

AQABA-MA'AN SCOPING SESSION

1 LIST OF PARTICIPANTS AT AQABA-MA'AN SCOPING SESSION

Table 1: List of participants at Aqaba scoping session

No.	Name	Institution
1	Mr Qasem Al-Ragheya	Al-Hassa Municipality
2	Ms Nadia Al-Mousa	Al-Humeimeh Women Organization
3	Ms Shama Al-Mousa	Al-Humeimeh Women Organization
4	Dr Ali Abu Sleem	Al-Husseini University
5	Mr. Fayeeg Mohammad Hasan Al-Tarawneh	Al-Husseineih Organization for Charitable Work -Karak
6	Eng. Rabab Al-Kabarini	Aqaba Agricultural Office
7	Mr. Khaldoun Ahmad Al-Momani	Aqaba Governorate
8	Dr. Bilal Al-Basheer	Aqaba Special Economic Zone Authority (ASEZA)
9	Dr. Salim Mahmoud Al-Moghrabi	Aqaba Special Economic Zone Authority (ASEZA)
10	Eng. Khaled El-Soukhni	Aqaba Special Economic Zone Authority (ASEZA)
11	Eng. Mohammad Al-A'zab	Aqaba Special Economic Zone Authority (ASEZA)
12	Mr Ahmad Jabri	Aqaba Special Economic Zone Authority (ASEZA)
13	Mr A'la Waradat	Aqaba Special Economic Zone Authority (ASEZA)
14	Mr Ali Abu Huweila	Aqaba Special Economic Zone Authority (ASEZA)
15	Mr. Mahmodu Bdour	Aqaba Special Economic Zone Authority (ASEZA)
16	Ms Taghreed Abdallah Al-Ma'aita	Aqaba Special Economic Zone Authority (ASEZA)
17	Eng. Bilal Al-Assi	Aqaba Water Authority
18	Ms Hana Kraizem	Aqaba Women Charitable Society
19	Mr. Ahmad AbdRahman Abu Saleh	Association of Charitable Organizations - Ma'an
20	Mr. Ahmad Mahmoud Al-Hemran	Association of Charitable Organizations - Tafileh
21	Hasan Al-Zanni	Badia Forces - Rum
22	Eng. Omar Bashir Al-Laham	Disi Agricultural Office (Manager)
23	Ms Khawla Al-Zawaideh	Disi Centre for Human Development / The Hashemite Jordanian Fund for Human Development
24	Ms Najat Al-Hilawi	Eilah Organization for Social Development
25	Mr Fares Abu Tayeh	Jafr Municipality
26	Eng. Mohammad Salim Abu Mouas	Jordan Environment Society
27	MS Mona Toukan	Jordan Environment Society
28	Eng. Khaled Za'al Al-Majjali	Ma'an Municipality
29	Eng. Ibrahim Al-Nawafleh	Ministry of Water and Irrigation - Petra
30	Eng. Fayez Bataineh	Ministry of Water and Irrigation
31	Eng. Mohammad Najjar	Ministry of Water and Irrigation
32	Eng. Nazir Abu Arquob	Ministry of Water and Irrigation
33	Mr Harb Salem Al-Zawaideh	Municipality of Disi Villages
34	Mr Bader Mousa Tashtoush	National Electricity Company - Aqaba
35	Mr Awad Mohammad Al-Mazneh	Rum Valley
36	Eng.Emad Zureikat	Water Authority of Jordan (WAJ)
37	Eng. Jihad Saqarat	Water Authority of Jordan (WAJ)- Tafileh
38	MS Da'd Najeh Sultan	Women Association - Aqaba
39	Dr. Sawsan Himmo	Consolidated Consultants
40	Dr.Adnan Al-Salihi	Consolidated Consultants
41	Eng. AbdRahman Jabr	Consolidated Consultants
42	Eng. Hasan Nassif	Consolidated Consultants
43	Eng. Raushan Ramadan	Consolidated Consultants

Table 1: List of participants at Aqaba scoping session (contd.)

No.	Name	Institution
44	Eng. Tarek Abbadi-Saleh	Consolidated Consultants
45	Majdi Salameh	Consolidated Consultants
46	Mr. Abdul Karim Bourini	Consolidated Consultants
47	Mr. Abdul Karim Bourini	Consolidated Consultants
48	Rola Quba'a	Consolidated Consultants
49	Safa Rousan	Consolidated Consultants

1.1 Focus Group 1: Water Resources

1.1.1 Group Members

The names of the members of the water Focus Group are shown in **Table 2**.

