

Annex 3-6: **Annual Reports 2006 (Basic Water Quality)**

3.6.7 Deir ez Zor DFEA

Syrian Arab Republic
Ministry of Local Administration and Environment

First Annual Report

Deir Ezzor 2006

Prepared by the lab of Deir Ezzor DFEA

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Introductions :

According to the high development in Syria during the last three decades; especially in the industrial field; as many factories were set up like concert, fertilizers, petroleum establishments, dying, asphalt and metals tools factories.

The environmental pollution discharged from mentioned industries released into atmosphere inside and around the cities.

That leads the government to take measures in order to control the pollution .

So Capacity development of environmental monitoring was set in cooperation with JICA.
Objectives of this project are:

*Setting up an environmental monitoring system, publishing results, and developing the capacity of environmental management.

*Using and managing the monitoring data in order to raise and publish environmental awareness among people.

Many **targets** were achieved during past time, they are summarized as following:

- 1-The labs of DFEAs were prepared by allocated equipments.
- 2-The lab staff becomes able to sample and analysis according to collected SOP by the project.
- 3- Raising the level of the lab staff.
- 4- The lab staff becomes able to implement Maintenance & operation.
- 5- Setting up the management system for spare parts and required materials.
- 6-Each DFEA becomes able to put her own EMP & budget.
- 7- Setting data base according to EMP.
- 8- Establishing a central lab in Damascus DFEA makes analysis which are unavailable in others DFEAs.

Summary about lab of Deir Ezzor DFEA

Within the project of Capacity Development of Environmental Monitoring at Directorates for environmental affaires in governorates in Syrian Arab Republic in cooperation with JICA, a lab was set up in Deir Ezzor DFEA.

JICA presented lab equipments and technical training, while GCEA produced the places and the staff.

The duration of this project is 3 years; it ends in Dec 2007

Lab is specialized in water quality analysis.

The EMP for 2006 concentrates on the monitoring discharged wastewater on Euphrates whether they are industrial, domestic wastewater or agricultural, in addition to the river raw water and complaints produced by public or authorized bodies.

The lab staff:

Lab staff consists of 4 members as follows:

Notes	Phone number	Name	In charge of
	051359950 094769753	Mr. Saher Abdullah	Lab chief
	051364154	Ms. Rasha Azawi	Lab safety
	051212624	Ms. Fathia Moienee	Equipments management & spare parts
	051313357	Mr. Omar Almla Ali	Reagents management & flasks

	051364154	Ms. Rasha Azawi	Treatment of liquid and solid wastes
	051359950 094769753	Mr. Saher Abdullah	Data management



Lab staff during sampling

General information about Deir ez zor:

Deir Ezzor is located in the east part of Syria, it is a simple flat; it is 600m above the sea.

Deir Ezzor is divided into followings:

- Sawab valley areas, Abo Kamal area, Deir Ezzor down stream
- Euphrates, valley and Albishri Mountains are considered as the key areas in area's geomorphology.

Euphrates valley:

Euphrates is considered as a permanent flow river, it flows 200 km in Deir ez Zor beginning from Maddan area until Albokamal city, the depth of the river is /4m/ in some areas with flow rate between 300-2000m³/sec. it has a tributary which is Alkhaboor .

There are also many valleys flow in winter and carry various substances with them. These valleys have different shapes according to the cutting rocks, they could be narrow, long, deep or wide with little depth, the most important valleys are (Alharania, Hesian, Almalha Sawab ,Alietc)



As for Albishri Mountain, it is located in the west part of Deir Ezzor, it consists of different hills and shapes with height between (45-50Km), and width between (22-25 Km).The highest top is 835 m above sea level next to Alshujaira.

