الشركة القابضة لمياه الشرب والصرف الصحي

برنامج إدارة مياه الشرب و الصرف الصحي

Water and Wastewater Management Program

gtz

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Report on:

Promoting Rural Sanitation Options

Village Survey

Dr. Mahmoud Azeem

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Strengthening Provision of Services in Qena and Promoting Appropriate Rural Sanitation Options

Promoting Rural Sanitation Options
–
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RODECO CONSULTING GMBH

GOPA WORLDWIDE CONSULTANTS

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List of Abbreviations

CDA	Community Development Association
CWWMS	Centralised Wastewater Treatment Plant
DCWWMS	Decentralised Wastewater Management System
GTZ	German Technical Cooperation
KES	Kafr El Sheikh
NRC	National Research Center
O&M	Operation and Maintenance
TC	Technical Cooperation

1. Executive Summary

This report describes the village survey conducted between October and December 2007 within the frame of the German funded TC project “Strengthening Provision of Services in Qena and Promoting Appropriate Rural Sanitation Options”. As part of this project, decentralized wastewater management systems are to be developed to improve the wastewater management in selected rural communities in the Qena governorate.

The objective of the survey of villages was twofold: On the one hand, the village communities were to be familiarized with the successful approach of the GTZ–Kafr El Sheikh management model for decentralized wastewater systems, in particular its advantages and conditions. On the other hand, the suitability of this model for application in Qena was to be assessed, in particular the communities’ acceptance of the principle and ideas, willingness and affordability to pay and actively participate by e.g. land donation, a CDA and monthly fees for O&M costs.

Comprehensive field visits were conducted covering 75 villages in 10 districts of Qena. Due to the relatively small number of villages that met the initial population criteria, the survey was extended to the Southern Area of QWWC, which includes the towns of Esna and Armant. Sociological and engineering indicators were considered during meetings and interviews with village CDAs or natural leaders and village people. Field visits were needed to test and predict the chances of success of the GTZ–KES management model in Qena rural communities. A ranking scheme was established with specific criteria to enable evaluation and judgment of the possibility to enroll or discard a village under the KES approach.

Amongst the positive findings of the field survey was that none of the villages has a so-called ground water lowering system. Water samples showed acceptable water quality and the soil boreholes showed that the soil condition and water table will not affect construction cost or time. Environmentally, it was positive to find the majority of canals and drains clean in comparison to Delta governorates.

An in-depth evaluation of villages showed that of the 75 surveyed, about 20 villages are accepting the model, willing to participate and to pay and to apply the approach (13 villages with a commitment considered as final and 7 with semi-commitment). Following a fine-tuning (ranking) of these results considering all sociological and engineering considerations, the village of El Hanady in the district of Esna scored the highest when fine tuning of the evaluation scores were made. If this village were to be selected for construction of a wastewater collection and treatment system a population of 2,516 would be served. The next ranked villages are Elkallabeyaa (Esna, 4,044 inh.), Beer Anbar (Qeft, 4,981 inh.), Tomass Afyaa (Esna, 5,106 inh.), and Elashraf Elbaharya (Qena, 5,381 inh.).

2. Introduction

The German funded project “Strengthening Provision of Services in Qena and Promoting Appropriate Rural Sanitation Options” aims at supporting Qena Water & Wastewater Company (QWWC) in improving its utility management and operation, including the provision of decentralized wastewater services to rural communities. The project is implemented on behalf of GTZ by RODECO Consulting GmbH in association with GOPA Consultants.

The majority of the population in Qena Governorate lives in rural areas and only a minor part of the communities have access to central wastewater treatment systems, which are currently implemented and operated in Qena city. In other cities such as Deshna, Armant, or Naga Hammadi, central sewage systems are currently under construction. The sewage disposal in rural areas is inadequate or nonexistent, domestic septic tanks are overflowing and hence roads and places in the villages are polluted by wastewater. Furthermore, even irrigation canals are heavily contaminated as a result of the emptying of septic tanks into the canals. This exposes the rural population to considerable health risks.

To address this problem, GTZ included component for “Promoting Appropriate Rural Sanitation Options” in the Qena project. Within the frame of this component, one of the first steps considered necessary was a village survey in order to test the management model for rural sanitation as successfully implemented by GTZ-RODECO in Kafr El Sheikh (KES) for suitability for application in Qena. To this aim, the consultant conducted comprehensive field visits to 75 villages in the Qena districts between October and December 2007. The tasks of the consultant during this survey included to:

- Collect data base information about all villages up to 10,000 capita in the central and northern areas of the Qena water and wastewater company. The survey was extended to include the Southern Area as well.
- Conduct a series of preliminary meetings with local authorities to communicate village selection criteria and community survey requirements.
- Select villages to be surveyed in consultation with the project team and in close cooperation with the waste management project.
- Prepare a questionnaire for data that need to be collected from the selected villages.
- Carry out field survey visits to a selected sample of the villages.
- Collect by direct and indirect question on their acceptance of the approach, their level of awareness, level of participation and the potential success of the rural sanitation management model.
- Carry out soil borehole testing where appropriate and necessary to measure the condition of the soil and ground water level.
- Collect water samples and make available for testing be others.

This report presents the findings and recommendations of the village survey.

3. Methodology

3.1 The Kafr El Sheikh Decentralised Wastewater Management Model

The GTZ–KES management model for decentralized wastewater systems, which has successfully been applied for more than three years (since Feb.2005) in Moufty Koubra village in Kafr Sheikh and recently in Om Sen village, in Kafr Sheikh governorate, has shown remarkable, fruitful results and developments, not only in improving wastewater management itself, but also having positive effects on the whole village society in terms of environmental and participation principles. The model is easy to describe but needs a lot of effort and understanding from the beneficiaries themselves as they have to actively participate in the development, management and operation of the system.

In KES, decentralised wastewater management principles were introduced to the pilot villages of El Moufty, Om Sen and Koleeah combined with a heavy input in public awareness raising and community involvement, and a wastewater treatment plant and a new sewer system were designed and constructed. Besides the provision of the necessary technical know how and equipment, community participation and awareness campaigns, the community management aspect were also essential elements of the decentralised approach. No decision as regards the design of the facilities, tariff setting or operation and maintenance was taken without the consultation of the community representatives, and the system is now entirely managed and owned by the community. This approach is very successful in KES as it meets the main objectives of improving community hygiene in the pilot village at affordable costs.

The basic concepts of the model can be summarized as follows:

- Select appropriate community: Similar to the objective of this study, it is necessary to test and select villages in the governorate, which are having the capabilities or willingness to participate and contribute with money and effort.
- Conduct awareness campaigns to develop the community's capacities and upgrade their participation levels. These campaigns are to last throughout the entire project and even afterwards.
- Discuss with the community and their representatives, e.g. CDA, the details of all engineering concerns, i.e. system, technology selection, components, cost as capital and O&M, advantages and disadvantages, etc. This is to enable them to understand, participate and take decisions. It also raises their feeling of ownership from the very beginning.
- In parallel to the above, prepare, design, review, tender, award, implement, and eventually hand over of selected technical system. It is essential to get people or the CDA involved in all steps to increase their institutional and financial capacities and ownership.
- Train CDA in simple accounting skills to issue invoices and collect monthly fees via a simple and easy computer software.
- Train selected contractors (preferably from the village itself) to take over the O&M work. This includes a comprehensive office and field training program with an exam at the end to evaluate contractor's staff and determine recommendations.
- Follow up protocols to test the CDA and people behavior as well as system performance.

3.2 Village Survey in Qena Governorate

Considering differences between Governorates, the replication of the concept from one Governorate to another is not always without obstacles and should be done with great care. In KES, the communities are profoundly aware of the wastewater problem since the ground water level is high and most households have to pay between 15 and 20 LE per month to have their septic tank emptied. Therefore the fully hygienic service provided by the project at a cost of less than half is very attractive. In Qena Governorate, however, the circumstances are different as the ground water is lower at about 3 to 5 meters. The problem is there but most people are not aware of the (future) threat, and therefore may not be willing to pay the expected monthly fee of up to 10 LE.

It was therefore decided to conduct a village survey in Qena to determine the acceptability of the decentralised principle, which has to be self supporting in O&M and administration costs, and assess the chances of success of a management model similar to the one in KES. In addition, the selection of the first pilot village should be prepared.

To test the possibility to apply the concept, meetings and interviews were conducted to:

- evaluate the current water supply.
- evaluate the soil conditions.
- evaluate the existing sanitary facilities.
- evaluate the acceptance of a decentralized system.
- discuss concrete benefits for every village including advantages of a proper sewerage system in regard of health and environment and cost comparable to existing approaches.
- measure the villagers' understanding and practices with a view to environmental issues by a set of questionnaires to cover all socio and engineering considerations.

In addition, the willingness of the communities to participate was determined, in particular their readiness to commit to the principles of the DCWWMS, namely to:

- pay up to LE 10 per month to cover the O&M costs, replacement of mechanical equipment as well as small extensions of the system and reinvestments.
- donate land for the facilities (pumping station and treatment plant) and
- establish a CDA which is fully responsible for the management of operation and maintenance of the system (including the ownership of the assets), contracting out of O&M activities, tariff setting, revenue collection, etc.

To achieve the above defined objectives, the following methodology was applied:

1. First, data was collected from the governorate information center about the names and population of all villages in Qena.
2. The villages with a present population up to 10,000 capita were identified.
3. All these villages were visited through a pre-coordination with the local authorities. The visits included meetings with village community development associations and their natural leaderships. The objective of the field visits was to present the project model and to test their acceptance of the approach.

4. Before collecting any data from the village, the consultant made a simple straight-forward presentation to define the project phases, system components, the proposed management model, alternatives, assignments and duties to ensure full understanding of the project by the people and their CDA and to get them to understand their responsibilities. Success stories of similar projects such as Moufty village of KES were described.
5. Following this presentation, basic information was collected to judge the applicability of the decentralized concept. These data include general, engineering and social aspects such as:

General Category • Number of affected population served by the project. • Affected area of village served by the project. • Obstacles to implementation.
Engineering Category Criteria • Possibility to have a decentralized system design. • Possibility to have the majority of houses connected. • Cost of the overall project. • Existence of local (i.e. from village people themselves) qualified contractor. • Applicability of successful design. • Possibility to test and monitor project during and after implementation.
Social Category Criteria • Existence of CDA. • Number of educated people especially in affected areas. • People participation in workshops and awareness campaigns. • People participation in other projects. • Participation percentage in this project.