Table 2: The members of the water resources focus group

No.	Name	Institution
1.	Eng. Mohammad Najjar	Ministry of Water and Irrigation
2.	Eng. Taghrid Abdallah Al-Ma'aitah	Aqaba Special Economic Zone (ASEZA)
3.	Eng. Mohammad Al-A'zeb	Aqaba Special Economic Zone (ASEZA)
4.	Eng. Khaled Al-Soukhni	Aqaba Special Economic Zone (ASEZA)
5.	Mr. Awad Mohammad Al-Mazni	Aqaba Special Economic Zone (ASEZA)
6.	Ms Hanaa DayfAllah Kreizim	Aqaba Women Organization
7.	Mr. Harb Salem Al-Zawaideh	Disi Municipality
8.	Eng. Khaled Za'al Al-Mjali	Ma'an Municipality
9.	Eng. Ibrahim Al-Nawafleh	Ma'an Water Authority
10.	Eng. Khaled Jamil Al-Abddine	Tafileh Water Authority
11.	Eng. Jihad Al-Saqarat	Water Authority for Southern Regions
12.	Ms Da'ad Najeh Sultan	Women Association-Aqaba
13.	Mr. Fayeq Mohammad Hasan Al-Tarawneh	Al-Husseineih Organization for Charitable Work -Karak
14.	Mr. Rami Salameh	Hashemite University
15.	Dr. Adnan Al-Salihi	Consolidated Consultants
16.	Eng. Raushan Ramadan	Consolidated Consultants
17.	Eng. Tarek Abbadi-Saleh	Consolidated Consultants

1.1.2 Discussions within Focus Group

At the beginning of the meeting, Dr. Adnan Al-Salihi, representing the Consultant, introduced a brief summary about surface and ground water and relations to the Disi Watershed.

The following are the main subjects that were laid for discussion:

- 1- Water resources of Jordan in terms of both, quality and quantity.
- 2- The Jordanian water sector and its ultimate relation to Disi.
- 3- Disi Aquifer with respect to:
 - a. Quality and quantity,
 - b. Present and Future consumption, and
 - c. Water budget.
- 4- Justification of conveying Disi water to Amman, to the regions along its route and to the project region.

- 5- Implications of effluent enhancement on the Jordan Valley due to improvement of the consumed water quality.

1.1.3 Conclusions of the Focus Group

The following points and issues were mainly arrived at during the focus group discussions:

- 1- Quality and quantity of the water resources of Jordan:
 - a. Water is insufficient and incompatible with consumption; example is the Yarmouk Basin.
 - b. Jordan has to take advantage of all water resources and develop them to be available technically and economically (e.g., desalination of ground water in different regions).
 - c. Desalination of water in Jordan exceeds 5 MCM.
 - d. Take advantage of surface water, implement laws to encourage collection of rainwater, and increase dam construction.
 - e. Enlighten local societies about water usage.
 - f. Deal with water losses in water systems with dependable maintained lines.
 - g. Study industrial water-use.
- 2- Water sector and its intimate relation to the Disi-Mudawarra Water Conveyance System.
- 3- Address the Disi Aquifer in terms of:
 - a. Its water quality and quantity;
 - b. Present and Future water consumption;
 - c. Water budget;
 - d. Giving priority to take advantage of Disi Water.
 - e. Giving a chance for aquifers affected by oppressive pumping or water abstraction to regain their quality due to water compensation from Disi Basin.
 - f. Having future plans for speeding water resources for the region (Disi and Aqaba) to 40 or 50 years to come is a must.
- 4- Justification of conveying Disi water to Amman, regions along its route and to the project region. This justification should indicate the following:
 - a. Water is a national fortune and everybody has the right to have access to it.
 - b. Rationalization in water consumption.
 - c. The economical feedback in 1 m³ of water consumption on agriculture and industry.
 - d. Aqaba and the regions' right in the Disi water.
 - e. The water scarcity that the Disi region is suffering from.
 - f. Enforce part of the litre price to develop the Disi region regarding with respect to the water aspect.
 - g. Share the region in the water policies specified for Disi.
 - h. The participants expressed their concern that the ranches or agricultural lands in the Disi region exceed or violate the contracts of pumping water from Disi Basin and the type of crops irrigated or planted.

- 5- Implications of effluent enhancement to the Jordan Valley due to improvement of the consumed water quality.
 - a. Enhancement of consumed water quality in Amman leads to increase in water consumption and therefore enhancement of the effluent water quality from the wastewater treatment plants (WWTP).
 - b. The group does not agree about the idea of increasing consumption depends on the price of 1 m³.
 - c. Enhancement of effluent quality improves planting with better economic income.
 - d. Increase the benefit of treated water consumption (which, is of better quality due to consumption of Disi water), by using it for industry, and therefore will have better economic income than agriculture. For example, the industrial compound in Aqaba currently consumes 3 MCM of clean fresh Disi water; this will be altered so that the industrial compound would consume treated water from the Aqaba WWTP (that is currently under construction), which will increase in the future.
 - e. The group agreed that the conveyor route regions would be supplied with water according to their need (if there is a “Need” the location and quantity of this “Need” must be defined in order to cover it).

1.2 Focus Group 2: Social Assessment

1.2.1 Group Members

The names of the members of the Social Assessment Focus Group and the stakeholders they represent are shown in **Table 3**.

