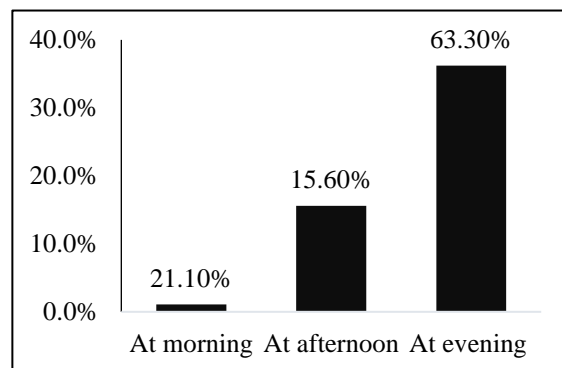


Figure 50. Which time you are feeling with bad smells

Figures (51) and (52) showing that the majority of the local residents (50.6%) confirmed that they suffering from dust that bothering them during day time. The sources of dust is mainly from traffic of different types of vehicles. It is clear that most of the roads nearby is unpaved street which caused dust during traffic movements. According to the residents that construction of the transfer station did not contributed to dust problem at their areas. Other

sources of dust caused by winds since the area are sand dunes especially during windy days at summer time.

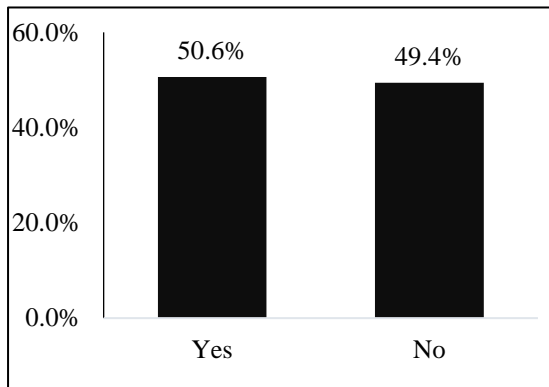


Figure 51. Is there any dust at air in your neighborhood

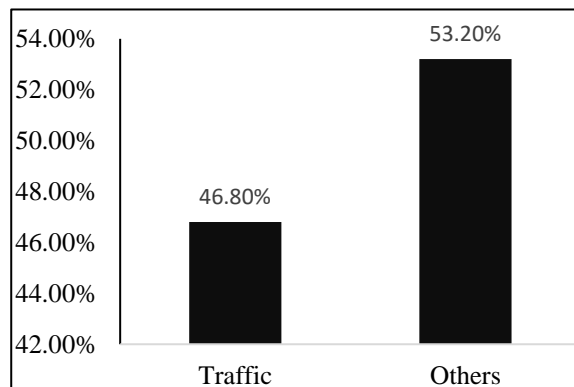


Figure 52. The sources of dust

The people living near the transfer station is suffering from traffic jam, Figure (53) shows that around 53% of them confirmed that the traffic jam happened during the day time due to movement of many vehicles that are passing to Khan Younis city. This also causing accidents where 73% of the residents confirmed that there are car accidents happened in this area. However these accidents are not frequent (Figure 54).

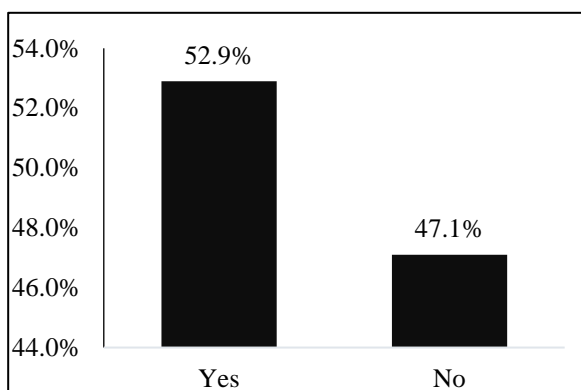


Figure 53. Traffic jam in the area

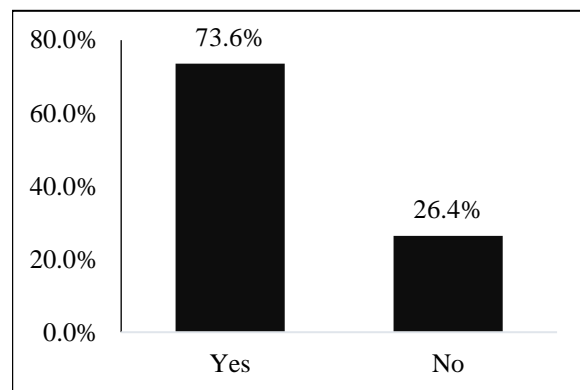


Figure 54. Traffic accidents in the area

Public Community

Most of local residents are suffering from existence of flies and mosquitos. Due to many reasons, mainly from the existence of solid waste dump site, stagnant sewage ponds and the slaughterhouse. This problem disturbs the people and affecting their public health. All people conformed that there are no efforts made to control the flies and mosquitos in their areas.

Similarly, Figure (55) shows that most of local residents 66.7% are suffering from existence of rodents. Due to the same reasons of solid waste dump site, stagnant sewage ponds and the slaughterhouse. This problem also disturbs the people and affecting their public health.

All people around 99% conformed that there are very limited efforts made to control the rodents in their areas as shown in Figure (56).