6. Questionnaires were prepared to cover the above criteria, and the data needed were gathered during the meetings with a flexible approach to enable cross checking of answers in order to ensure confidence in the findings and conclusions.
7. Affordability and willingness to pay were also a major concern during the sessions and meetings with the village people and through direct investigations in the streets. An assessment was made of the living standard in the village as well as their level of awareness, especially in environmental concerns such as cleanness of streets, treating of canals and drains, solid wastes, etc.
8. Participation in similar projects was also measured by direct and indirect investigations. Previous cooperative projects conducted by the CDA in the village and the people's behavior were assessed to determine their understanding and acceptance of such approaches.
9. Soil borehole testings were randomly conducted to check some locations and to determine the level of the underground water table and also to determine the soil conditions for system construction.
10. In addition, some water samples were randomly collected from visited villages and sent to the National Research Center to check suitability of the water for drinking.
11. In the end, all above data collected was analyzed and conclusions drawn regarding the acceptability of the model and selection of pilot villages.

4. Field Visit

Qena governorate consists of eleven districts: Abo Tasht, Farshot, Naga Hamady, Deshna, Elwakf, Qena, Qfft, Nakada, Quos, and Armant, Esna. In the district of Nakada, however, none of villages were found to have less than 10.000 capita, and the district was therefore not included in the detailed survey[1].

The excel sheets in Annex A-1 show the detailed findings and analysis of the visits. Annex A-2 provides a detailed overview of the fundamental findings from field visits to the 75 villages of the ten remaining districts.

Table 1. below shows some general information on the districts and villages visited.

Table 1. Summary of District and Village Data

District	Number of local villages	Number of villages visited	Number of villages Conn. to C.W.W.T.P.
1- Abo Tasht	4	17	3
2- Farshot	2	5	3
3- Naga Hamadi	2	8	----
4- Deshna	1	2	----
5- Elwakf	2	2	----
6- Qena	3	9	1
7- Qafft	2	3	1
8- Quos	4	14	2
9- Armant	2	4	----
10- Esna	6	11	----
11- Nakada	----	----	----
Total	28	75	10

4.1 Summary of Findings

Comprehensive field visits were conducted covering 75 villages in 10 districts. Socio and engineering indicators were considered during meetings and interviews with village CDAs or traditional leaders and ordinary people.

Amongst the positive findings of the field survey was also that none of the villages has a so-called ground water lowering system. The following table and chart show a summary of the findings of the survey, more details are shown in the Annexes are the final output of the field visits to the 75 villages.

The in-depth evaluation showed that about 20 villages of the 75 surveyed are accepting the model, willing to participate and pay and to apply the approach.

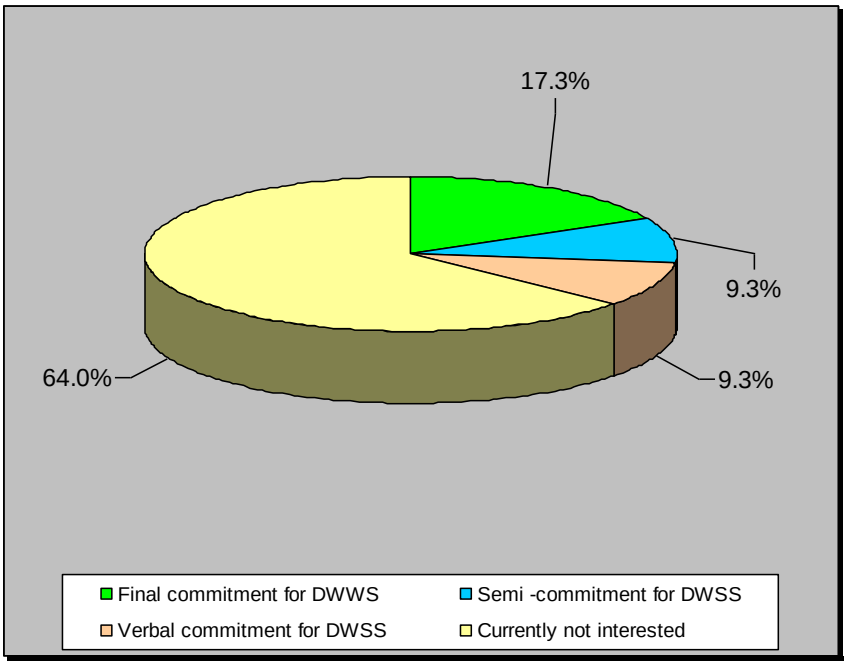
[1] Nevertheless, some villages of 15.000 capita and up were interested and very willing when they heard about the project's field visits; they contacted the team and showed very positive interest. Their names are given in annex A-1.

Table 2. Summary of Survey Findings

District	Total no. of villages	No. of village units	Trench System	No. of villages to connect to CWWTP	Final commitment for DWWS	Semi - commitment for DWSS	Verbal commitment for DWSS	Currently not interested	Total population
ABO TASHT	17	5	17	3	0	0	2	15	128,722
FARSHOT	5	2	5	3	0	0	2	3	41,296
NAGA HMADAY	8	4	8	0	1	0	0	7	19,262
DESHNA	2	1	2	0	1	0	0	1	16,396
ELWAKF	2	1	2	0	0	0	0	2	1,800
QANA	9	4	9	1	3	1	1	4	65,449
QFFT	3	3	3	1	1	0	0	2	22,324
QWOAS	14	4	14	2	2	0	0	12	111,245
ARMANT	4	2	4	0	0	4	0	0	29,063
ESNA	11	8	11	0	5	2	2	2	65,103
Total	**75**	**23**	**75**	**10**	**13**	**7**	**7**	**48**	**500,660**

CWWTP Centralised Wastewater Treatment Plant
DWWS Decentralised Wastewater System
Final written commitment
Written interest/ semi - commitment, land finding procedure ongoing
Verbal interest/ commitment
Currently not interested

Graph 1. Villages Commitment to Decentralized Management System



4.2 Score Evaluation – Village Selection

Conducting the fine tuning approach through the detailed questionnaire to evaluate the different socio-engineering concerns, the top 20 villages selected were properly ranked as given in the following table.

Table 3. Evaluation of Village Survey Data

Categories \ Villages	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	1.13 Kom Gpir	1.14 Elawamir Elgarpaia	2.1 Reefaa	2.2 Elhag Salama	3.1 Elsammanyaa	4.1 Elsabaryat	6.1 Elshik Esa	6.2 Elashraf Elbahareya	6.6 Eldeer Elgarby	6.8 Elashraf Elsharqeyaa	7.2 Beer Anbar	8.7 Eloqaab	8.10 Elmaraee	10.1 Elkallabeyaa	10.2 Zarnekh	10.5 Elmassweya	10.8 Elghareera	10.9 Hamedat	10.10 Elhanady	10.11 Tomass Afyaa
GENERAL CATEGORY (25 DEGREES)																				
1- VILLAGE PRESENT POPULATION. (10)	6	4	5	6	7	5	7	8	6	6	9	4	4	9	5	7	6	5	10	8
2-NUMBER OF HOUSES (5)	3	2	2	3	3	2	3	4	3	3	4	2	2	4	3	3	3	2	5	4
3-OBSTACLES TO IMPLEMENTATION. (10)	5	3	4	5	6	4	6	7	5	5	8	3	3	9	4	6	5	4	9	7
ENGINEERING CATEGORY (40 DEGREES)																				
1- POSSIBILITY TO HAVE A DECENTRALIZED SYSTEM DESIGN. (5)	3	2	2	3	4	2	3	4	2	2	4	2	2	4	2	4	3	2	5	4
2-POSSIBILITY TO HAVE MAJORITY OF HOUSES CONNECTED . (5)	2	1	1	2	3	2	3	3	1	1	4	1	1	4	3	3	2	3	4	3
3-COST OF OVERALL PROJECT. (5)	3	2	2	3	4	2	3	4	3	2	5	2	2	4	2	4	4	2	5	4
4-EXISTENCE OF LOCAL CONTRACTOR (10)	10	9	9	10	10	10	8	10	9	9	10	10	10	10	10	10	10	10	10	10
5-APPLICABILITIES OF SUCCESSFUL DESIGN. (10)	5	3	4	5	6	4	8	7	4	4	8	3	3	9	4	6	5	4	9	7
6-POSSIBILITY TO TEST AND MONITOR PROJECT AFTER AND DURING IMPLEMENTATION. (5)	2	1	1	2	3	3	2	3	3	1	4	1	1	4	3	3	3	2	4	2
SOCIAL CATEGORY (35 DEGREES)																				
1-EXISTANCE OF CDA. (10)	6	4	4	7	5	4	4	4	8	8	8	3	4	9	4	5	4	4	9	5
3-LOCAL UNIT ACTIVITY.m (5)	4	3	3	4	4	3	3	4	4	3	4	2	3	4	3	4	3	3	5	3
4-PEOPLE BEHAVIOR. (10)	8	6	6	6	6	8	8	7	9	9	8	4	4	9	8	5	7	7	10	7
7-WELLING TO PAY. (10)	7	5	5	6	7	7	8	6	8	7	7	3	5	9	7	7	8	6	10	8
TOTAL SCORE.	64	45	48	62	68	56	66	71	65	60	83	40	44	88	58	67	63	54	95	72
RANKING.	R10	R18	R17	R12	R6	R15	R8	R5	R9	R13	R3	R20	R19	R2	R14	R7	R11	R16	R1	R4

In above detailed evaluation, the village of El Hanady in the district of Esna scored the highest. If this village were to be selected for construction of a wastewater collection and treatment system, a population of 2,516 would be served.