Main environmental problems in Deir ez Zor :

- *There is no treatment of industrial wastes water discharged by factories (paper, sugar, conserves food) before discharging it in Euphrates River.
- *There is no treatment for domestic waste water discharged by Deir Ezzor and its towns and villages.
- *There are a lot of swamps in Deir Ezzor countryside according to the leaking of stinking ground water with domestic waste water related to man hole in villages of governorate as (Almehedia- Alsaela-Aljasra) .
- *There is no treatment for polluted agricultural wastewater existed at riversides.
- *There are no actual measurements for petroleum wastes (solid-liquid-gaseous) in petroleum fields and companies in Deir Ezzor.
- *There are no incinerators for medical wastes belonging to the public or private hospitals and medical centers in Deir Ezzor, and there is no commitment of applying the law no /49/ cleanliness& cities beauty concerning medical wastes.
- *There is no incinerator for slaughterhouses to discharge of dead animals
Moreover, wastes discharged by slaughter.
- *Desertification and soil erosion of most Deir ez Zor desert lands.

EMP lab for 2006:

EMP was set up by Lab staff of Deir Ezzor DFEA under the directions of JET according to the law no. /50 /. Deir Ezzor DFEA authorized by MOLAE and the governor of Deir ez zor to execute EMP.

EMP Objectives:

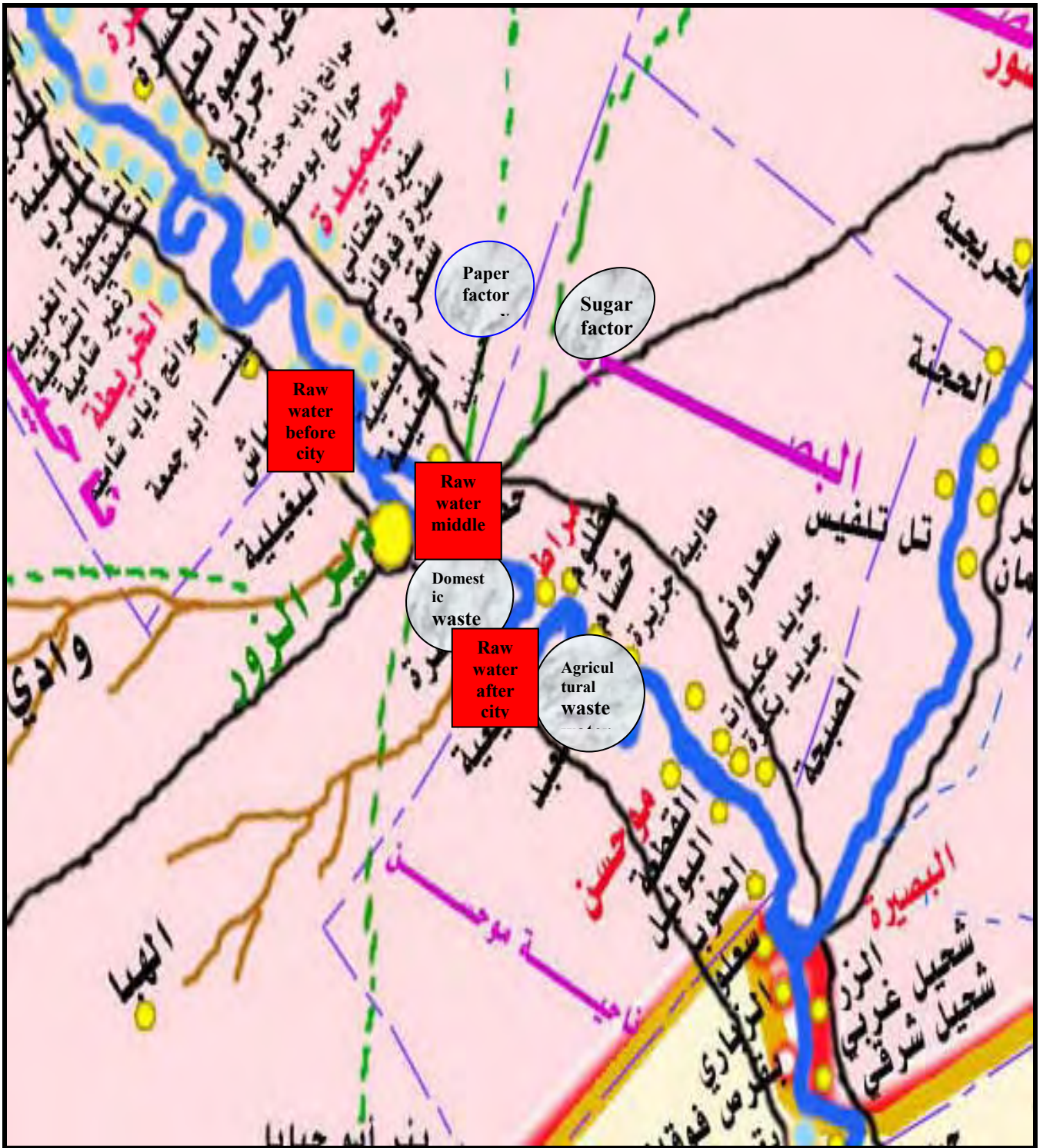
- 1) Monitoring industrial wastes water in order to check water quality and correspond with the approved Syrian standards.
- 2) Monitoring the water quality of the sewage and comparing with the approved Syrian standards
- 3) Monitoring the water quality of agricultural waste canals and comparing with the approved Syrian standards
- 4) Check the raw water of Euphrates River in specific points to measure the level of pollution
- 5) Emergencies (compliments).