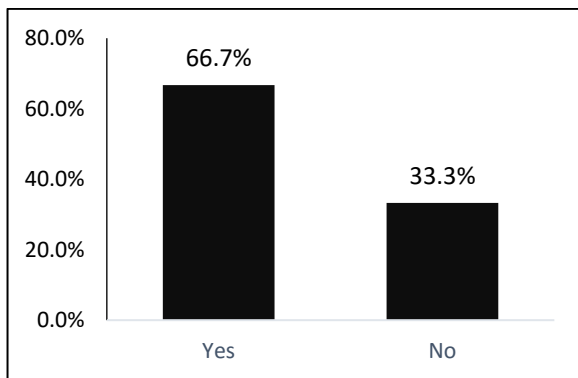


Figure 55. People suffering from rodents

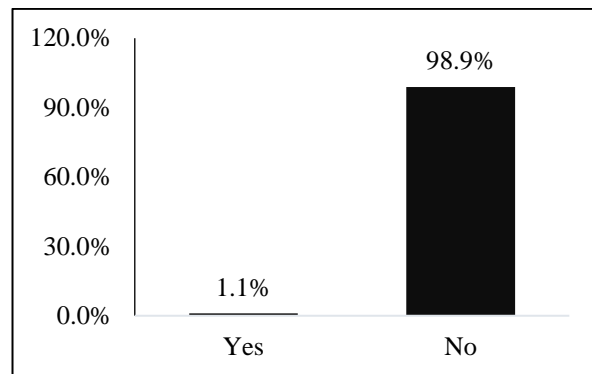


Figure 56. Municipal efforts to control the rodents

4. ENVIRONMENTAL AND SOCIAL IMPACTS DURING CONSTRUCTION AND OPERATION PHASES

4.1 Environmental Review of Construction Phase

This retrospective review included a desk review of the documents and as built design drawings, and site visits after handing-over the site. The desk review of documents aimed at checking the comprehensiveness of mitigation measures, and its compliance with the environmental and social aspects. It also rechecks the capacity of the transfer station versus the incoming waste from Khan Younis. It is found that the design complies with the required environmental and social mitigation measures, and the capacity of the transfer station is suitable to the receiving waste quantities (table 5).

During the construction phase, UNRWA was responsible for safeguard monitoring. The Contractor was committed to the environmental and safety measures in line with the UNRWA regulations. Contractor provided information that the workers were wearing the PPE. No workers were injured during the construction of the transfer station. Handling of the oil and fuel was treated with caution, no oil/leakage was noticed during the daily work. The Contractor informed the consultant that no traffic jam was noticed during the construction phase due to the light use of the access road, and that water was sprayed in dry days. However, the consultant could not verify these information from any other sources.

The construction of transfer station included a concrete ground slap to prevent any leachate seepage, and it is found the concrete ground layer is 15 cm in depth above 15 cm layer of base course. The transfer station is covered by a steel shed especially above the working area.

Site visit was conducted after handing-over the site, and it was found that the mitigation measures were carried out regarding leachate collection system, concrete ground slap, underground leachate tank, filling gravel in the septic tank, covering the working area by steel shed and finally, and site fencing with concrete wall.

Table 5. Status of project impacts during Construction of the Khan Younis Transfer Station (based on Contractor meeting, reviewing of as built drawings, and site visits after handover the transfer station).

Potential Impact	Mitigation Measures	Implementation Responsibility	Compliance Status	Sources of information
Contamination of Ground Water and Soil by Leachate during operation phase	1. Leachate collection system is installed	Contractor	The construction complied with the mitigation measures	Desk study, site investigation
	2. Isolation of the leachate tank	Contractor		Desk study, site investigation
	3. Concrete ground Slap of the working area	Contractor		Desk study, site investigation
Contamination of Ground Water and Soil by Sewage during operation phase	4. Septic tank to be filled by a gravel layer (not less than 40 cm)	Contractor	The construction complied with the mitigation measures	Desk study, site investigation
Noise impacts caused by construction machines	5. Limit the construction works to daytime.	Contractor	The construction complied with the mitigation measures	Log book, interviews with the Contractors and the local population.
	6. The contractor used the UN safety measures to reduce the noise	Contractor	The construction complied with the mitigation measures	Log book, interviews with the Contractors and the local population
	7. Frequent maintenance of the used vehicles	Contractor	The construction complied with the mitigation measures	Log book, interviews with the Contractors and the local population
Deterioration of air quality by dust caused by construction works and vehicles	8. Spraying Water during dry days	Contractor	The construction complied with the mitigation measures	Log book, interviews with the Contractors and the local population

Potential Impact	Mitigation Measures	Implementation Responsibility	Compliance Status	Sources of information
Deterioration of Flora and Fauna	9. No mitigation measures	-	-	-
Environmental Impacts of Construction Camp	10. Domestic waste stored in containers and disposed when fill up.	Contractor	The construction complied with the mitigation measures	Log book, interviews with the Contractors and the local population
	11. Safe handling of Fuel/Oil	Contractor	The construction complied with the mitigation measures	Log book, interviews with the Contractors and the local population
Health of Contractor's workers	12. Safety wear and masks were used by workers	Contractor	The construction complied with the mitigation measures	Log book, interviews with the Contractors and the local population
	13. Fully close of the work area	Contractor	The construction complied with the mitigation measures	Log book, interviews with the Contractors and the local population
Traffic Impacts	14. No negative traffic pattern was found during construction phase	Contractor	The construction complied with the mitigation measures	Progress reports, interviews with the Contractors and the local population
	15. No OHS accidents were registered.	Contractor	The construction complied with the mitigation measures	Log book, interviews with the Contractors and the local population
Inconveniences for the local community	16. No complaints were received from the local community	Contractor	The construction complied with the mitigation measures	UNRWA