Table 4: Population Covered by Selected Villages

Ranked:	Village Name	District	Area	Population	Approx. Number of Houses
1	El Hanady	Esna	Southern	2,516	390
2	El Kalladeyaa	Esna	Southern	4,044	750
3	Beer Anbar	Queft	Central	4,981	500
4	Tomass Afyaa	Esna	Southern	5,106	400
5	El Ashraf El Baharya	Qena	Central	5,381	450
6	El Sammanyaa	Naga Hamady	Northern	6,035	650
7	El Massweya	Esna	Southern	6,680	800
8	Elshik Esa	Qena	Central	6,997	733
9	Eldeer El Gabarby	Qena	Central	7,167	650
10	Kom Gapir	Abu Tescht	Northern	7,541	750

The top ranked village, El Hanady, would serve a population of 2,516. If it was decided not to carry out a project in the Southern Area of Qena due to the Kfw project not financing any infrastructure there the next village to be selected would be Beer Anbar in the Qena District of the Central Area. This village would serve a population of 4,981.

4.3 Water Samples

Some random water samples were collected to check the water quality in selected villages. The analysis was conducted in the National Research Center. Generally, the water samples are considered acceptable except some minor deviations. Also disinfection may be needed. Details are provided the NRC report in Annex B.

Table 4 provides key results as an indication only of the groundwater quality and does not reflect the quality of the drinking water within the villages.

Table 5. Groundwater Analysis of Selected Villages in Qena Governorate

Groundwater Analysis of Selected Villages in Qena Governorate								
	Unit	Limit*	(1)°	(2)	(3)	(4)	(5)	(6)
PH		6.5:8.5	8.20	8.19	8.30	8.09	7.73	8.80
Electrical Conductivity	Mg/l	N.A.	304	2050	874	736	1103	1071
Total Dissolved Solid	Mg/l	1200	229	1486	524	440	778	760
Total Hardness	Mg/l	500	108	380	300	100	232	260
Calcium Hardness	Mg/l	350	66	250	148	52	100	180
Magnesium Hardness	Mg/l	150	42	142	152	48	132	80
Chloride	Mg/l	400	40	80	96	90	72	68
Sulfate	Mg/l	400	66	562	114	12	122	120
Nitrite	Mg/l	0.9	0.008	0.010	0.030	0.009	0.011	0.010
Nitrate	Mg/l	10	0.073	0.151	0.062	N.D	0.159	0.120
Calcium	Mg/l	350	26.5	100	59.3	20.8	40.0	72.1
Magnesium	Mg/l	N.A.	9.2	34.5	37.0	11.7	32.1	19.5
Iron	Mg/l	1.0	N.D	0.19	N.D	0.12	N.D	N.D
Manganese	Mg/l	0.40	N.D	N.D	N.D	N.D	N.D	N.D

*Limit: As per Egyptian. Standards for Potable Drinking Water

°Key = (1) El Ghareera, (2) Beer Anbar, (3) El Awamir Elgarpia, (4) Kom Gapir, (5) El Ghawsaa, (6) El Maseed

4.4 Soil Investigations

A random sample of villages was selected to take soil condition samples to give an indication of the suitability for installation of sewer networks. The following five villages were chosen, situated close to the Nile River: Elmahameed Baharee, Elmahameed Qeblee, Elkallabeyaa, Elmakzn, and Beer Anbar.

The soli investigation in these villages have shown the following:

- Homogenous soil layers contain clay, silt and organic matters.
- The groundwater level appears at depths between (-1.7m and -2.3m)

Generally, the soil conditions and depth of ground water table is not affecting the cost of network construction. For further information please see the attached report, in Arabic, in Annex C.

5. Conclusions

Of a total number of 11 districts, 10 districts were visited (the 11th did not have any villages with a population below 10.000). All 75 villages in these districts were visited. The following are the key conclusions from this survey (for details please refer to the Annex):

- There is no groundwater lowering system in any village.
- There are only trenches inside houses; therefore there are no difficulties to implement the networks in future.
- Water samples are considered acceptable
- Soil conditions and the depth of the ground water table are not affecting system design and construction.
- There might be a need for disinfecting the water network because of a possibility of existence of biological pollution.
- The majority of the canals and drains are very clean as the people are not disposing wastes or solids.
- The excel tables herein after and the data above show that about 20 villages are willing to apply the GTZ–KES management model.
- The excel tables show the selected 20 villages as final (13) and semi (7) commitment to differentiate between level of commitment. Also, an additional 7 villages were chosen as showing some hesitation and uncertainty.
- The level of participation, awareness, acceptance of approach and willingness to pay is reasonably high in the 20 villages considered for the possible application of the model.
- The list below shows the ranking of the considered 20 villages as per the selection criteria. A higher ranking was given to villages meeting the following criteria: less population, lower expected construction and operation cost, people were showing interest, active CDA, high potential success expectations and other socio-engineering considerations. The 5 top ranked villages were:

Ranking	Village
R1	Elhanady
R2	Elkallabeyaa
R3	Beer Anbar
R4	Tomass Afyaa
R5	Elashraf Elbaharya

A decision will need to be taken by GTZ, Cairo and the Qena Project regarding the suitability of villages selected by this survey and evaluation. Originally, the Southern Area of Qena was disregarded from the survey due to the KfW project not covering that part of the governorate. If the top scoring village, El Hanady is not suitable due to its location in the Southern Area then the next top scoring village should be selected and so on.

ANNEX A – FIELD VISIT FINDINGS

1. Field Visit Report (Detailed Findings)

2. Summary Sheet (Excel)

1 – Abo Tasht

The following table shows the basic data of the villages visited in the district:

NO	District	Local Village	Village	COMMENTS
1	Abo Tasht	Abo Shush	Alauamirand Bany Barza	
2			Alkwalid	
3			Alrawatp	
4			Alawsat Samhwd	
5		Elkara	Alrafasha	
6			Alhabylt Algarbaya	
7			Kom Yakyp	
8		Kasr Megans	Kasr Megans	
9			Elzarayb	C.W.W.T.P.
10			Elameraya	
11			Elgablat Elsharkaya	
12		Beganas	Elzarka	C.W.W.T.P.
13			Elklaia	C.W.W.T.P.
14			El Shakifa	
15			Gizert Eldom	
16			Kom Gapir	
17			Elawamir Elgarpaia	

C.W.W.T.P: Centralized Waste Water Treatment Plant

1.1 Alauamir and Bany Barza

1.1.1 General Data:

- Present population: 9783 capita.
- Number of houses is 800.

Main Road

1.1.2 Socio – Engineering Considerations:

- Area required is not available.
- Some obstacles were observed.
- People are not interested in project.
- No CDA exist.
- No other projects were conducted.

1.1.3 Conclusion:

The village is disregarded because:

- Area required is not available.
- People are not interested in project.

1.2 Elkwalid

1.2.1 General Data:

- Present population: 9451 capita.
- Number of houses is 750.

Main Drain in the Village

1.2.2 Socio – Engineering Considerations:

- The distance from the village to the desert is 8 km.
- The main road, drain and canal divide the village into three parts, which represents engineering obstacles.
- The average village population is very poor.
- They are not willing to pay more than 2 L.E /month / house hold.

1.2.3 Conclusion:

The village is disregarded because:

- Area required is not available.
- People are not interested in project or to pay.
- Engineering obstacles.

1.3 Elrawatp

1.3.1 General Data:

- Present population: 9751 capita.
- Very high Population density.

Drain at village north entrance

1.3.2 Socio – Engineering Considerations:

- The roads are very narrow and snaky.
- Area required is not available.
- People are not interested in project.
- Very in – active CDA.

1.3.3 Conclusion:

To be disregarded because:

- Area required is not available.
- People are not interested in project.

1.4 Elawsat Samhwd

1.4.1 General Data:

- Present population: about 8370 capita.
- Number of houses is 955.

Main road in the village

1.4.2 Socio – Engineering Considerations:

- Area required is not available.
- People are not interested in project.
- They are not interested to donate or participate.
- They prefer wait for governmental project.
- The drain and canal separated the village to two parts.

1.4.3 Conclusion:

To be disregarded because:

- Area required is not available.
- People are not interested in project.
- Engineering obstacles.

1.5 Elrafasha

1.5.1 General Data:

- Present population: 5094 capita.
- Number of houses is 600.

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1.5.2 Socio – Engineering Considerations:

- the roads are very narrow and snaky,
- Area required is not available.
- People are not interested in project.
- No CDA exist.

1.5.3 Conclusion:

To be disregarded because:

- Area required is not available.
- People are not interested in project.

1.6 Elhobyit Elgarbaya

1.6.1 General Data:

- Present population: 6590 capita.
- Number of houses is 560.

Main Canal in the village

1.6.2 Socio – Engineering Considerations:

- Area required is not available.
- People are not interested in project.
- The distance from the village to the desert is 30 km.
- The canal separated the village to two parts.

1.6.3 Conclusion:

The village is disregarded because:

- Area required is not available.
- People are not interested in project.
- Engineering obstacles.

1.7 Kom Yakop

1.7.1 General Data:

- Present population: 9291 capita.
- Number of houses is 1000.

1.7.2 Socio – Engineering Considerations:

- The distance from the village to the desert is10 km.
- Engineering obstacles.
- The average population is very poor.
- The ground water table is very low.

1.7.3 Conclusion:

The village is disregarded because:

- Area required is not available.
- People are not interested in project.
- Engineering obstacles.

1.8 Kasrmegans

1.8.1 General Data:

- Present population: 9146 capita.
- Number of houses is 1000.

1.8.2 Socio – Engineering Considerations:

- The distance from the village to the desert is 35 km.
- The average population is very poor.
- No CDA exist.

1.8.2 Conclusion:

The village is disregarded because:

- Area required is not available.
- People are not interested in project.

1.9 Elameraya

1.9.1 General Data:

- Present population: about 6334 capita.
- Number of houses is 500.

1.9.2 Socio – Engineering Considerations:

- Area required is not available.
- People are not interested in project.
- The distance from the village to the desert is 30 km.

1.9.3 Conclusion:

To be disregarded because:

- Area required is not available.
- People are not interested in project.