Monitoring stations:

Location	Type of water	Number of stations	Bodies of water
----------	---------------	--------------------	-----------------

Deir Ezzor –7Km Deir Ezzor -Alhusiniea Deir Ezzor- Almayadeen	-Sugar factory. -Paper factory. -Conserves food factory.	3	a)Industrial waste water
Deir Ezzor -Harabesh	Domestic waste water outlet	1	b)Domestic waste water
Deir ez zor-Almreia	Agricultural waste channel	1	c)Rivers
-Before entrance of the city -Inside the city. -After the end of the city.	Raw water directly from the river	3	
			d)Emergencies (complaints)

Location map:



Map shows the location of sampling

Duration monitoring and frequencies:

EMP starts Mar1, 2006 till Dec31, 2006.

Each location has a special symbol and specific frequency as follows:

Times	Symbol	Frequency	Station	Bodies of water
10 times	Dez-I-001	-Once a month starting from March	Sugar factory.	a)Industrial waste water
4 times	Dez-I-002	-4 times during (une, July, Aug, Sep)	Paper factory	
Twice	Dez-I-003	-Per 6 months	Conserves food factory.	
10 times	Dez-D-001	Once a month starting from March	The main outlet of domestic waste water	b)Domestic waste water
4 times	Dez-R-001	Once per 3 months	Agricultural waste channel	c)Agricultural waste water
6 times	Dez-R-002 Dez-R-003 Dez-R-004	Once per 6 months (3 locations in the same day)	-Before entering the city. -In the middle city. -After going out of the city.	d)Rivers, lakes and swamps
35times	Dez-C-00?			e)Complaints
/71/times				Total

Parameters to be analyzed and monitored

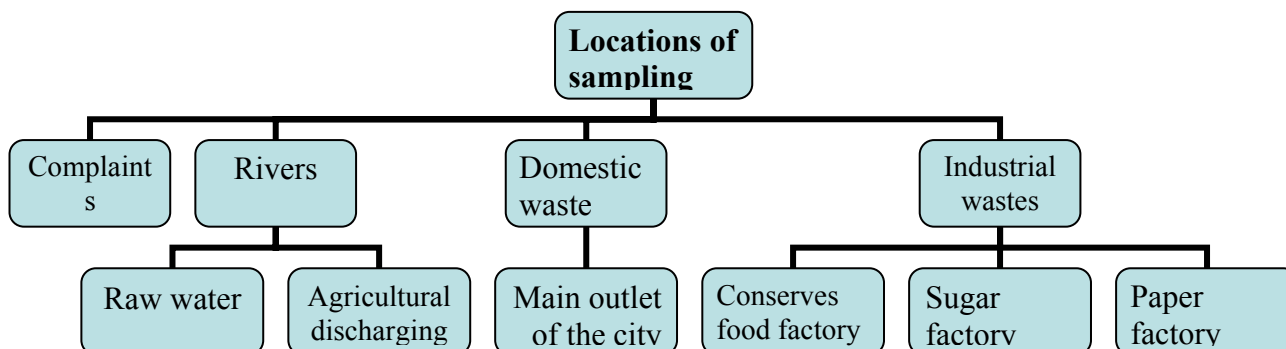
Others	Rivers &lakes	Domestics waste water	Industrial waste water	Parameter	No
	0	0	0	PH	1
	0	0	0	Water temperature	2
				Air temperature	3
	0	0	0	EC	4
	0	0	0	TDS	5
	0		0	DO	6
	0		0	Color	7
	0	0	0	SS	8
	0	0	0	BOD	
	0	0	0	COD	9
	0	0	0	NO3	10
	0	0	0	Nh3	11
	0	0	0	PO4	12
	0	0	0	CL-	13
	0		0	Turbidity	14