4.2 Environmental and Social Impacts during Operation Phase

4.2.1 Methodology

The prediction of environmental, social and health impact assessment was based on identification of impacts and risks in relation to operation activities and sensitivity of the receiving environment. The key physical, biological, socioeconomic and human valued receptors were identified. The potential positive and negative changes resulting from the defined project activities are then described using an impact identification matrix through which aspects and factors are correlated to find interactions that would potentially result in impacts. The predicted impacts are then evaluated using a significance ranking process based on the importance of the impact. Each valued receptor was categorized in terms of its perceived environmental, social and health value.

The impact significance is used to determine whether the impacts are low, medium, high or no impacts is associated. The following categories are assigned to impacts magnitude and the impacts time scale based on the following:

- Time scale:
 1. Short term (≤ 1 month)
 2. Medium Term (1 month \leq duration ≤ 1 year)
 3. Long term (1 to 2 years)
- Magnitude:
 1. Low: the impacts have low effects on the physical, biological, socioeconomic and health.
 2. Medium: the impacts have limited effects on the physical, biological, socioeconomic and health.
 3. High: the impacts have severe and significant effects on the physical environment, biological, socioeconomic and health.

Scoping approach presented in table 6. Summary of findings is presented in table 7.

4.2.2 Scoping for potential impacts

The consultant conducted several interviews with residents and officials at Khan Younis municipality, which revealed to the following potential impacts.

Table 6. Potential Impacts during Operation phase

Impact	Description
Groundwater	-The leachate of solid waste could deteriorate ground water quality
Noise emissions	-Noise emissions due to operation work and movement of trucks, compactors and tipper cranes on the roads.
Ambient air quality and odor	-Dust emissions from trucks movement. -Emissions from rehabilitation of access road works -Operation of standby-generators.

	-The odor of stored and transported wastes if not transferred on daily base
Flora and Fauna	-There are limited flora and fauna around Khan Younis transfer station that might be affected. -The agricultural lands around the access road to the site could be affect by dust.
Direct employment and income	-The operation phase will have minimum impacts on the jobs creation.
Transportation and Traffic	-The existing street is narrow and unpaved that could cause accidents or traffic jam.
Local community health	-The presence of vectors and insects may increase the health risk -Risks from movements of vehicles.
Risks of fires	-Risks of fires from the fuel tank or the existing stored wastes. The fire threatens the lives of workers, and the smoke affect the local community.

Table 7. Potential Environmental and Social Impacts during Operation phase

POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS DURING OPERATION PHASE			
Affected components	Impact description	Timescale	Magnitude
Physical Environment			
Climate	-No impacts are expected on the climate as the waste will not be stored for long periods and transferred on regular base.	Long term	Low
Geology, Geomorphology and Soil	-No impacts are expected on the geology and soil during the operation phase, as the ground of the transfer station is paved, and a storm water and leachate drainage system is constructed at the site.	Long term	Medium
Topography and landscape	-No impacts are expected on the topography and landscape during the operation phase	Long term	Low
Surface water and Groundwater	-The leachate and water disposal using septic tanks will contribute in deterioration of ground water quality due to the absence of wastewater network in the area.	-	Low
Noise emissions	-Noise emissions due to operation work and movement of trucks, compactors and tipper cranes on the roads.	Long term	Medium
Ambient air quality	-Dust emissions from trucks movement. -Emissions from rehabilitation of access road works -Operation of standby-generators. -Migration of sand and dust from the sand dunes from the surrounding area.	Long term	Medium
Odor	-The odor of stored and transported wastes if not transferred on daily base -The odor impacts could be the cause of public opposition	Long term	Medium
Biodiversity			

POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS DURING OPERATION PHASE			
Affected components	Impact description	Timescale	Magnitude
Flora and Fauna	<ul style="list-style-type: none"> -There are limited flora and fauna around Khan Younis transfer station that could be affected -However, the surrounding agricultural and rural areas may be affected from possible contaminants migration 	Long term	Low
Economic Issues			
Direct employment and income	-The operation phase will have minimum impacts on the jobs creation as there will be only 4 employees in the TS during the operation phase	Long term	Low
Transportation and Traffic	<ul style="list-style-type: none"> -There will be 12 incoming trips and 7 outgoing trips to and from the transfer station that may cause disruption of traffic movement, increase the probability of accidents. -The structural street No.30 needs rehabilitation as it is narrow and risky for trucks, compactors and tipper movement. 	Long term	Medium
Municipal expenditure /revenues	<ul style="list-style-type: none"> -The transfer station will positively affect the municipal expenditure and revenues by improving the solid waste management and disposal services by using lower number of vehicles. -It will also contribute to reduce the number of random dumpsites in Khan Younis area 	Long term	Medium
Time value	-The use of the transfer station will reduce the trip time of transporting the waste to the landfill	Short term	Medium
Social Elements			

POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS DURING OPERATION PHASE			
Affected components	Impact description	Timescale	Magnitude
Demographic change	<ul style="list-style-type: none"> -There are scattered residential areas close to the transfer station (less than 500 m) that will be affected from the operation of the transfer station. -Usually within 500m meters from the transfer station the people hesitate to construct new houses, hence the people would prefer to settle away from this facility. Local communities still not confident that there would be proper management of this transfer station. 	Long term	Low
Transportation and traffic	<ul style="list-style-type: none"> -Limited increase of traffic volume by transfer trucks -Impacts on the access roads that might have significant damages due to the traffic of heavy transfer trucks. -Disruption of traffic movement. -Indirect impacts from disturbances from movement of vehicle. -Waste spillage from vehicles during transfer. -Traffic congestion on/at site. -Vehicle accidents. 	Long term	Medium
Human Health			
Local community health	<ul style="list-style-type: none"> -Indirect impact from movement of heavy machinery on public safety -The presence of pathogens, vectors and insects may increase the health risk -Risks from movement of vehicle. -The presence of pathogens, vectors and insects may increase the health risk 	Long term	Medium
Worker health and safety	<ul style="list-style-type: none"> -Physical hazards from falling and injuries during operation. -Risks from movement of heavy machinery on roads. -Physical hazards from contact with disturbances -The presence of pathogens, vectors and insects may increase the health risk -Impacts on human health from contact with hazardous substances and waste 	Long term	High

POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS DURING OPERATION PHASE			
Affected components	Impact description	Timescale	Magnitude
Risks of fires	-Risks of fires from the fuel tank or the existing stored wastes. The fire threatens the lives of workers, and the smoke affect the local community.	Long term	Medium

5. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

5.1 Environmental and Social Management Plan

The Environmental and Social Management and Monitoring Plan (ESMP) table presents summary of the ESMP findings regarding the operation phase Table (8). It shows the predicted impacts, mitigation measures that will prevent or reduced the impacts. Monitoring arrangements are presented in Table (9).

5.2 Implementation and Reporting Arrangements

In the operation phase, JSC-KRM will be responsible in cooperation with Khan Younis Municipality to comply with the mitigation measures stipulated in the ESMP. Qualified environmental and social specialists are assigned in the PDSU and JSC to be in charge of the monitoring of the compliance with the ESMP. EQA and MDLF will monitor the operational works and compliance with the mitigation measures. PDSU will report to the bank and to EQA as required.

5.3 Grievance Redress Mechanism:

Although no structured grievance redress mechanism (GRM) was up and running during the construction of the transfer station, a lot of community consultation activities have been conducted on regular basis and those activities managed to capture the stakeholders' concerns that were timely addressed. For the whole project, GRM will be activated for the local community to receive any complaints related to Khan Younis TS and the project at large. The system includes different channels, most importantly:

- 1- The complaint box: A complaint box will be installed in all the JSC facilities; these boxes will be supplied with an instruction board and hard copies of grievances application to be filled when there is a grievance to be submitted.
- 2- Using the Facebook page: by inviting the people to send their complaints using the JSC Facebook page since the website is still under construction, and the Facebook page will be announced in all the public meetings and on a board located besides the complaint box at the landfill camp.
- 3- Phone calls and emails: the instruction board above the complaint box will contain phone numbers of the JSC-KRM (Telephone: +97082076001, Fax: +970820776008) and the mobile number of the social specialist (+970597652008) and email address of JCKRM (jsckrm2014@gmail.com) and the email address of the social specialist (eqandeel.jsckrm@gmail.com). Those will also be disseminated to the public through the Project Facebook page and in community meetings.
- 4- Online application: a website for the JSC is under construction and it will contain a link to an online grievance application to be filled by the different communities all the time.

Acknowledgment for receiving the complaint will be offered to complainant in 2 business days from receiving and then 5 business days will be taken to resolve and close the complaints under the direct control of the projects and the contractors. Longer period might be needed to address complaints that are not under the direct autonomy of the project and in such cases, the complaint will be diverted to the concerned parties and feedback will be offered to the complainant accordingly.

As soon as the grievance received the following steps will be followed to apply the process:

- 1- Sort and process: the grievance will take a serial number. The compliant urgency will be checked using the priority sheet.
 - 2- Acknowledge and follow up: the complainant will receive a confirmation SMS that his/her complaint was received and is being handled using the GRM process.
 - 3- Verify, investigate and act: the PDSU-MDLF, and TOU-JSC teams will verify and investigate about the grievance in the field and send a reply back to the complainant to inform about the response and the solution, this will be according a certain time plan for every action as mentioned above.
 - 4- Monitor and evaluate: the JSC-KRM social specialist will check the satisfaction of the complainant through monitoring plan and then record all the process in the monthly report.
 - 5- In case, the complainant can declare about his/her dis-satisfaction with the response of the tier one channels mentioned above, and submit another complaint for a higher level in the JSC-KRM. The social specialist will report about the problem, its solution, the person/the department who contributed in solving the problem and then the comments of the complainant on the provided solution. The executive manager of the JSC-KRM will receive the report and investigate it, then take an action, and report it to the chairman of JSC-KRM, to be involved in the action.
- *Note: the chairman of the JSC-KRM is a Mayor who had authorization to take any action in the southern and middle governorates with cooperation with any other entity (municipality, governmental associations, NGOs,..), so involving the chairman will ensure the fairness of the solution.*

Table 8. Environmental and Social Management Plan during Operation of Khan Younis Transfer Station