1.10 Elhopylat Elsharkiya

1.10.1 General Data:

- Present population: 4607 capita.
- Number of houses is 350.

The Streets in the village

1.10.2 Socio – Engineering Considerations:

- The roads are very narrow and snaky.
- Area required is not available.
- People are not interested in project.

1.10.3 Conclusion:

To be disregarded because:

- Area required is not available.
- People are not interested in project.

1.11 Elshakifa

1.11.1 General Data:

- Present population: 7738 capita.
- The internal roads are narrow and snaky.

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1.11.2 Socio – Engineering Considerations:

- Area required is not available.
- People are not interested in project.
- They prefer wait for governmental project.

1.11.3 Conclusion:

To be disregarded because:

- Area required is not available.
- People are not interested in project.

1.12 Gizert Eldom

1.12.1 General Data:

- Present population: 8843 capita.
- Number of houses is 1000.

Main canal in the village

1.12.2 Socio – Engineering Considerations:

- They are not interested to donate or participate.
- No CDA exist.
- Area required is not available.
- Engineering obstacles.

1.12.3 Conclusion:

The village is disregarded because:

- Area required is not available.
- People are not interested in project.

1.13 Kom Gapir

1.13.1 General Data:

- Present population: 7541 capita.
- Number of houses is 750.

Main road in the village

1.13.2 Socio – Engineering Considerations:

- The People need more time to discuss the proposal.
- CDA exists and active.
- They are interested to donate and participate.
- The distance from the village to the desert is 3 km.

1.13.2 Conclusion:

The village is considered because:

- Area required is available.
- People are interested in project.

1.14 Elawamir Elgarpaia

1.14.1 General Data:

- Present population: 9146 capita.
- Number of houses is 1000.

Main Road in the village

1.14.2 Socio – Engineering Considerations:

- The People are very willing to participate in the project.
- No CDA so for but they ready to form one immediately.
- The distance from the village to the desert is 3 km.

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1.14.2 Conclusion:

The village is considered because:

- Area required is available.
- People are interested in project.
- People are active and care.

2. Farshot

NO	District	Local Village	Village	COMMENTS
1	Farshot	Koom Elahmar	Reefaa	
2			Elhag Salamaa	
3		Elossyrat	Elossyrat	C.W.W.T.P
4			Kom Elbega	C.W.W.T.P
5			Elkapipa	C.W.W.T.P

2.1 Reefaa

2.1.1 General Data:

- Present population: 8839 capita.
- Number of houses is 950

Main road in the village

2.1.2 Socio – Engineering Considerations:

- Area required is available
- People are interested in project
- Present system for sanitation: trench in houses
- They have CDA.

2.1.3 Conclusion:

The village is considered because:

- Area required is available.
- People are interested in project.
- They asked how to start and ready to collect donations.

2.2 Elhag Salama

2.2.1 General Data:

- Present population: 7636 capita.
- Number of houses is 860

Main Road in the village

2.2.2 Socio – Engineering Considerations:

- People are interested in project.
- Present system for sanitation: trench in houses.
- Area required is available.

2.2.3 Conclusion:

The village is considered because:

- Area required is available.
- People are interested in project.

3. Naga Hamady

NO	District	Local Village	Village
1	Naga Hamady	Elhelfaya Bahree	Elsammaneyaa
2		Awlad Negm Bahgora	Awlaad Negm Bahgora
3			Awlaad Negm Tema
4			Elhenfawea
5		Elshaynaa	El masalhaa
6			Hammar Doom
7			Abo Hezaam
8			Naagee El Shik Ahmed Nour El Deen

3.1 Elsammaneyaa

3.1.1 General Data:

- Present population: 6035 capita.
- Number of houses is 560

Main Road in the village

3.1.2 Socio – Engineering Considerations:

- Area required is available
- People are interested in project
- Present system for sanitation: trench in houses
- No CDA. But they share together in former projects.

3.1.3 Conclusion:

- The village is considered because:
- Area required is available.
- People are interested in project.

3.2 Awlaad Negm Bahgora

3.2.1 General Data:

- Present population: 9993 capita.
- Number of houses is 800

3.2.2 Socio – Engineering Considerations:

- Area required is not available
- People are not interested in project
- The distance from the village to the desert is 20 km
- No CDA. No previous cooperation in previous projects.

3.2.3 Conclusion:

The village is disregarded because:

- Area required is not available.
- People are not interested in project.

3.3 Awlaad Negm Tema

3.3.1 General Data:

- Present population: 6275 capita.
- Number of houses is 650.

Main road and drain in the village

3.1.2 Socio – Engineering Considerations:

- The distance from the village to the desert equal 35 km.
- The main road and drain split the village to two parts.

3.3.3 Conclusion:

The village is disregarded because:

- Area required is not available.
- People are not interested in project.
- Engineering obstacles.

3.4 Elhenfawea

3.4.1 General Data:

- Present population: 4652 capita.
- Number of houses is 350.


The internal roads in the village

3.4.2 Socio – Engineering Considerations:

- The houses are very close to each other with high density.
- The internal roads are narrow and snaky.
- The canal separated the village to two parts causing engineering obstacles.
- Area required is not available.
- People are not interested in project.
- No CDA.

3.4.3 Conclusion:

To be disregarded because:

- Area required is not available.
- People are not interested in project.
- Engineering obstacles.

3.5 Elmasalhaa

3.5.1 General Data:

- Present population: about 9479 capita.
- Number of houses is 750

3.5.2 Socio – Engineering Considerations:

- Area required is not available.
- Drain and canal separated the village to two parts.
- People are not interested in project.

3.5.3 Conclusion:

- To be disregarded because:
- Area required is not available.
- People are not interested in project.

3.6 Hammar Doom

3.6.1 General Data:

- Present population: 1490 capita.
- Number of houses is 400.

3.6.2 Socio – Engineering Considerations:

- The roads are very narrow and snaky.
- Area required is available.
- People are not interested in project.

3.6.3 Conclusion:

To be disregarded because:

- People are not interested in project, ever though other criteria apply.

3.7 Abo Hezaam

3.7.1 General Data:

- Present population: 2257 capita.
- Number of houses is 350.

Main road in the village

3.7.2 Socio – Engineering Considerations:

- Area required is available
- People are not interested in project

3.7.3 Conclusion:

The village is disregarded because:

- People are not interested in project. Waiting for government project.

3.8 Naagee Elshik Ahmad Nour Eldeen

3.8.1 General Data:

- Present population: 1384 capita.
- Number of houses is 300.

Main road in the village

3.8.2 Socio – Engineering Considerations:

- They are not interested to donate or participate. Waiting for governmental solution.
- All other criteria successfully apply.

3.8.3 Conclusion:

The village is disregarded because:

- People are not interested in project.

4. Deshna

NO	District	Local Village	Village
1	Deshna	Faw Qablee	Elsabaryat
2			Faw Gharb

4.1 Elsabaryat

4.1.1 General Data:

- Present population: 8371 capita.
- Number of houses is 1000.

Main road in the village

4.1.2 Socio – Engineering Considerations:

- Area required is available.
- People are interested in project.
- Present system for sanitation: trench in houses.
- No CDA. But they can form one.

4.1.3 Conclusion:

The village is considered because::

- Area required is available.
- People are interested in project.

4.2 Faw Gharb

4.2.1 General Data:

- Present population: 8025 capita.
- Number of houses is 750.

Main road in the village

4.2.2 Socio – Engineering Considerations:

- Area required is not available.
- People are not interested in project.
- The distance from the village to the desert equal 20 km.
- No CDA.

4.2.3 Conclusion:

The village is disregarded because:

- Area required is not available.
- People are not interested in project

5- Elwakf

NO	District	Local Village	Village
1	Elwakf	El Marshdaa	Elqalmeena
2		El Kom El Tawil	Gazeert Elhamorey

5.1 Elqalmeena

5.1.1 General Data:

- Present population: 9756 capita.
- Number of houses is 1000.

Main road in the village

Canal in the village

5.1.2 Socio – Engineering Considerations :

- Area required is not available.
- People are not interested in project.
- Present system for sanitation: trench in houses.
- The distance from the village to the desert equal 30 km.
- The canal separated the village to three parts.
- They have CDA.

5.1.3 Conclusion:

The village is disregarded because:

- Area required is not available.
- People are not interested in project
- Engineering obstacles.

5.2 Gazeert Elhamorey

5.2.1 General Data:

- Present population: 7051 capita.
- Number of houses is 800.

Main Canal in the village

5.2.2 Socio – Engineering Considerations:

- This village is island placed in the middle of the River Nile.
- Area required is not available.
- Present system for sanitation: trench in houses.

5.2.3 Conclusion:

The village is disregarded because:

- Area required is not available.
- People are not interested in project.

6- Qena

NO	District	Local Village	Village	COMMENTS
1	Qena	Elqenawia	Elmaghadma	C.W.W.T.P
2			Elshik Esa	
3			Elashraf Elbahareya	
4		Awlaad Omar	Elghawysaa	
5			Gizert Etawabyaa	
6			Eltawabyaa	
7		Elmahrossa	Eldeer Elgarby	
8			Elassalyaa	
9			Elashraaf Elsharqeyaa	

6.1 Elshik Esa

6.1.1 General Data:

- Present population: 6997 capita.
- Number of houses is 670.

The main rood in the village

6.1.2 Socio – Engineering Considerations:

- Area required is available.
- People are interested in project.
- Present system for sanitation: trench in houses.
- They have CDA.

6.1.3 Conclusion:

- The village is considered because:
- Area required is available.
- People are interested in project.

6.2 Elashraf Elbahareya

6.2.1 General Data:

- Present population: 5381 capita.
- Number of houses is 450.

Voiding a trench

6.2.2 Socio – Engineering Considerations:

- Area required is available.
- People are interested in project.
- Present system for sanitation: trench in houses.
- They have CDA.
- The ground water table is very low.

6.2.3 Conclusion:

The village is considered because:

- Area required is available.
- People are interested in project.

6.3 Elghawysaa

6.3.1 General Data:

- Present population: 8802 capita.
- Number of houses is 850.