Table 3: The members of the social assessment focus group

No.	Name	Institution
1.	Eng. Nazeer Abu Arqoub	Ministry of Water and Irrigation
2.	Ms Khawla Attallah Al-Zawaideh	Hashemite Jordanian Fund for Human Development
3.	Ms Shama Al-Mousa	Al-Humeimeh Women Organization
4.	Eng. Ali Abu Howeileh	Aqaba Special Economic Zone (ASEZA)
5.	Mr. A'la Wardat	Aqaba Special Economic Zone (ASEZA)
6.	Dr. Bilal Assi	Aqaba Water Authority
7.	Ms Nadia Al-Moussa	Aqaba Women Organization
8.	Mr. Ahmad AbdRahman Abu Saleh	Association of Charitable Societies of Ma'an
9.	Al-Raed Hasan Edreizi Al-Zebn	Badia Forces
10.	Ms Najat samih Al-Hilawi	Eilah Organization for Social Development
11.	Mr. Ali Hamdi Abu Sleem	Hussein University
12.	Eng. Bader Mousa Tashtoush	National Electricity Company - Aqaba
13.	Mr. Abdul Karim Bourini	Consolidated Consultants
14.	Eng. AbdRahman Jabr	Consolidated Consultants
15.	Eng. Hasan Nassif	Consolidated Consultants

1.2.2 Discussions within Focus Group

The focus group discussions started with a brief explanation from Mr. Abdul Karim Bourini, who represents the Consultant, about the project.

1.2.3 Focus Group Conclusions

The social assessment focus group concluded the following:

- 1- Direct social impacts and these include:
 - a. Population (direct and indirect)
 - b. Employment and allocation of a certain percentage of required labour for the local residents alongside the pipeline and in Disi. In this case, employment would be a positive impact.
 - c. Implications on public health in terms of improving water quality which is a positive impact.
 - d. Economic considerations and individuals ability to pay for the water (minimal impact and the lower social groups will not be affected).

- 2- Indirect social impacts and these include:
 - a. Public Health
 - b. Disrupting traffic movement for residents and large vehicles. This impact is expected to be along the Desert Highway and the last third of the conveyor route.
 - c. The temporary disruption of energy sources and this is considered to be a temporary and partial impact.
 - d. Temporary disruption of water sources in terms of stopping the water pipelines and this is considered to be a temporary and partial impact.
 - e. Business shops (Qatraneh, Al-Jiza, and Abu Alanda) and taking into account the affected commercial shops owners alongside the pipeline as a result of the project, by compensating their expected financial losses.

- 3- Indigenous people (Badia area and the tribes available there).

- 4- No impacts in terms of land acquisition since lands were already acquired in a previous stage.

1.3 Focus Group 3: environmental, Agricultural and Cultural Resources – Aqaba Scoping Session

1.3.1 Group Members

The names of the members of the Environmental, Agricultural and Cultural Focus Group and the stakeholders they represent are shown in **Table 4**.

Table 4: The members of the a-biotic focus group

No.	Name	Institution
1.	Eng. Fayez Bataineh	Ministry of Water and Irrigation
2.	Eng. Rabab Al-Kabarity	Aqaba Agricultural Office
3.	Dr. Salim Moghrabi	Aqaba Special Economic Zone (ASEZA)
4.	Dr. Bilal Al-Bashir	Aqaba Special Economic Zone (ASEZA)
5.	Mr. Mahmoud Bdoor	Aqaba Special Economic Zone (ASEZA)/ Rum Reserve
6.	Mr Ahmad Mahmoud Al-Hammarat	Association of Charitable Societies of Tafileh
7.	Eng. Ahmad Adnan Jabri	Consolidated Consultants
8.	Eng. Omar Bashir Al-Laham	Disi Agricultural Office
9.	Mr. Qasem Za'al Al-Hayaya	Hassa Municipality
10.	Mr Fares Abu Tayeh	Jafer Municipality
11.	Eng. Mohammad Salim Mousa	Jordan Environment Society
12.	Mr. Majdi Salameh	Consolidated Consultants
13.	Ms Safa Rousan	Consolidated Consultants
14.	Ms Rola Quba'a	Consolidated Consultants

1.3.2 Discussions within Focus Group

- Segment A (Southern Part) which extends from the Well Field to Joruf Al Drawish - Qatraneh Junction (Desert Highway)
 - Segment A-1: from Disi wells to Batn Al-Ghoul
 - Segment A-2: from Batn Al-Ghoul to the cross point between Jurf Al-Drawish and the Desert Highway
- Segment B (Middle Segment) which extends from Joruf Al Drawish-Qatraneh Junction to the beginning of Al Jiza Area (South of Amman)
 - Segment B-1: from the cross point between Jurf Al-Drawish to the Qatraneh cross road
 - Segment B-2: from Qatraneh cross road to Al-Jiza area
- Segment C (Northern Segment) which extends from Al Jiza to Dabook and Abu Alanda Reservoirs
 - Segment C-1: from Al Jiza to Airport bridge
 - Segment C-2: from Airport bridge to Abu Alanda Reservoir
 - Segment C-3: from Airport bridge to Dabook Reservoir

The topics to be discussed within this group were determined to include the following:

- A-biotic environment
- Biotic environment
- Agricultural Resources and Activities
- Archaeological and Cultural Heritage
- Environmental Management Plan for the project

As for water resources and social issues, these would not be addressed in this focus group.