ENVIRONMENTAL AND SOCIAL ASPECTS	IMPACTS	MITIGATION MEASURES	IMPLEMENTATION RESPONSIBILITY
Physical Aspects	Contamination of groundwater and soil by leachate, and Toilet Drainage during operation phase	1. Sampling and testing of groundwater	Khan Younis municipality, JSC KRM
		2. Regular maintenance of the leachate tank and collection system	Khan Younis municipality, JSC KRM
		3. Evacuate and transfer the leachate to WWTP until Al Fukhary leachate lagoon is ready to receive the leachate	Khan Younis municipality,
		4. Sampling and testing of groundwater	MDLF, JSC-KRM
	Noise impacts caused by Waste Vehicles and Electrical Generator	5. Limiting operation works to daytime	Khan Younis Municipality, JSC KRM
		6. Regular maintenance of vehicles and generator	JSC KRM
		7. Schedule the movement of vehicles carefully	JSC KRM
	Waste Management inside the transfer station	8. No hazardous waste is accepted to be received in the transfer station. The transfer station is designed to receive Municipal Solid Waste only.	JSC-KRM, Khan younis Municipality
		9. Schedule the movement of incoming vehicles and outgoing roll on/off vehicles	JSC-KRM, Khan Younis Municipality
		10. Preventing any storage of waste more than 24 hours	JSC-KRM
Biological Aspects	Flora and Fauna	11. Revegetation/Planting around the transfer station	JSC-KRM
Human Health Aspects	Risk of Fires	12. Install sufficient number of fire extinguishers around the fuel tank and near waste loading area	Khan younis municipality, JSC KRM
		13. Prepare an Emergency Response Plan to deal with possible fires	Khan younis municipality, JSC KRM
		14. Train the workers/drivers about how to deal with fires as indicated in the	MDLF, Khan younis municipality, JSC KRM

ENVIRONMENTAL AND SOCIAL ASPECTS	IMPACTS	MITIGATION MEASURES	IMPLEMENTATION RESPONSIBILITY
	Deterioration of air quality by dust caused by waste collection vehicles	Emergency Response Plan	
		15. Schedule the movement of vehicles carefully	Khan Younis municipality JSC-KRM
		16. Control the speed of Waste Vehicles	JSC-KRM
	Odor	17. Covering the waste vehicles when transport the waste	JSC KRM
		18. Transfer the solid waste daily to the landfill	JSC KRM
		19. Evacuate the leachate tank periodically	Khan Younis municipality, JSC KRM
		20. Washing the unloading area and leachate tank periodically	JSC KRM
	Local Community Health	21. The remaining waste at the night (if any) should be put in roll on/off container and covered	Khan Younis municipality
		22. Implement Safety measures to protect people from injury	Khan Younis municipality, JSC KRM
		23. Prevent access of ineligible individuals to the transfer station site by installation of permeant fence and hiring a guard	Khan Younis municipality, JSC KRM
		24. Transfer the solid waste daily to the landfill	JSC KRM
	Workers Health and Safety	25. Leachate to be collected in the vehicle tank during waste collection and transportation, periodic maintenance to be made for leachate tanks.	JSC KRM
		26. Use of safety wear and masks by workers	Khan Younis municipality, JSC KRM
		27. Provide First Aid kits	JSC-KRM
		28. Conducting an operation plan, safety plan and emergency	JSC-KRM

ENVIRONMENTAL AND SOCIAL ASPECTS	IMPACTS	MITIGATION MEASURES	IMPLEMENTATION RESPONSIBILITY
Social and Economic Aspects		response plan for workers	
		29. Adding complaint log for workers	Khan Younis municipality, JSC KRM
	Transportation and Traffic	30. Schedule the movement of vehicles carefully	Khan Younis municipality, JSC-KRM
		31. Strict monitoring to the road accidents and install signs	Khan Younis municipality, JSC KRM
	Lack of acceptance to the project from the side of the local communities	32. Continue the consultations with the communities and the coordination with the municipalities to ensure the level of acceptance for the project is increasing.	JSC KRM and MDLF
	Inconvenience of local community	33. Grievance uptake Channels to be created in the site for any coming complaints during operation	Khan Younis municipality, JSC KRM
		34. Information sharing with the community, and forming a committee from the local residents for monitoring the operation of TS	Khan Younis municipality, JSC KRM
		35. Sort and process the received complaints	JSC-KRM
		36. Acknowledge and follow up the complaints	JSC-KRM
		37. Verify, investigate, and act to determine the validity of received grievance	JSC-KRM
		38. Monitor, evaluate and provide feedback	JSC-KRM
		39. Ensure documentation for any received complaint	JSC KRM

Table 9. Environmental and Social Monitoring Plan during Operation of Khan Younis Transfer Station