Analysis Method

Instruments	Analysis method	Parameters
SESSION1 Portable pH meter	Electrode method	PH
Thermometer		Water temp.
sensION 6 Portable DO meter	Membrane Electrode method	DO
sensION5 Portable EC & TDS meter	Electrode method	TDS & EC
Colorimeter (DR/890)	APHA Platinum-Cobalt method	COLOR
Reactor (DRB 200-1) & Colorimeter (DR/890)	Reactor Digestion method	COD
OxiTop	Manometric (Pressure sensor) method	BOD
Colorimeter (DR/890)	Cadmium Reduction method	NO ₃ -
Colorimeter (DR/890)	Amino Acid method	PO ₄
Digital Titrator (Model 16900)	Silver Nitrate Method	CL-
Colorimeter (DR/890)	Salicylate method	NH ₃ -N
Colorimeter (DR/890)	Photometric method	SS
2100P Portable Turbidity	Colorimeter (DR/890)	Turbidity

Dec			Nov			Oct			Sep			Aug			Jul			Jun			May			Apr			Mar			Feb			Jan			Station	Location
4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1						
																																	Industrial waste water	Area of 7 Km Sugar			
																																		Alhsainie Paper			
																																		Almaydeen Conserves food			
																																		Hrabish			
																																		Almrebeia			
																																		Before city			
																																		Middle city			
																																		After city			
36 samples																																				Total	

The locations of sampling plan for 2006(Place-waste-results-photos)



Firstly: Industrial wastes water

***General company for paper:**

The company is located on the right side of Alhusayniea road; it is 3 km away from old train station.

The industrial waste water discharges into returned –back opened canal which extended for 3 km through Alhusayniea area then at last it pours out into Euphrates River .

The discharged waste water is treated by chemical treatment station depends on sedimentation concept and additional chemicals as:

Chloride, Aluminum sulfate) , the main issue of station is raw martial recovery in cellulose (industry .

There is no treatment for sewerage; it discharges into concert pipes then continue to the returned –back opened canal. The citizens of this area discharge also in the same canal which increase pollution returned back to the Euphrates River. TO be informed that the factory is investment by Fembkes Austria company .the factory works round the year /three shifts except maintenance time or emergency.

The following table shows the results of industrial waste water analysis discharged by paper factory during 2006:

Paper factory	values	PH	EC	TDS	DO	Color	SS	COD	BOD	NO3	PO4	NH3	CL	Turbidity	Flow rate	Frequency
	medium	8.2	1053	518	5.6	1837	300	436	114	2.5	6.74	2.2	96	524	1-0.7	10
	Max	8.6	1214	606	8.2	2930	413	1158	240	6	11.80	5	115	780		
	Mini	8	800	391	3.5	515	121	195	80	3	0.66	1	65	166		