The Consultants have conducted a field trip in which they followed the route of the conveyor. Accordingly, a list of potential impacts has been developed and written down on a flip-chart for discussion with the focus group. However, it is expected that the focus group would add to this list of potential impacts.

Within the discussion, the participants with this focus group added the following as issues of concern:

- Access Roads
- Capacity of Aqaba Port with respect to receiving the imported pipes to be used in the construction of the project
- Sustainability of the conveyor with respect to corrosion.
- Phosphate transport
- The source of the fill material
- The movement of trucks and heavy vehicles along with drilling activities that might take place near Wadi Rum. These in addition to any existing electricity generators would be a source of noise to the Rum area.
- The activity at the road extending from Al-Rashidiye to Disi is a source if potential impact on wildlife.

The issue of availability of rangelands was discussed. The Aqaba Agricultural Office representative indicated that grazing activity is still carried in some areas of Segment A and this is documented in the files of Aqaba Agricultural Office.

There is a study that indicated that grazing activity in Batn Al-Ghoul has declined by about 80 percent and that rangeland property has decreased with most of the camel and livestock owners moving to Wadi Araba.

The families named to exist between Batn Al-Ghoul to Jafr are the following:

- Al-Zawaideh
- Tayeh
- Al-Mazzneh
- Al-Howeitah
- Al-Majazzi
- Jurf Al-Drawish
- A'tiah

1.3.3 Focus Group Conclusions

The focus group added some issues to the list of potential environmental impacts associated with the a-biotic, biotic, agricultural and archaeological and cultural components and determined the level of significance of these potential issues across the three segments of the project during the construction and operation phases.

1.3.3.1 A-biotic Environment

The determined potential impacts on the a-biotic environment are as follows:

- 1- Increase in noise levels. It was noted that noise levels during the construction and operation phases of the project should be according to set standards.
- 2- Increase in dust levels.

- 3- Change in the local geomorphology and natural landscape:
 - a. Using fill material from Rum and Disi areas.
- 4- Solid waste resulting from the project, including:
 - a. Cutting and demolition wastes;
 - b. Construction material wastes; and
 - c. Human wastes of the workers (affected by the number of employees and distance from concerned areas). Therefore, it was mentioned that the employees camps should be well organized.
- 5- Fluid wastes resulting from the project, including:
 - a. Oil and grease residues; and
 - b. Human wastes of the workers (indicated that the cesspits for the workers should of the sealed/lined type in order not to pollute the basin's water).
- 6- Potential impact on air quality. Issues of concern include:
 - a. Silica and its impact on air quality;
 - b. Vehicles emissions (though it was mentioned that the Badia area has more severe and urgent problems than the potential impact from the vehicles emissions. These impacts relate to the phosphate companies and hence the impacts due to vehicles emissions during the construction phase of the project is considered not significant by the local community. However, a limit should be set for vehicles' age in order to enhance safety conditions); and
 - c. Age of the vehicles.
- 7- Impact on traffic movement: this requires coordination with the Ministry of Transport and the Phosphate company as well as for the Rashidiye road till the Disi triangle.
- 8- Transportation from Aqaba Port: this requires coordination with the Port Institute.
- 9- Corrosion of the water conveyor: this is affected the soil type and taking precautionary measures for protection and maintenance of the conveyor. However, the age of the conveyor to be used is 50 years and the project life is 40 years. Also the pipe will have cathodic protection.

The level of significance of these potential issues across the three segments of the project during the construction, operation and decommissioning phases are presented in **Table 5**.

Table 5: The level of significance of the potential a-biotic environmental issues

Project Phase Project Segment	Construction Phase			Operation Phase		
	A	B	C	A	B	C
A-biotic Environmental Issues						
1- Increase in noise level	NS*	S**	S	S	NS	NS
2- Increase in dust level	S	S	S	NS	NS	NS
3- Changing the geomorphological system	S	S	NS			
4- Solid wastes	S	S	S	NS	NS	NS
5- Fluid wastes	S	S	S	S	S	S
6- Potential impact on air quality						
7- Impact on traffic movement						
8- Transportation from Aqaba Port						
9- Corrosion of the water conveyor						

* NS = Not Significant

** S = Significant

1.3.3.2 Biotic Environment

The determined potential impacts on the biotic environment are as follows:

- 1- Potential impact on the integrity of the natural ecosystem.
 - a. Disturbance of natural habitats (Hammad, Sand Dunes, Queaan, and wadis);
 - b. Disruption of natural habitat organization;
 - c. Potential impact and disturbance to wildlife;
 - d. Increase in dust levels and potential impact on air quality; and
 - e. Potential impact on important bird areas and important natural habitats.
- 2- Potential impact on the level of ecological diversity:
 - a. Destruction of vegetative cover (especially acacia);
 - b. Increase in hunting of flora, fauna and birds by the workers on the project;
 - c. Potential impact on wildlife that exist in the desert (especially Ghazal);
 - d. Accumulation of solid waste; and
 - e. Potential impact on the project of reintroduction of Oryx.