ENVIRONMENTAL AND SOCIAL ASPECTS	PROPOSED MITIGATION MEASURES	COMPLIANCE MONITORING APPROACH	MONITORING FREQUENCY	RESPONSIBILITY FOR COMPLIANCE MONITORING
Physical Aspects	1. Sampling and testing of groundwater	Testing of: (TDS, TSS, Cl, NO ₃ , pH, COD, BOD, Ammonia)	Annually	MDLF, JSC KRM, EQA
	2. Regular maintenance of the leachate tank and collection system	Visual observation	Semi-annual	MDLF, EQA
	3. Evacuate and transfer the leachate to WWTP until Al Fukhary leachate lagoon is ready to receive the leachate	Visual observations	Twice a week	MDLF, JSC KRM
	4. Sampling and testing of groundwater	Chemical Test of (Cl, No ₃ , Ammonia, BOD)	Semi-annual	MDLF, JSC-KRM
	5. Limiting operation works to daytime	Visual inspections	Weekly	MDLF, JSC KRM
	6. Regular maintenance of vehicles and generator	Visual observations	Weekly	MDLF, JSC KRM
	7. Schedule the movement of vehicles carefully	Visual inspections	Weekly	JSC KRM, Khan Younis municipality
	8. No hazardous waste is accepted to be received in the transfer station. The transfer station is designed to receive Municipal Solid Waste only.	Visual inspections	Monthly	EQA
	9. Schedule the movement of incoming vehicles and outgoing roll on/off vehicles	Visual inspections	Weekly	JSC-KRM
	10. Preventing any storage of waste more than 24 hours	Visual inspections	Daily	MDLF, EQA

ENVIRONMENTAL AND SOCIAL ASPECTS	PROPOSED MITIGATION MEASURES	COMPLIANCE MONITORING APPROACH	MONITORING FREQUENCY	RESPONSIBILITY FOR COMPLIANCE MONITORING
Biological Aspects	11. Revegetation/Planting around the transfer station	Visual observations	Prior operation phase	MDLF, JSC KRM
Human Health Aspects	12. Install sufficient number of fire extinguishers around the fuel tank and near waste loading area	Visual inspections	Prior the operation	MDLF, JSC KRM, Khan Younis municipality
	13. Prepare an Emergency Response Plan to deal with possible fires	Preparation of Emergency Response Plan	Prior the operation	MDLF, JSC KRM, Khan Younis municipality
	14. Train the workers/drivers about how to deal with fires as indicated in the Emergency Response Plan	Logbook	Two times annually	MDLF, JSC-KRM
	15. Schedule the movement of vehicles carefully	Visual inspections	Weekly	JSC KRM, Khan Younis municipality
	16. Control the speed of Waste Vehicles	Visual inspections	Weekly	JSC KRM, Khan Younis municipality
	17. Covering the waste vehicles when transport the waste	Visual inspections	Daily	JSC KRM, Khan Younis municipality
	18. Transfer the solid waste daily to the landfill	Visual inspections	Weekly	MDLF, JSC KRM, Khan Younis municipality
	19. Evacuate the leachate tank periodically	Visual inspections	Weekly	MDLF, JSC KRM, Khan Younis municipality
	20. Washing the unloading area and leachate tank periodically	Visual inspections	Twice a week	MDLF, JSC KRM, Khan Younis municipality
	21. The remaining waste at the night (if any) should be put in roll on/off container and covered	Visual inspections	Monthly	MDLF, JSC KRM
	22. Implement Safety measures to protect people from injury	Visual inspections	Weekly	MDLF, JSC KRM

ENVIRONMENTAL AND SOCIAL ASPECTS	PROPOSED MITIGATION MEASURES	COMPLIANCE MONITORING APPROACH	MONITORING FREQUENCY	RESPONSIBILITY FOR COMPLIANCE MONITORING
	23. Prevent access of ineligible individuals to the transfer station site by installation of permeant fence and hiring a guard	Visual observation	Weekly	MDLF, JSC KRM
	24. Transfer the solid waste daily to the landfill	Visual inspections	Weekly	MDLF, JSC KRM, Khan Younis municipality
	25. Leachate to be collected in the vehicle tank during waste collection and transportation, periodic maintenance to be made for leachate tanks.	Visual inspections	Monthly	EQA
	26. Use of safety wear and masks by workers	Visual inspections	Weekly	MDLF, JSC KRM
	27. Provide First Aid kits	Visual inspections	Monthly	MDLF, JSC KRM
	28. Conducting an operation plan, safety plan and emergency response plan for workers	Visual observation	Updated regularly	MDLF
	29. Adding complaint log for workers	Visual inspections	Monthly	MDLF
Social and Economic Aspects	30. Schedule the movement of vehicles carefully	Visual inspections	Weekly	Khan Younis municipality, JSC-KRM
	31. Strict monitoring to the road accidents and install signs	Visual Inspection, accident reports	Within the operation phase	MDLF, JSC KRM
	32. Continue the consultations with the communities and the coordination with the municipalities to ensure the level of acceptance for the project is increasing.	Results of the consultations Records of coordination between JSC and the municipalities	At different stages of the project.	MDLF, JSC KRM
	33. Grievance uptake Channels to be created in the site for any	Logbook	Weekly	MDLF, JSC

ENVIRONMENTAL AND SOCIAL ASPECTS	PROPOSED MITIGATION MEASURES	COMPLIANCE MONITORING APPROACH	MONITORING FREQUENCY	RESPONSIBILITY FOR COMPLIANCE MONITORING
	coming complaints during operation			
	34. Information sharing with the community, and forming a committee from the local residents for monitoring the operation of TS	Facebook posts, Forming committee, workshop	Four times per year	MDLF
	35. Sort and process the received complaints	Logbook	Weekly	MDLF
	36. Acknowledge and follow up the complaints	Logbook	Weekly	MDLF
	37. Verify, investigate, and act to determine the validity of received grievance	Logbook	Twice a month	MDLF
	38. Monitor, evaluate and provide feedback	Logbook	Monthly	MDLF
	39. Ensure documentation for any received compliant	Excel sheets, Photographic evidence, logbook	Four times per year	MDLF