The main Canal in the village

6.3.2 Socio – Engineering Considerations:

- Area required is not available.
- People are not interested in project.
- Present system for sanitation: trench in houses.
- The distance from the village to the desert is 20 km.
- The canal separated the village to two parts.
- They have CDA.

6.3.3 Conclusion:

The village is disregarded because:

- Area required is not available.
- Engineering obstacles.

6.4 Gizert Etawabyaa

6.4.1 General Data:

- Present population: 9487 capita.
- Number of houses is 1000.

Water Treatment Plant in the village

6.4.2 Socio – Engineering Considerations:

- Area required is not available.
- People are not interested in project.
- Present system for sanitation: trench in houses.
- They have CDA.

6.4.3 Conclusion:

The village is disregarded because:

- Area required is not available.
- People are not interested in project.

6.5 Eltawabyaa

6.5.1 General Data:

- Present population: 6364 capita.
- Number of houses is 1000.

6.5.2 Socio – Engineering Considerations:

- Area required is not available.
- People are not interested in project.
- Present system for sanitation: trench in houses.

6.5.3 Conclusion:

The village is disregarded because:

- Area required is not available.
- People are not interested in project.

6.6 Eldeer Elgarby

6.6.1 General Data:

- Present population: 7167 capita.
- Number of houses is 650.

Main Rood in the village

6.6.2 Socio – Engineering Considerations:

- Area required is available.
- People are interested in project.
- Present system for sanitation: trench in houses.
- They have CDA.

6.6.3 Conclusion:

The village is considered because:

- Area required is available.
- People are interested in project.

6.7 Elasslyaa

6.7.1 General Data:

- Present population: 6913 capita.
- Number of houses is 800.

The railway in the village

6.7.2 Socio – Engineering Considerations:

- Area required is not available.
- People are not interested in project.
- Present system for sanitation: trench in houses.
- The distance from the village to the desert is 5 km.
- The canal and railway split the village to two parts.
- They have CDA.

6.7.3 Conclusion:

The village is disregarded because:

- Area required is not available.
- People are not interested in project.
- Engineering obstacles.

6.8 Elashraf Elsharqeyaa

6.8.1 General Data:

- Present population: 7824 capita.
- Number of houses is 500.

Main Rood in the village

6.8.2 Socio – Engineering Considerations:

- Area required is available.
- People are interested in project.
- Present system for sanitation: trench in houses.
- They have CDA.
- The distance from the village to the desert is 3 km.

6.8.3 Conclusion:

The village is considered because:

- Area required is available.
- People are interested in project**.**

7- Qfft

NO	District	Local Village	Village	COMMENTS
1	Qfft	Elshikya	Elshikya	
2			Eloydaat	C.W.W.T.P
3		Elqallaa	Beer Anbar	

7.1 Elshikya

7.1.1 General Data:

- Present population: 9592 capita.
- Number of houses is 8000.

The railway in the village

The drain in the village

7.1.2 Socio – Engineering Considerations:

- Area required is not available.
- People are not interested in project.
- The distance from the village to the desert is 15 km.
- They have CDA.
- The drain and railway split the village to two parts.

7.1.3 Conclusion:

The village is disregarded because:

- Area required is not available.
- People are not interested in project.
- Engineering obstacles**.**

7.2 Beer Anbar

7.2.1 General Data:

- Present population: 4981 capita.
- Number of houses is 500.

Main Rood in the village

7.2.2 Socio – Engineering Considerations:

- Area required is available.
- People are interested in project.
- Present system for sanitation: trench in houses.
- The distance from the village to the desert is 1.5 km.
- They have CDA.

7.2.3 Conclusion:

The village is considered because:

- Area required is available.
- People are interested in project**.**

8- Qwoss

NO	District	Local Village	Village	COMMENTS
1	Qwoss	Elharageaa	Elkarrtaa	
2			Elhomor and Gaafraa	
3			Elmeqarabyaa	
4			Elmakzn	
5			Elmaqareen	
6		Kezzm	Elmefaragyaa	
7			Eloqaab	
8		Garagos	Elshoraanee	C.W.W.T.P
9			Elhelaa	C.W.W.T.P
10		Elkalalsaa	Elkalalsaa	
11		Elkalalsaa	Elmaseed	
12		Elkalalsaa	Elmaree	
13		Elkalalsaa	Abassa	
14		Elkalalsaa	Shanhoor	

8.1 Elkarrtaa

8.1.1 General Data:

- Present population: 8198capita.
- Number of houses is 700.

Main Rood in the village

8.1.2 Socio – Engineering Considerations:

- Area required is not available
- People are not interested in project
- The distance from the village to the desert is 15 km
- The canal split the village to two parts. Canal width is 25m.
- No CDA.

8.1.3 Conclusion:

The village is disregarded because:

- Area required is not available.
- People are not interested in project.
- Engineering obstacles.

8.2 Elhomor and Gaafraa

8.2.1 General Data:

- Present population: 8761 capita.
- Number of houses is 1500.

8.2.2 Socio – Engineering Considerations:

- The distance from the village to the desert is 20 km.
- The main road, drain and canal split the village to three parts.
- No CDA.

8.2.3 Conclusion:

The village is disregarded because:

- Area required is not available.
- People are not interested in project.
- Engineering obstacles.

8.3 Elmeqarabyaa

8.3.1 General Data:

- Present population: 7588 capita.
- Number of houses is 1500.

The internal road in the village

8.3.2 Socio – Engineering Considerations:

- The houses are very close to each other with high density.
- The internal roads are narrow and snaky.
- Area required is not available.
- People are not interested in project.
- No CDA.
- The drain and canal split the village to three parts.

8.3.3 Conclusion:

To be disregarded because:

- Area required is not available.
- People are not interested in project.
- Engineering obstacles.

8.4 Elmakzn

8.4.1 General Data:

- Present population: about 9201 capita.
- Number of houses is 1200.

8.4.2 Socio – Engineering:

- Area required is not available.
- People are not interested in project.
- The main canal split the village to two parts. Canal width is 30m.
- The distance from the village to the desert is 6 km.
- They have CDA.

8.4.3 Conclusion:

To be disregarded because:

- Area required is not available.
- People are not interested in project.
- Engineering obstacles.

8.5 Elmaqareen

8.5.1 General Data:

- Present population: 5380capita.
- Number of houses is 1000.

The internal road in the village

8.5.2 Socio – Engineering Considerations:

- The roads are very narrow and snaky.
- Area required is not available.
- People are not interested in project.
- The distance from the village to the desert is 15 km.
- No CDA.

8.5.3 Conclusion:

To be disregarded because:

- Area required is not available.
- People are not interested in project.
- Engineering obstacles.

8.6 Elmefaragyaa

8.6.1 General Data:

- Present population: 8797 capita.
- Number of houses is 1000.

The canal in the village

8.6.2 Socio – Engineering Considerations:

- Area required is not available.
- People are not interested in project.
- No CDA.
- The distance from the village to the desert is 8 km.
- The railway and four canals split the village.

8.6.3 Conclusion:

The village is disregarded because:

- Area required is not available.
- People are not interested in project.
- Engineering obstacles.

8.7 Eloqaab

8.7.1 General Data:

- Present population: 9281 capita.
- Number of houses is 1000.

8.7.2 Socio – Engineering Considerations:

- Area required is available.
- People are interested in project.
- Present system for sanitation: trench in houses.
- The distance from the village to the desert is 250m
- The small canal split the village to two parts. Canal width is 5m.
- They have CDA.

8.7.3 Conclusion:

The village is considered because:

- Area required is available.
- People are interested in project.

8.8 Elkalalsaa

8.8.1 General Data:

- Present population: 8855 capita.
- Number of houses is 900.

Main Rood in the village

8.8.2 Socio – Engineering Considerations:

- The distance from the village to the desert is 3 km
- The average population is very poor
- The main canal split the village to two parts. Canal width is 30m.
- They have CDA.

8.8.3 Conclusion:

The village is disregarded because:

- Area required is not available.
- People are not interested in project.
- Major Engineering obstacles

8.9 Elmaseed

8.9.1 General Data:

- Present population: about 8702 capita.
- Number of houses is1000.

8.9.2 Socio – Engineering Considerations:

- The distance from the village to the desert is 3 km
- The main canal split the village to two parts. Canal width is 30m
- They have CDA.

8.9.3 Conclusion:

To be disregarded because:

- Area required is not available.
- People are not interested in project.
- Engineering obstacles.

8.10 Elmaraee

8.10.1 General Data:

- Present population: 9241 capita.
- Number of houses is 1500.

8.10.2 Socio – Engineering Considerations:

- The roads are very narrow and snaky.
- Area required is available.
- People are interested in project.
- The distance from the village to the desert is 3 km.
- The small drain split the village to two parts. Drain width is 3m.
- They have CDA.

8.10.3 Conclusion:

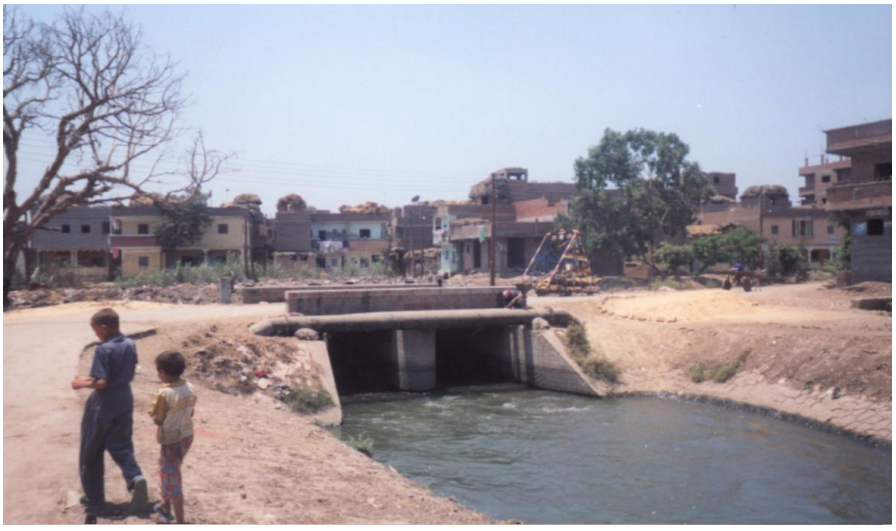
The village is considered because:

- Area required is available.
- People are interested in project.