Two issues were mentioned to be of high concern; these are the reintroduction of Oryx and the fact that there are only 40 Ghazals in the Batn Al-Ghoul area and these might be threatened by hunting activity by the employees.

The level of significance of these potential issues across the three segments of the project during the construction, operation and decommissioning phases are presented in **Table 6**.

Table 6: The level of significance of the potential biotic environmental issues of concern

Project Phase Project Segment	Construction Phase			Operation Phase		
	A	B	C	A	B	C
A-biotic Environmental Issues						
1- Disturbance of natural habitats: Hammad Sand Dunes Queaan, wadis	S S S S	S	S			
2- Disruption of natural habitat organization	S	NS	NS			
3- Potential impact and disturbance to wildlife	S	NS	NS			
4- Increase in dust levels and potential impact on air quality	S	NS	NS			
5- Potential impact on important bird areas and important natural habitats	S	NS	NS			
6- Destruction of vegetative cover (especially acacia);	S	S	NS			
7- Increase in hunting of flora, fauna and birds by the workers on the project;	S	NS	NS			
8- Potential impact on wildlife that exist in the desert (especially Ghazal);	S	NS	NS			
9- Accumulation of solid waste						
10- Potential impact on the project of reintroduction of Oryx.						

* NS = Not Significant

** S = Significant

1.3.3.3 Agricultural Resources and Activities

The determined potential impacts on the biotic environment are as follows:

- 1- Reducing the agricultural areas or removing olive trees along the conveyor route.
- 2- Potential impacts on farms due to increase in dust levels.
- 3- Potential impacts on the entrances of the farms due to construction activities.

The level of significance of these potential issues across the three segments of the project during the construction, operation and decommissioning phases are presented in **Table 7**.

Table 7: The level of significance of the potential agricultural resources issues of concern

Project Phase	Construction Phase			Operation Phase		
Project Segment	A	B	C	A	B	C
A-biotic Environmental Issues						
1- Reducing the agricultural areas or removing olive trees along the conveyor route.						
2- Potential impacts on farms due to increase in dust levels.	S					
3- Potential impacts on the entrances of the farms due to construction activities.						

* NS = Not Significant

** S = Significant

Regarding the definition of non-sustainable agriculture according to the concept of the use of Disi non-renewable water, it was agreed that this should be studied with regard to:

- Cost return,
- Economical value, and
- Social value.

The focus group reached the conclusion that on the short-term (or as long as there is water), the agricultural activity at Disi is sustainable.

Currently, the farmers at Disi do not pay for the irrigation water. At first, the farmers used to get 7 hours of irrigation water, then they started getting 4 hours and now they have 3 hours of irrigation water. Soon the farmers will be asked to pay for the irrigation water they receive.

1.3.3.4 Environmental Management Plan (EMP)

Under this heading, the focus group members discussed the following:

- 1- The concept behind the environmental management plan for the project.
- 2- The components that should be adopted in the study.
- 3- The allocation of responsibility in terms of developing the plan, implementing it, coordinating the implementation of the plan, and follow-up and evaluation.

1.3.3.5 Archaeological and Cultural Heritage

The discussion was restricted due to time to determining the potential impacts in terms of archaeological and cultural heritage is low for Segment A, medium for Segment B, and high for Segment C.

Finally, it was noted that some parts of the project area contain mines. Therefore, there should be coordination with the army in order to locate these mines.

2 QUESTIONNAIRE RESULTS AT AQABA SCOPING SESSION

Sex	Frequency	Percentage
Males	24	80
Females	6	20
Total	30	100

Occupation	Frequency	Percentage
Engineer	11	36.7
University Professor	1	3.3
Administrative	15	50
Retired	2	6.7
Military	1	3.3
Total	30	100

Institution	Frequency	Percentage
Governmental Agency	14	46.7
Private Sector	3	10
Non-Governmental Organizations	6	20
Universities	1	3.3
Greater Amman Municipality	1	3.3
Municipalities	5	16.7
Total	30	100

Place of Residency	Frequency	Percentage
Amman	3	10
Aqaba	18	60
Ma'an	5	16.7
Karak	2	6.7
Tafileh	2	6.7
Total	30	100

1- Do you think that Jordan suffers from lack in water supplies?	Frequency	Percentage
Yes	28	93.3
No	2	6.7
Do not know	0	0
Total	30	100

2- What is the source of water supply at your house?	Frequency	Percentage
Main water supply network	30	100
Buying water from water tanks	0	0
Collection well or a spring	0	0
Poor Quality	0	0
Do not know	0	0
Total	51	100