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Annexes

Annex 1. Social survey Questionnaire (Arabic version)

Environmental and Social Management Plan (ESMP) for Solid Waste Transfer Station

اليوم:	التاريخ:	رقم الاستبيان:
اسم الباحث:	اسم المجيب على الاستبيان:	

المحور الأول / المعلومات العامة

1. العمر:	① أقل من 30	② 30 - 39	③ 40 - 49	④ 50 - 59	⑤ أكثر من 60
2. الجنس:	① ذكر	② انثى			
3. مكان السكن بالتحديد (البعد عن المحطة)	① أقل من 500 متر	② أكثر من 500 متر	على جانب الطريق ③		
4. مجال العمل:	① موظف	② مزارع	③ تاجر	④ صياد	⑤ بلا عمل
5. المستوى المعيشي للأسرة	① جيد	② متوسط	③ ضعيف		
6. عدد أفراد الأسرة:	① أقل من 3	② 4-5	③ 6-7	④ 8-9	⑤ 10 فأكثر

المحور الثاني / الجمع والتحويل الأولي للنفايات

7. ما هي طرق جمع النفايات في منطقتكم؟	① منزل الى منزل	② حاويات		
8. اذا كانت الاجابة "حاويات" هل تتوفر حاويات قريبة وكافية في منطقتكم؟	① نعم	② لا	③ لا أعلم	
9. هل هناك مشاكل اجتماعية بينك وبين الجيران بخصوص وضع النفايات والحاويات؟	① نعم	② لا		
10. هل يتم جمع النفايات والتخلص منها بشكل منتظم؟	① نعم	② لا	③ لا أعلم	
11. ما تقييمكم لأداء البلدية في عملية جمع النفايات؟	① جيدة	② سيئة	③ لا أعلم	
12. هل تعلم اين تذهب النفايات بعد ان يتم ترحيلها من البلدية؟	① نعم	② لا	③ لا أعلم	
13. هل توجد مناطق تجمع عشوائية للنفايات في منطقتكم؟	① نعم	② لا	③ لا أعلم	

المحور الثالث / محطة الترحيل النفايات الصلبة

14. هل سمعت بإقامة محطة ترحيل النفايات الى المكب؟	① نعم	② لا		
15. هل توافق ان هناك اثار ايجابية لإقامة محطة ترحيل النفايات؟	① نعم	② لا	③ لا أعلم	
16. اذا كانت الاجابة نعم، هل تعتقد ان الاثار الايجابية لمحطة ترحيل النفايات هي:	1- خلق فرص عمل وتقليل معدل البطالة. 2- تقليل كمية النفايات الموجودة في المنطقة. 3- تقليل تكاليف نقل النفايات الصلبة. 4- لا اعلم.			
17. ماهي الآثار السلبية برأيكم لتراكم النفايات في المناطق السكنية في الوضع الحالي؟	1- 2- 3-			
18. ما هي اقتراحاتكم لتقليل الآثار السلبية في الوضع الحالي؟	1- 2- 3-			

○ المحور الرابع / نوعية الهواء

19. هل تعاني من أي روائح ظاهرة أو رذاذ في الهواء ؟	① نعم	② لا
20. إذا الإجابة (نعم) , في أي وقت تعانيون من هذه الروائح ؟	① وقت الصباح	② وقت الظهر
21. هل تعاني من غبار ؟	① نعم	② لا
22. إذا الإجابة (نعم) فما هو مصدر الغبار ؟	① سيارات	② كسارات
23. ما هي الإجراءات التي تتخذها للتخلص من الغبار ؟	1- 2-	③ مكب النفايات
24. هل تعاني من انبعاثات الحرائق في الهواء الجوي ؟	① نعم	② لا
25. إذا الإجابة (نعم) فما هو سبب هذه الحرائق ؟	① حرق النفايات ذاتيا او بشكل متعمد من السكان	② أخرى

○ المحور الخامس / مركبات النقل والمرور

26. هل تعاني من وجود ازدحام مروري بسبب حركة مركبات جمع النفايات ؟	① نعم	② لا
27. هل تتوقع حدوث حوادث سير ناجمة عن حركة مركبات جمع النفايات ؟	① نعم	② لا
28. هل تعاني من ازعاج وضوضاء ناتجة عن حركة مركبات جمع النفايات من وإلى المكب ؟	① نعم	② لا
29. هل تتوقع وجود انبعاثات الناتجة عن آلات النقل ؟	① نعم	② لا

○ المحور السادس / الصحة العامة والسلامة

30. هل تعاني من انتشار الذباب ؟	① نعم	② لا
31. هل تعلم بقيام البلدية بأعمال لمكافحة الذباب ؟	① نعم	② لا
32. إذا كانت الإجابة (نعم) اذكر هذه الإجراءات ؟	1- 2-	
33. هل تعاني من وجود القوارض في المنطقة ؟	① نعم	② لا
34. هل تعلم بقيام البلدية بأعمال لمكافحة القوارض ؟	① نعم	② لا
35. إذا كانت الإجابة (نعم) اذكر هذه الإجراءات ؟	1- 2-	
36. هل تعاني من مرض جلدي أو تنفسي أو أحد أفراد أسرتك ؟	① نعم	② لا
إذا الإجابة (نعم) اذكر ماهية المرض ؟	اذكر المرض :	
37. إذا كانت الإجابة (نعم) هل تعتقد أن هذا المرض سببه المكب ؟	① نعم	② لا
38. هل تلاحظ وجود الأطفال يعيثون بالنفايات ؟	① نعم	② لا