8.11 Abassa

8.11.1 General Data:

- Present population: 5457 capita.
- Number of houses is1000.



Main canal in the village

8.11.2 Socio – Engineering Considerations:

- The roads are very narrow and snaky.
- Area required is not available.
- People are not interested in project
- The distance from the village to the desert is 8 km

- The main canal and main rood split the village to two parts. Canal width is 30m.
- They have CDA.

8.11.3 Conclusion:

To be disregarded because:

- Area required is not available.
- People are not interested in project.
- Engineering obstacles.

8.12 Shanhoor

812.1 General Data:

- Present population: 9420 capita.
- Number of houses is 1000.

Main road in the village

8.12.2 Socio – Engineering Considerations:

- Area required is not available.
- People are not interested in project.
- The distance from the village to the desert is 8 km.
- The main canal and main rood split the village to two parts. Canal width is 30m.
- They have CDA.

8.12.3 Conclusion:

The village is disregarded because:

- Area required is not available.
- People are not interested in project.
- Major engineering obstacles.

9- Armant

NO	District	Local Village	Village
1	Armant	Elzoryqaat Bahree	Elzoryqaat Qeblee
2		Elmahameed Bahree	Elmahameed Bahree
3			Elmahameed Qeblee
4			Eldemoqratee

9.1 Elzoryqaat Qeblee

9.1.1 General Data:

- Present population: 9532 capita.
- Number of houses is 1000.

9. 1.2 Socio – Engineering Considerations:

- Area required is available.
- People are interested in project.
- The two canals split the village to three parts.
- The average population is very poor.
- They have CDA.
- The distance from the village to the desert is 5 km.
- They are hesitating about possible cooperation in such huge project.

9.1.3 Conclusion:

The village is disregarded because:

- Engineering obstacles.

9.2 Elmahameed Bahree

9.2.1 General Data:

- Present population: 5718 capita.
- Number of houses is 700.

9.2.2 Socio – Engineering Considerations:

- Area required is available.
- People are interested in project.
- The average population is very poor.
- They have CDA.
- The distance from the village to the desert is 5 km.
- The main canal split the village to two parts. Canal width is 20m.

9.2.3 Conclusion:

The village is disregarded because:

- Area required is not available.
- Engineering obstacles.

9.3 Elmahameed Qeblee

9.3.1 General Data:

- Present population: 8643 capita.
- Number of houses is 750.

Main Rood in the village

9.3.2 Socio – Engineering Considerations:

- Area required is available.
- People are not interested in project.
- The average population is very poor.
- They have CDA.
- The distance from the village to the desert is 5 km.
- The main canal split the village to two parts. Canal width is 20m.

9.3.3 Conclusion:

The village is disregarded because:

- Area required is not available.
- Engineering obstacles.
- They can't afford paying more them 2 LE/ month.

9.4 Eldemoqratee

9.4.1 General Data:

- Present population: 5170 capita.
- Number of houses is 500.

Main canal in the village

9.4.2 Socio – Engineering Considerations:

- Area required is available.
- People are not interested in project.
- The average population is very poor
- They have CDA.
- The Ground water table is varying shallow.
- The distance from the village to the desert is 5 km.
- The main canal split the village to two parts. Canal width is 20m.

9.4.3 Conclusion:

The village is disregarded because:

- Area required is not available.
- The average is very poor.
- Engineering obstacles.
- Not interested.

10- Esna

NO	District	Local Village	Village
1	Esna	Elhelaa	Elkallabeyaa
2			Zarnekh
3		Elshaghab	Elmaalaa
4			Eldababyaa
5		Elnemssaa	Elmassweyaa
6			Elteraa
7			Gezert Rageh
8		Keman Elmattanaa	Elghareera
9		Eldeer	Elhamedat
10			Elhanady
11		Tomass Afyaa	Tomass Afyaa

10.1 Elkallabeyaa

10.1.1 General Data:

- Present population: 4044 capita.
- Number of houses is 750.

Main Rood in the village

10.1.2 Socio – Engineering Considerations:

- Area required is available
- People are interested in project
- Present system for sanitation: trench in houses
- The Ground water table is vary shallow
- The main canal and main rod split village to two parts. Canal width is 8m.

10.1.3 Conclusion:

The village is considered because:

- Area required is available.
- People are interested in project.

10.2 Zarnekh

10.2.1 General Data:

- Present population: 8020 capita.
- Number of houses is 700.

10.2.2 Socio – Engineering Considerations:

- The average population is very poor.
- Area required is available.
- People are interested in project.

10.2.3 Conclusion:

The village is considered because::

- Area required is available.
- People are interested in project.

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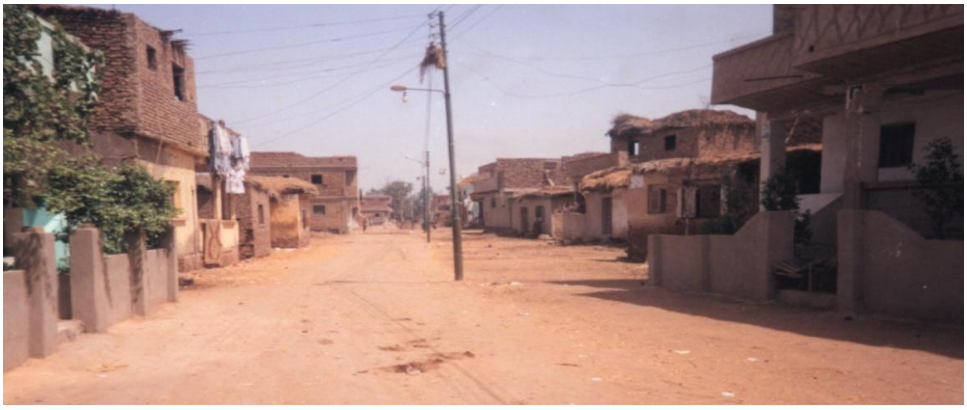
10. 3 Elmaalaa

10.3.1 General Data:

- Present population: 8211 capita.
- Number of houses 650.



Main Road in the village

10.3.2 Socio – Engineering Considerations:

- Area required is available
- People are interested in project
- The main two canals and main railway split the village to two parts.
- Canal width is 30m
- They have CDA.

10.3.3 Conclusion:

To be disregarded because:

- Engineering obstacles.

10.4 Eldababyaa

10.4.1 General Data:

- Present population: 5126 capita.
- Number of houses is 500

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10.4.2 Socio – Engineering Considerations:

- Area required is available.
- People are not interested in project.
- The main two canals and main railway split the village to two parts .
- Canal width is 30m.
- They have CDA.

10.4.3 Conclusion:

To be disregarded because:

- Engineering obstacles.
- Not interested.

10.5 Elmassweyaa

10.5.1 General Data:

- Present population: 6680 capita.
- Number of houses is 800.

Main Canal in the village

10.5.2 Socio – Engineering Considerations:

- People are interested in project.
- Area required is available.
- They have CDA but not much active.
- The canal and main railway split the village to two parts.

10.5.3 Conclusion:

The village is considered because:

- Area required is available.
- People are interested in project**.**

10.6 Elteraa

10.6.1 General Data:

- Present population: 5232 capita.
- Number of houses is 455.

10.6.2 Socio – Engineering Considerations:

- The average population is very poor.
- People are not interested in project.
- Area required is not available.

10.6.3 Conclusion:

The village is disregarded because:

- Area required is not available.
- People are not interested in project.

10.7 Gezert Rageh

10.7.1 General Data:

- Present population: 4048 capita.
- Number of houses is 500.

Main road in the village

10.7.2 Socio – Engineering Considerations:

- The average population is very poor
- People are not interested in project.
- Area required is not available

10.7.3 Conclusion:

The village is disregarded because:

- Area required is not available
- People are not interested in project

10.8 Elghareera

10.8.1 General Data:

- Present population: 7596 capita
- Number of houses is 800.

10.8.2 Socio - Engineering Considerations:

- Area required is available.
- People are interested in project.

10.8.3 Conclusion:

The village is considered because:

- Area required is available.
- People are interested in project**.**

10.9 Elhamedat

10.9.1 General Data:

- Present population: 8524 capita.
- Number of houses is 900.

Main road in the village

10.9.2 Socio – Engineering Considerations:

- Area required is available.
- People are interested in project.

10.9.3 Conclusion:

The village is considered because:

- Area required is available.
- People are interested in project**.**

10.10 Elhanady

10.10.1 General Data:

- Present population: 2516 capita.
- Number of houses is 390.

10.10.2 Socio - Engineering Considerations:

- Area required is available
- People are interested in project.
- They have CDA.
- They are interested to donate and participate.
- The distance from the village to the desert is 1.5 km

10.10.3 Conclusion:

The village is considered because:

- Area required is available.
- People are interested in project**.**

10.11 Tomass Afyaa

10.11.1 General Data:

- Present population: 5106 capita.
- Number of houses is 400.

Main road in the village

10.11.2 Socio – Engineering Considerations:

- Area required is available.
- People are interested in project.
- Present system for sanitation: trench in houses.
- They have CDA.
- They are interested to donate and participate.

10.11.3 Conclusion:

The village is considered because:

- Area required is available.
- People are interested in project.

11-NAKADA

The villages (Kom Bilal – Nagaa Elfyran – Touk – Elhdayat – Awlad dyiaa) in Nakada district were not listed below 10000 capita in the received population data from the governorate; however they heard about the project and contacted us to show interest in participation.