3- Do you think that the water quality in your neighborhood is:	Frequency	Percentage
Very Good Quality	19	63.3
Good Quality	4	13.3
Medium Quality	4	13.3
Poor Quality	3	10
Do not know	0	0
Total	51	100

4- If the water quality in your neighborhood is of <u>medium quality</u>, what is the source of drinking water used at your house?	Frequency	Percentage
Water supplied from the Water Authority	1	3.3
Household Treatment and Filtration Devices	0	0
Buying drinking water bottles	3	10
Other	26	86.7
Total	30	100

5- If the water quality in your neighborhood is <u>less than medium quality</u>, what is the source of drinking water used at your house?	Frequency	Percentage
Water supplied from the Water Authority	1	3.3
Household Treatment and Filtration Devices	0	0
Buying drinking water bottles	2	6.7
Other	27	90
Total	30	100

6- Did you have any idea about the Disi-Mudawarra Water Conveyance System before attending this workshop?	Frequency	Percentage
Yes	24	80
No	6	20
Total	30	100

7- If the answer to question (6) is yes, what is the source of such information?	Frequency	Percentage
Official Reports and Leaflets	4	13.3
Newspapers and magazines	8	26.7
Television	3	10
Other Sources	9	30
Total	24	80

8- Is the water supplied to your place of residence sufficient?	Frequency	Percentage
Yes	22	73.3
No	8	26.7
Total	30	100

9- Do you think that the current water tariff is:	Frequency	Percentage
High	6	20
Acceptable to everyone	23	76.7
Low	1	3.3
Total	30	100

10- Amman City suffers from a severe shortage in drinking water. Do you think that implementing this project in spite of its very high cost is important for solving the water shortage problem?	Frequency	Percentage
Yes	21	70
No	4	13.3
Do not know	5	16.7
Total	30	100

11- Do you think that the current water quality is among the reasons behind the diseases affecting family members?	Frequency	Percentage
Yes	19	63.3
No	11	36.7
Do not know	0	0
Total	30	100

12- Do you notice that there are sediments or suspended material resulting from the source of water at your house?	Frequency	Percentage
Yes	15	50
No	14	46.7
Do not know	1	3.3
Total	30	100

13- Does the family clean the water storage tank at the house?	Frequency	Percentage
Yes, every sixth months	5	16.7
Yes, once every year	7	23.3
Yes, but not regularly	16	53.3
Never clean the water storage tank	2	6.7
Total	30	100

14- Do you think that water of better quality should be supplied for protecting the health of the community?	Frequency	Percentage
Yes	29	96.7
No	1	3.3
Do not know	0	0
Total	30	100

15- If the Water Authority supplied a better water quality that requires a higher cost, would you accept a raise on the current water tariff?	Frequency	Percentage
Yes	19	63.3
No	10	33.3
Do not know	1	3.3
Total	30	100

16- Do you think that the water resources management in Jordan is:	Frequency	Percentage
Very Good	1	3.3
Good	10	33.3
Acceptable	10	33.3
Should be improved	9	30
Total	30	100

17- If your answer to the Question (16) is that the management of water resources in Jordan should be improved, what solutions do you recommend:	Frequency	Percentage
Public awareness and encouragement of guidance	1	3.3
Secure proper planning regarding determination of water usage priorities	1	3.3
Rehabilitation of the damaged water supply networks	2	6.7
Finding new water sources, such as seawater desalination	0	0
All of the above	5	16.7
Water management in Jordan do not need improvement	21	70
Total	30	100

18- In the Disi area, are there any agricultural practices that depend upon using the Disi Basin groundwater?	Frequency	Percentage
Yes	30	100
No	0	0
Do not know	0	0
Total	30	100

19- If your answer to the Question (18) is yes, do you think that these agricultural practices are of economic importance to the national economy and that there are rare crops that assist in reducing the budget deficit?	Frequency	Percentage
Yes, of great importance	9	30
Yes, of medium importance	5	16.7
Yes, has an acceptable role	4	13.3
No, not important	12	40
There are no agricultural activities	0	0
Total	30	100

20- Do you think that the degree by which these agricultural activities will be affected is:	Frequency	Percentage
High	15	50
Medium	8	26.7
Limited	5	16.7
Will not be affected	2	6.7
There are no agricultural activities	0	0
Total	30	100

21- Do you think that the degree by which this project will reduce the water problems in Jordan is:	Frequency	Percentage
Excellent	3	10
Very Good	4	13.3
Good	16	23.3
Acceptable	2	6.7
Limited	2	16.7
Total	30	100

22- For whom do you think should be the priority of supplying water from the Disi Basin:	Frequency	Percentage
All the population of the Kingdom	12	40
Cities of the Kingdom that suffer from shortage in water supplies	11	36.7
No one is entitled to have a priority for water usage	1	3.3
Disi farms and the nearby industries	2	6.7
Only the people of Aqaba including the Disi area	4	13.3
Total	30	100