1- 2-	ما هي توصياتكم ؟
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Annex 2.A. Assigned Land parcel of Khan Younis Transfer Station (Arabic version)

State of Palestine
Ministry of Local Government



دولة فلسطين
وزارة الحكم المحلي

(نموذج رقم 7-ب)
(المعادنة رقم 11 - 11 - 2016)

إعلان

صادر عن اللجنة المركزية للأبنية وتنظيم المدن بمحافظة غزة
بالمصادقة النهائية على مشروع تغيير هدف استخدام ارض القسيمة رقم 3 من القطعة رقم 2375 من زراعي
الى (مرفق عام) محطة ترحيل النفايات
منطقة تنظيم - خانيونس
قانون تنظيم المدن رقم (28) لسنة 1936

تعن اللجنة المركزية للأبنية وتنظيم المدن بمحافظة غزة أنها قد قررت بجلستها رقم 2016/11 المنعقدة بتاريخ 2016/6/8 التصديق النهائي على مشروع تغيير هدف استخدام ارض القسيمة رقم 3 من القطعة رقم 2375 من زراعي الى (مرفق عام) محطة ترحيل النفايات .
السابق إيداعه للاعتراض بموجب الإعلان الصادر عن اللجنة المركزية والمنشور في جريدتي فلسطين والحياة الجديدة بتاريخ 2016/2/1 مع وضعه موضع التنفيذ بعد مرور خمسة عشر يوماً من تاريخ نشر هذا الإعلان في الجريدة الرسمية أو في صحيفتين يوميتين محثيتين أيهما أقرب ، وذلك وفقاً لنص المادة (18) من قانون تنظيم المدن .

اللجنة المركزية للأبنية وتنظيم المدن



Annex 2.B. Decision issued and the Announcement of Changing the Land Use from Agricultural to Solid Waste Transfer Station (Arabic version)

دولة فلسطين وزارة الحكم المحلي وزارة التخطيط وزارة الزراعة	دولة فلسطين وزارة الحكم المحلي
رقم المعاملة 2016 / 11 رقم الملف 2016 / 11	
السيد / رئيس اللجنة المحلية لمنطقة تنظيم خان يونس المحترم تحية طيبة وبعد،،،	
الموضوع / القرار والإعلان المرفقين	
مرفق طيه قرار اللجنة المركزية للأبنية وتنظيم المدن بمحافظة غزة بجلستها (2016/11) والمنعقدة بتاريخ 2016/6/8.	
بشأن / التصديق النهائي على تغيير هدف استخدام أرض القسيمة رقم 3 من القطعة رقم 2375 من زراعي إلى مرفق محطة ترحيل النفايات - خان يونس.	
للإطلاع عليه وعلى الإعلان المرفق ونشره في الصحف اليومية مع ضرورة موافقتنا بنسخة عن الصحف التي يتم فيها النشر لإرفاقها بملف الموضوع.	
للعلم والعمل اللازم بحسب الأصول وإحذروا التعمية	
م. سفيان أبو سمرة رئيس اللجنة المركزية للأبنية وتنظيم المدن	
غزة	
- صورة لملف الموضوع. - إعداد / 1. ليندا السهم.	
غزة www.molg.ps +970 8 2829048 +970 8 2866844	

State of Palestine Ministry of Local Government		دولة فلسطين وزارة الحكم المحلي
<p>قرار مرقم (11) جلسة مرقم (11) تاريخ 2016/6/8</p> <p>بشأن/ التصديق النهائي على تغيير هدف استخدام ارض القسيمة مرقم 3 من القطعة مرقم 2375</p> <p>من زراعي الى مرفق محطة ترحيل النفايات - خان يونس.</p>		
<p>القرار</p> <p> * بعد الاطلاع على قرار اللجنة المركزية بجلستها رقم 2016/1 بتاريخ 2016/1/13 المتضمن ايداع تغيير هدف استخدام ارض القسيمة رقم 3 من القطعة رقم 2375 من زراعي الى (مرفق عام) محطة ترحيل النفايات - ضمن اراضي خانيونس والذي تم نشره بجريدتي فلسطين والحياة بتاريخ 2016/2/1 حيث انتهت فترة الابداع دون ورود اعتراضات حسب كتاب بلدية خانيونس المؤرخ في 2016/5/16. </p> <p> * وبعد الاطلاع على المخطط المودع والاستماع للشرح التنظيمي من ممثل اللجنة المحلية لبلدية خانيونس م. محمد عبد السلام الفراء والمناقشة قررت اللجنة المركزية التصديق النهائي على تغيير الهدف من زراعي الى محطة ترحيل نفايات (مرفق عام) ووضع موضع التنفيذ حسب الاصول. </p>		
<p>م. سفيان أبو سمرة</p> <p>رئيس اللجنة المركزية الأمنية وتنظيم المدن</p> <div style="text-align: center;">  </div>		
- صورة لملف الموضوع. - اعداد / 1. ليخدا السيم.		
+970 8 2866844 +970 8 2829048		www.molg.ps غزة