ANNEX B – WATER SAMPLE ANALYSIS

National Research Centre
Environmental Consultation
&
Water Quality Unit

المركز القومى للبحوث
الوحدة الاستشارية للبيئة المائية

نتائج دراسة عينات المياه الوارده من مكتب الدار (د / محمود عبد العظيم)

وردت العينات بمعرفة المكتب وتحت مسئوليته

	Unit	(1)	(2)	(3)	(4)	(5)	(6)
pH	-	8.20	8.19	8.30	8.09	7.73	8.80
Electrical Conductivity	µmho/cm	304	2050	874	736	1103	1075
Total Dissolved Solids	mg/l	229	1486	524	440	778	760
Total Hardness	mg/l	108	380	300	100	232	260
Calcium Hardness	mg/l	66	250	148	52	100	180
Magnesium Hardness	mg/l	42	142	152	48	132	80
Chloride	mg/l	40	80	96	90	72	68
Sulfate	mg/l	66	562	114	12	122	120
Nitrite	mg/l	0.008	0.010	0.030	0.009	0.011	0.010
Nitrate	mg/l	0.073	0.151	0.062	N.D	0.159	0.120
Calcium	mg/l	26.5	100	59.3	20.8	40.0	72.1
Magnesium	mg/l	9.2	34.5	37.0	11.7	32.1	19.5
Iron	mg/l	N.D	0.19	N.D	0.12	N.D	N.D
Manganese	mg/l	N.D	N.D	N.D	N.D	N.D	N.D

1- العزيزه
2- مركز قنا (بير عنبر)
3- ابو تشت (كوم حماده)
4- ابو تشت (سمهور)
5- الغوصة (قنا)
6- المسيدتا

ملحوظه :- نظراً لقلة حجم العينات رقم 3 ، 4 تم قياس المواد الصلبة الذائبة باستخدام جهاز التوصيل الكهربائى وليس بطريقة التبخير.

رئيس الوحدة الاستشارية للبيئة المائية

أ.د/ أسامه أحمد على

Tahrir Street – Dokki – Giza
Phone & Fax: 3371479

شارع التحرير – الدقى – الجيزة
تليفون وفاكس: 3371479

وزارة الصحة والسكان
الإدارة المركزية لشئون البيئة

مقترح المعايير والمواصفات الواجب توافرها في المياه الصالحة للشرب والإستخدام المنزلى

أولا : الخواص الطبيعية :-

م	الخاصية	الحد الأقصى المسموح به
١	اللون	معدوم
٢	الطعم	مقبول
٣	الرائحة	معدومة
٤	العكارة	٣ وحده (NTU)
٥	الرقم الهيدروجيني	٦,٥ – ٨,٥

ثانيا : مواد غير عضوية لها تأثير على الاستساغة والإستخدامات المنزلية :-

م	الخاصية	الحد الأقصى المسموح به (ملليجرام / لتر)
١	الأملاح الذائبة عند ١٢٠° م	١٢٠٠
٢	عسر كلي as $CaCO_3$	٥٠٠
٣	عسر كالسيوم as $CaCO_3$	٣٥٠
٤	عسر ماغنسيوم as CO_3	١٥٠
٥	كبريتات SO_4	٤٠٠
٦	كلوريدات Cl	٤٠٠
٧	حديد Fe	١,٠
٨	منجنيز Mn	٠,٤
٩	نحاس Cu	٢,٠
١٠	الزنك Zn	٥,٠
١١	الصوديوم Na	٢٠٠

(٢)

ثانيا : المواد الكيميائية ذات التأثير على الصحة العامة :-

(أ) المواد الغير عضوية :

م	الخاصية		الحد الأقصى المسموح به (ملليجرام / لتر)
١	الألومنيوم	Al	٠,٢
٢	الرصاص	Pb	٠,٠٢٥
٣	الزئبق	Hg	٠,٠٠١
٤	الزرنيخ	As	٠,٠١
٥	السيانيد	CN	٠,٠٥
٦	الكادميوم	Cd	٠,٠٠٣
٧	السيلينيوم	Se	٠,٠١
٨	الكروميوم	Cr	٠,٠٥
٩	الأمونيا	as (NH_3)	١,٥
١٠	النترات	as (N)	١٠
١١	النيتريت	as (NO_2)	٠,٩
١٢	الفلوريدات	F	٠,٨
١٣	الأنتيمون	Sb	٠,٠٢
١٤	الباريوم	Ba	٠,٧
١٥	البورون	B	٠,٥
١٦	النيكل	Ni	٠,٠٢
١٧	الموليبدينيوم	Mo	٠,٠٧

(ب) المواد العضوية :-

م	الخاصية		الحد الأقصى المسموح به (ملليجرام/لتر)
١	الاكلور	Alachlo	٠,٠٢
٢	الديكارب	Aldicarb	٠,٠١
٣	ألدرين ، داى إلدرين	Aldrin and dieldrin	٠,٠٠٠٠٣
٤	أترازين	Atrazine	٠,٠٠٢
٥	بنتازون	Bentazone	٠,٠٣
٦	كاربوفيوران	Carbofuran	٠,٠٠٧
٧	كلوردان	Chlordane	٠,٠٠٠٢
٨	كلوروتوليورون	Chlorotoluron	٠,٠٣
٩	د.د.ت	D.D.T	٠,٠٠١

ANNEX C – SOIL INVESTIGATION ANALYSIS

Qena Governorate/Deshna District

No.	Village	Population	No. of Houses	Local Village Unit	Trench System	GLS	Visiting Date	Contact Person	Telephone	Comments/ Findings
1	Elsabaryat	8,371	1,000	Faw Qeblee	Yes	No	11.11.2007	Mahmad AbdElnasr	0125811828	interested, land available
2	Faw Gharb	8,025	750	Faw Qeblee	Yes	No	11.11.2007	Ahmad Ezat	--	village not interested, land not available , main rail Way through the village

GSL	Ground Watr Lwering Sysytem
CWWTP	Centralised Wastewater Treatment Plant
DWWS	Decentralised Wastewater System
	Final written commitment
	Written interest/ semi - commitment, land finding procedure ongoing
	Verbal interest/ commitment
	Currently not interested

Qena Governorate/Elwakf District

No.	Village	Population	No. of Houses	Local Village Unit	Trench System	GLS	Visiting Date	Contact Person	Telephone	Comments/ Findings
1	Elqalmeena	9,756	1,000	ElMarshdaa	Yes	No	24.02.2007	Mustafa Ahmad	0100490320	village currently not interested, land currently not available
2	Gazeert Elhamorey	7,051	800	El Kom El Tawil	Yes	No	24.02.2007	Ahmad Ezat	--	village currently not interested, land currently not available

GLS	Ground Water Lowering System
CWWTP	Centralised Wastewater Treatment Plant
DWWS	Decentralised Wastewater System
	Final written commitment
	Written interest/ semi - commitment, land finding procedure ongoing
	Verbal interest/ commitment
	Currently not interested

Qena Governorate/Qena District

No.	Village	Population	No. of Houses	Local Village Unit	Trench System	GLS	Visiting Date	Contact Person	Telephone	Comments/ Findings
1	Elmaghadma	6,514	670	Elqenawia	Yes	No	10.11.2007	Hamid Hamam	0965470655	to connect to CWWTP
2	Elshik esa	6,997	733	Elqenawia	Yes	No	10.11.2007	Sayad Krara	0106627947	interested, land available
3	Elashraf Elbahareya	5,381	450	Elqenawia	Yes	No	10.11.2007	Mahmod Ahmad	0121149345	interested, land available
4	Elghawysaa	8,802	850	Awlaad omar	Yes	No	13.11.2007	Gwmaa Abd Elryhym	0120704078	canal and main road through the village, otherwise applicable for DWWS
5	Gizert Etawabyaa	9,487	1,000	Awlaad omar	Yes	No	13.11.2007	--	--	village currently not interested, land currently not available
6	Eltawabyaa	6,364	900	Awlaad omar	Yes	No	13.11.2007	Farok	0125704050	village currently not interested, land currently not available
7	Eldeer Elgarby	7,167	650	Elmahrossa	Yes	No	13.11.2007	Ahmad Ebrahem	0103815233	interested, land available, need time to discus
8	Elassalyaa	6,913	800	Elashraaf elgharbyaa	Yes	No	11.11.2007	Mohamed Kamal	0108154372	village currently not interested
9	Elashraaf elsharqeyaa	7,824	500	Elashraaf elgharbyaa	Yes	NO	11.11.2007	Farag Ali	--	interested, land available

GLS	Ground Water Lowering System
GLS	Ground Water Lowering System
CWWTP	Centralised Wastewater Treatment Plant
DWWS	Decentralised Wastewater System
	Final written commitment
	Written interest/ semi - commitment, land finding procedure ongoing
	Verbal interest/ commitment
	Currently not interested

CWWTP - Centralised Wastewater Treatment Plant
DWWS - Decentralised Wastewater System

Qena Governorate/Qfft District

No.	Village	Population	No. of Houses	Local Village Unit	Trench System	GLS	Visiting Date	Contact Person	Telephone	Comments/ Findings
1	Elshikya	9,592	800	Elshikya	Yes	No	11.11.2007	Ebrahem Ali	0966903496	village currently interested, land currently not available
2	Eloydaat	7,751	650	Elshikya	Yes	No	11.11.2007	Elhagag Sony	0124092256	to connect to CWWTP
3	beer anbar	4,981	500	Elqallaa	Yes	No	11.11.2007	Gamal Mahmoud	0181029467	interested, land available

GLS	Ground Water Lowering System
CWWTP	Centralised Wastewater Treatment Plant
DWWS	Decentralised Wastewater System
	Final written commitment
	Written interest/ semi - commitment, land finding procedure ongoing
	Verbal interest/ commitment
	Currently not interested