23- After getting acquainted with the alignment of the Disi conveyor, do you think that the construction of the conveyor will affect archaeological or cultural sites?	Frequency	Percentage
Yes	10	33.3
No	20	66.7
Total	30	100

24- If your answer to Question (23) is yes, please specify the sites that might be affected:	Frequency	Percentage
Cave of Seven Sleepers	2	6.7
Wadi Rum	2	6.7
Khirbet Es-Suq mausoleum, Qatraneh and the Cave of Seven Sleepers	1	3.3
All of the above	2	6.7
Do not know / No such sites exist	23	76.7
Total	30	100

25- After getting acquainted with the alignment of the Disi conveyor, do you think that the construction of the conveyor will affect the natural habitat?	Frequency	Percentage
Yes	8	26.7
No	22	73.3
Do not know	0	0
Total	30	100

26- If your answer to Question (25) is yes, please specify the sites that might be affected:	Frequency	Percentage
Rum area	3	10
Along the conveyor route	1	3.3
Do not know / No such sites exist	26	86.7
Total	30	100

27- After getting acquainted with the alignment of the Disi conveyor, do you think that the construction of the conveyor will affect the rangelands that the local community depends on?	Frequency	Percentage
Yes	9	30
No	21	70
Total	30	100

28- If your answer to Question (27) is yes, please specify the sites that might be affected:	Frequency	Percentage
Disi area	1	3.3
Southern regions	3	10
All grazing areas along the conveyor route	3	10
Do not know / No such sites exist	23	76.7
Total	30	100

29- After getting acquainted with the alignment of the Disi conveyor, do you think that the construction of the conveyor will affect any plants, animals or birds that are rare or of special importance?	Frequency	Percentage
Yes	5	16.7
No	25	83.3
Total	30	100

30- If your answer to Question (29) is yes, please specify the sites and species that might be affected:	Frequency	Percentage
Ghazal at Disi area and Wadi Rum	2	6.7
Medicinal Plants at Wadi Rum	2	6.7
Some bird Species at Disi	1	3.3
Wild rabbits	1	3.3
Total	6	20

31- After getting acquainted with the alignment of the Disi conveyor, do you think that the construction of the conveyor will affect the quality of air in the areas that it will pass through?	Frequency	Percentage
Yes	9	30
No	21	70
Total	30	100

32- If your answer to Question (31) is yes, please specify the sites that might be affected:	Frequency	Percentage
All areas of the project	6	20
Qa' Al-Sawan area	1	3.3
Do not know / No such areas exist	23	76.6
Total	30	100

33- After getting acquainted with the alignment of the Disi conveyor, do you think that the construction of the conveyor will affect the noise levels in the areas that it will pass through during the construction phase?	Frequency	Percentage
Yes	17	56.7
No	13	43.3
Total	30	100

34- If your answer to Question (33) is yes, please specify the sites that might be affected:	Frequency	Percentage
All project areas	8	26.7
Abu Alanda and Jiza	2	6.7
Last third of the conveyor route	4	13.3
Do not know / No such areas exist	16	53.3
Total	30	100

35- After getting acquainted with the alignment of the Disi conveyor, do you think that the construction of the conveyor will affect the noise levels in the areas that it will pass through during the operation phase?	Frequency	Percentage
Yes	12	40
No	18	60
Total	30	100

36- If your answer to Question (35) is yes, please specify the sites that might be affected:	Frequency	Percentage
Wells and pumping stations areas	2	6.7
Areas near to pumping stations	5	16.7
Along the conveyor route	3	10
Do not know / No such areas exist	20	66.7
Total	30	100

3 QUESTIONS AND COMMENTS AT AQABA SCOPING SESSION

Q1. Have there been any studies conducted to find additional sources of drinking water to cover the water deficit that Jordan is facing? If there are such studies, what did they conclude?

It should be noted that the project is a national priority regardless of some of the bearable negative impacts associated with the project.

- The Ministry of Water and Irrigation is working on water projects for beyond the year 2020; for example, there is the Red-Dead, the Zara-Maein and the seawater desalination projects.

Q2. Is it possible that there would be a collapse in the basin layers as a result of water pumping?

- The contractor is to follow the safety measures during placing the pumps and following the indicated pumping rates from the wells. Also, the water, which will be extracted from the voids of the Disi Basin, will be replaced with air particles that will fill the voids and prevent their collapse. In addition, according to available information, no collapse has been noticed in Saudi Arabia which pumps about 700 MCM from the same basin.

Q3. Comment: The participant hopes that the other participants would support the project since the Kingdom is in bad need for additional sources of water.

Q4. The Disi water has Total Dissolved Solids (TDS) 120% and will be mixed after a distance of 260 km at Swaqa with water that has TDS 600%. What is the impact of this mixing on the water quality? Also, why is it not allowed for individuals in Disi area to drill wells for agricultural purposes whereas it is allowed for companies and others to drill tens of wells which overexploit the basin's water?

- The mixing that is taking place is between two water sources of quality that is suitable for drinking. This will enhance the quality of used water. The contract for these companies will expire in the year 2011 after which an action will be considered. It is the policy of the Ministry of Water and Irrigation not to provide licenses of any new wells for agricultural purposes all over the Kingdom and not just in the Disi area.

Q5. The Disi Basin is a closed aquifer. Is it possible that surface pollutants will pollute the basin's water?

- There is such a possibility but it is a very slight one.

Q6. There is a new activity of pumping groundwater for new farms that are under construction. What is the negative impact of this on the basin's groundwater and on the project?

- The farms would continue till the year 2011 which is the time when their licenses expire.

Q7. Is the development of the Disi area the responsibility of the government or another specific entity?

- The development of the Disi area is not the responsibility of the Ministry of Water and Irrigation but of other governmental authorities.

Q8. Why is it not allowed for individuals in Disi area to drill wells for agricultural purposes whereas it is allowed for companies and others to drill tens of wells which overexploit the water of the Disi Basin?

And What is the future of the Disi area after fifty years when the water of the Disi Basin runs out, especially that there are no other water sources in the area?

Are there economic returns from the Disi project other than the direct employment in the implementation of the project that would help in the development of the Disi area?

- Refer to answer of question Q4. The Ministry of Water and Irrigation has started planning for after 40 to 50 years. Also, yes there are other sources of water mainly desalination of seawater. However, it should be noted that the returns of the Disi project are social returns rather than economical returns.

Q9. There will be a slight increase in water prices for some people who will benefit from the water of the Disi project. However, there will be 80% of the people who will not be affected by the increase in water prices because the water from this project will not be delivered to them. Also, it is proposed to add a fils to the water bills as a contribution to the people who would not benefit from the water of the Disi project and for the areas through which the Disi water conveyor would pass without providing water to the inhabitants of the area. What is the Ministry's comment on this?

- Applying the approach of a fils on the water bill is not considered to be beneficial. As for the raising of water prices, this will be done by assigning two prices; one for Amman City and one for the other areas of Jordan. Also, in case this was adopted, the water prices will be raised in all areas of Jordan in a fair manner.

Q10. A speaker in Group 3 (i.e., environmental focus group) mentioned that the priority in the water of the Disi Basin is for Aqaba area and its surroundings. Is there any problem with the current water supply of Aqaba?

- Aqaba has a good water quality and the residents of Aqaba are considered to have access to the best available water quality in Jordan.

Q11. The agricultural activities in the Disi area are not economically profitable. The water of the Disi Basin should be strictly used for drinking purposes irrespective of the local community opinion especially that the Disi project is considered a national priority and demand.

- The government has approved the new civil law for agriculture. Though it is agreed that the agricultural sector support to national economy has declined, it is still early to decide whether agricultural activities in the Disi area are sustainable or not; this issue is still being studied.

Q12. Comment: The residence of the employees working on the construction of this project should be carefully sited so that this would not cause any social impacts for the inhabitants of the area.

- During the discussions this issue was mentioned that it would be taken into consideration.

Q13. Comment: The priority should be towards employing workers from the local inhabitants.

- Of Course, that is what will happen.

Q14. Comment: Add a fils or any suitable amount of money to the water bills in order to use this money for developing services in the areas of Disi Basin Villages, Rum, Al-Saliheya and Al-Shakireya.

- Same answer as to question Q9.

Q15. It was mentioned during the discussion that there would be no water lost during water conveyance. Will this water also be protected against loss within Amman's water supply system and is there a study being conducted for this purpose?

- The available plan is to rehabilitate the entire water supply networks of the Kingdom. However, it should be noted that in general water loss cannot be reduced to less than 10%.

Q16. What is the impact of the Disi project on the local communities of Rum, Al-Saliheya and Al-Shakireya given that those communities at present do not pay in exchange for using the Disi Basin water?

- There are water bills for the villages of Disi area and these bills are issues according to a ministerial decree. But these bills are not being distributed to the concerned residents due to their economic conditions. There is no free water and there is a 5 JD bill for each house that does not have a water meter.

Q17. Why does water supplied to Irbid cause kidney problems and why do Irbid inhabitants depend on buying water for drinking purposes from the widely spread water vending shops?

- Irbid water hardness is not high to the extent that it would cause health problems. Also, the water sources of Irbid have been expanded to include sources other than Wadi Arab.

Q18. It is known that most of the Disi inhabitants are Bedouins who almost completely depend on agricultural activities of growing crops and raising livestock, and these activities in turn depend mainly on water.

Does the government intend to support those citizens with a fils on each cubic meter of water or to give them priority in being employed on this project especially that the water from this project is said to run out after 50 years?

- This question has been answered within other previous questions.

Q19. Why does not the Ministry of Water and Irrigation consider taking the same initiative as that of the National Electricity Company in terms of giving a 25% discount on the water bill for the charitable societies and organizations?

- For the National Electricity Company the employees of the company also get the same discount, whereas the employees of the Ministry of Water and Irrigation do not get a discount on their water bills.