Qena Governorate/Qwoass District

No.	Village	Population	No. of Houses	Local Village Unit	Tranch System	GLS	Visiting Date	Contact Person	Telephone	Comments/ Findings
1	Elkarrtaa	8,198	700	Elharageaa	Yes	No	11.11.2007	Abd Elhakeem faraag	0129902650	village currently not interested, land currently not
2	Elhomor and gaafraa	8,761	1,500	Elharageaa	Yes	No	11.11.2007	Ahmad Shayb	0966841962	village currently interested, land currently not
3	Elmeqarabyaa	7,588	1,500	Elharageaa	Yes	No	11.11.2007	Ghallab	0101940864	village currently interested, land currently not
4	Elmakzn	9,201	1,200	Elharageaa	Yes	No	11.11.2007	Fawzy saeed	0106941901	village currently interested, land currently not
5	Elmaqareen	5,380	1,000	Elharageaa	Yes	No	11.11.2007	Abd Elhakeem faraag	0966903501	village currently interested, land currently not
6	Elmefaragyaa	8,797	1,000	Kezzm	Yes	No	12.11.2007	Hossen Ali	0125989185	village currently not interested, land currently not
7	Eloqaab	9,281	1,000	Kezzm	Yes	No	12.11.2007	omdaa	0965456191	interested, land available
8	Elshoraanee	9,291		Garagos	Yes	No	12.11.2007	--	--	to connect to CWWTP
9	Elhelaa	3,073		Garagos	Yes	No	12.11.2007	--	--	to connect to CWWTP
10	Elkalalsaa	8,855	900	Elkalalsaa	Yes	No	12.11.2007	Moammed Yassen	0964190165	village currently interested, land currently not available
11	Elmaseed	8,702	1,000	Elkalalsaa	Yes	No	12.11.2007	Abd Elfattah	0101025871	village currently interested, land currently not
12	Elmaree	9,241	1,500	Elkalalsaa	Yes	No	12.11.2007	Kamel Elmassree	0127565858	interested, land available
13	Abassa	5,457	1,000	Elkalalsaa	Yes	No	12.11.2007	Ali Elnagar	0182973926	village currently interested, land currently not
14	Shanhoor	9,420	1,000	Elkalalsaa	Yes	No	12.11.2007	Ebrahem Ali	0966810475	village currently interested, land currently not

GLS	Ground Water Lowering System
CWWTP	Centralised Wastewater Treatment Plant
DWWS	Decentralised Wastewater System
	Final written commitment
	Written interest/ semi - commitment, land finding procedure ongoing
	Verbal interest/ commitment
	Currently not interested

Qena Governorate/Armant District

No.	Village	Population	No. of Houses	Local Village Unit	Trench System	GLS	Visiting Date	Contact Person	Telephone	Comments/ Findings
1	Elzoryqaat qeblee	9,532	1,000	Elzoryqaat bahree	Yes	No	13.11.2007	Fathee Meaoad	0952670141	two canal through the village, otherwise applicable for DWWS
2	Elmahameed bahree	5,718	700	Elmahameed bahree	Yes	No	13.11.2007	Mohamed Hyree	0952680103	Three canal through the Force main , applicable for DWWS
3	Elmahameed qeblee	8,643	750	Elmahameed bahree	Yes	No	13.11.2007	Helme Mohamed	0952681353	Three canal through the Force main , applicable for DWWS
4	Eldemoqratee	5,170	500	Elmahameed bahree	Yes	No	13.11.2007	Mahmoud Abdrehem	09526800090	Three canal through the Force main , applicable for DWWS

GLS	Groundwater Lowering System
CWWTP	Centralised Wastewater Treatment Plant
DWWS	Decentralised Wastewater System
	Final written commitment
	Written interest/ semi - commitment, land finding procedure ongoing
	Verbal interest/ commitment
	Currently not interested

CWWTP - Centralised Wastewater Treatment Plant
DWWS - Decentralised Wastewater System

ABC Qena Governorate/Esna District

No.	Village	Population	No. of Houses	Local Village Unit	Trench System	GLS	Visiting Date	Contact Person	Telephone	Comments/ Findings
1	Elkallabeyaa	4,044	750	Elhelaa	Yes	No	14.11.2007	Bastawy Ahmad	0108687872	interested, land available
2	Zarnekh	8,020	700	Elhelaa	Yes	No	14.11.2007	Ramadan Ahmad	0962540130	interested, land available
3	Elmaalaa	8,211	650	Elshaghab	Yes	No	14.11.2007	Hamad Mahmad	0952491079	two canal & rail way through the village,
4	Eldababyaa	5,126	500	Elshaghab	Yes	No	14.11.2007	Abd Elaaty	0161188513	two canal & rail way through the village,
5	Elmassweyaa	6,680	800	Elnemssaa	Yes	No	14.11.2007	Kamys Alsanwy	0962450277	interested, land available
6	Elteraa	5,232	455	Elnemssaa	Yes	No	14.11.2007	Abd Elrahman	0973410557	currently not interested, land not available
7	Gezert Rageh	4,048	500	Elnemssaa	Yes	No	14.11.2007	Elhag Abdo	0165635945	currently not interested, land not available,
8	Elghareera	7,596	800	Keman Elmattanaa	Yes	No	13.11.2007	Adlee Shwkat	0952680550	interested, land available
9	Elhamedat	8,524	900	Eldeer	Yes	No	14.11.2007	Kaleed	0952580041	interested, land available, need time to discuss
10	Elhanady	2,516	390	Eldeer	Yes	No	14.11.2007	Gabeer Gad	0952580633	interested, land available, need time to discuss
11	Tomass Afyaa	5,106	400	Tomass Afyaa	Yes	No	13.11.2007	Saber Mekee	0952577013	interested, land available

GLS Ground Water Lowering System

CWWTP Centralised Wastewater Treatment Plant

DWWS Decentralised Wastewater System

Final written commitment

Written interest/ semi - commitment, land finding procedure ongoing

Verbal interest/ commitment

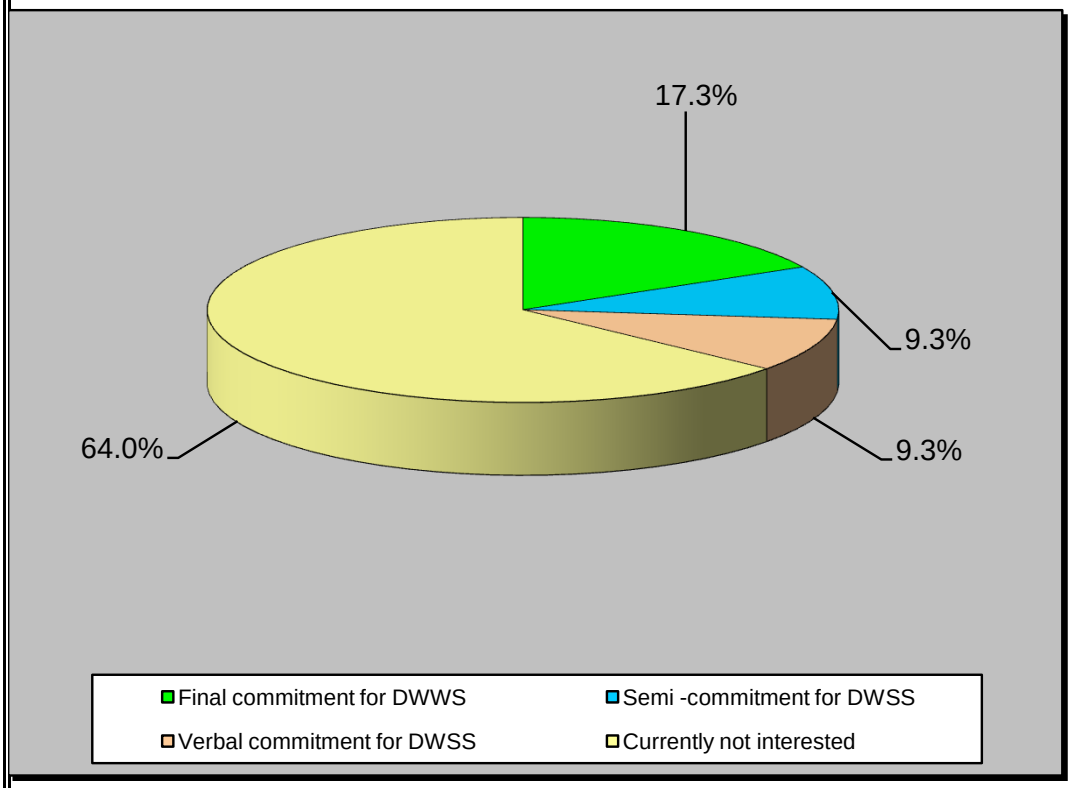
Currently not interested

Summary / Qena Governorate

District	Total no. of villages	No. of village units	Trench System	No. of villages to connect to CWWTP	Final commitment for DWWS	Semi - commitment for DWSS	Verbal commitment for DWSS	Currently not interested	Total population
ABO TASHT	17	5	17	3	0	0	2	15	128,722
FARSHOT	5	2	5	3	0	0	2	3	41,296
NAGA HMADAY	8	4	8	0	1	0	0	7	19,262
DESHNA	2	1	2	0	1	0	0	1	16,396
ELWAKF	2	1	2	0	0	0	0	2	1,800
QANA	9	4	9	1	3	1	1	4	65,449
QFFT	3	3	3	1	1	0	0	2	22,324
QWOAS	14	4	14	2	2	0	0	12	111,245
ARMANT	4	2	4	0	0	4	0	0	29,063
ESNA	11	8	11	0	5	2	2	2	65,103
Total	**75**	**23**	**75**	**10**	**13**	**7**	**7**	**48**	**500,660**

CWWTP Centralised Wastewater Treatment Plant
DWWS Decentralised Wastewater System
Final written commitment
Written interest/ semi - commitment, land finding procedure ongoing
Verbal interest/ commitment
Currently not interested

Charts



Final commitment for DWWS	Semi - commitment for DWSS	Verbal commitment for DWSS	Currently not interested
13	7	7	48

Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH
Water & Wastewater Management Program
Holding Company for Water and Wastewater (HCWW),
Corniche El Nil, Water Treatment Plant-Road El Farag
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الوكالة الألمانية للتعاون الفني
برنامج إدارة مياه الشرب و الصرف الصحي
الشركة القابضة لمياه الشرب و الصرف الصحي
كورنيش النيل محطة مياه ريض الفرج
تليفون : ٠٠٢٠٢ ٢٤٥ ٩٨ ٤٠٥/٤١١
فاكس: ٠٠٢٠٢ ٢٤٥ ٩٨ ٤٠٥/٤١١
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