**Outlet of paper factory
At the Euphrates River**

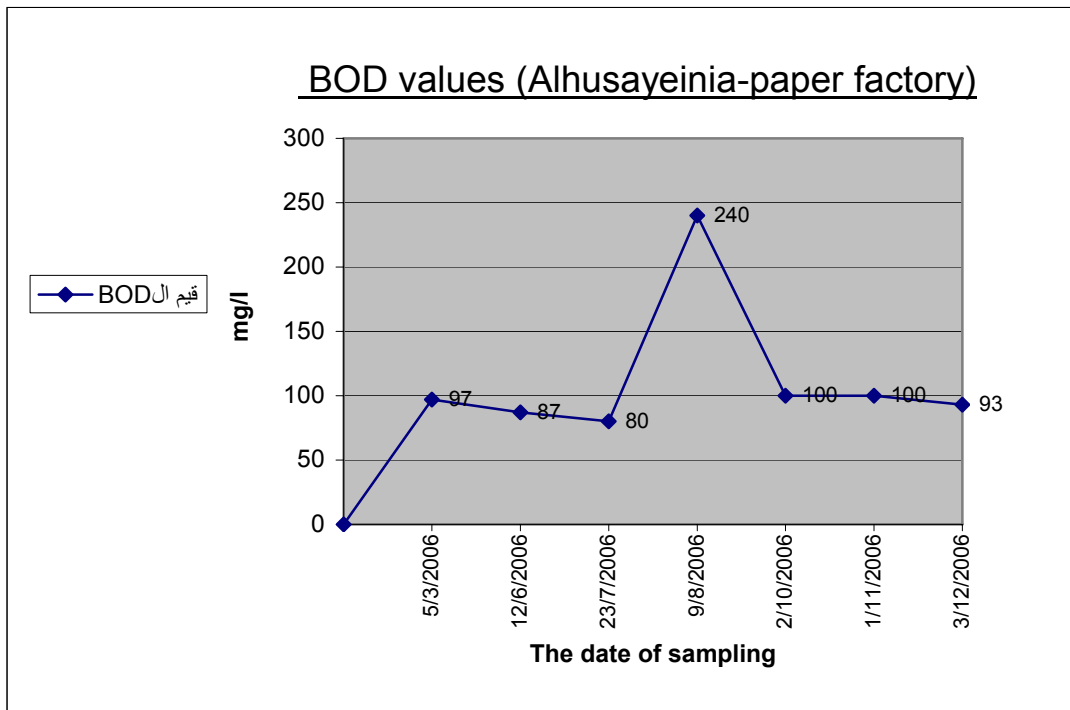


**Collection tank of waste water of
Paper factory**

The analysis of results:

There is an increasing of some parameters comparing with approved Syrian parameters which are:

(COD – BOD – CL – EC –TDS- NH3 – SS- –Color – Turbidity) ,that’s increasing because of unavailable treatment station for industrial waste water .



***Deir Ezzor sugar factory:**

The industrial wastewater discharges into opened drainage canal since this canal joins with agricultural drainage canal then the both canals discharge into final outlet on the Euphrates riversides without any treatment. To be informed that the opened drainage passes through Alslehia and Hatla villages before charging into the river, results bad smells and stinging water in agricultural land and causes diseases and disturbance to the area .in addition to what mentioned, the outlet at the Euphrates river locates 500 m before Hatla Alzaia water station which affects badly at the drinking water of this station and it stops sometimes during duration cycle of the factory ,which is /4/ months (June-July-August-September) the working hours are 24 per day with three shifts, and the rest months are considered as maintenance .



Collection tank of industrial waste water of sugar factory

The following table shows the results of industrial wastewater analysis discharged by sugar factory during 2006:

Sugar factory	Values	PH	EC	TDS	DO	color	SS	COD	BOD	NO3	PO4	NH3	CL	Turbidity	Flow rate	frequency
	medium	8.3	2011	1011	1.92	5929	1942	11147	9667	207.5	101.6	20.3	226	2608	0.5	3
	Max	9.2	2690	1367	5.09	6808	3250	21000	18000	587	278	40	460	4880		
	Mini	7.7	1603	798	0.24	5050	1163	4369	3200	5.5	13.3	1	108	1340		

The analysis of results:

There is an increasing of some parameters comparing with approved Syrian parameters which are:

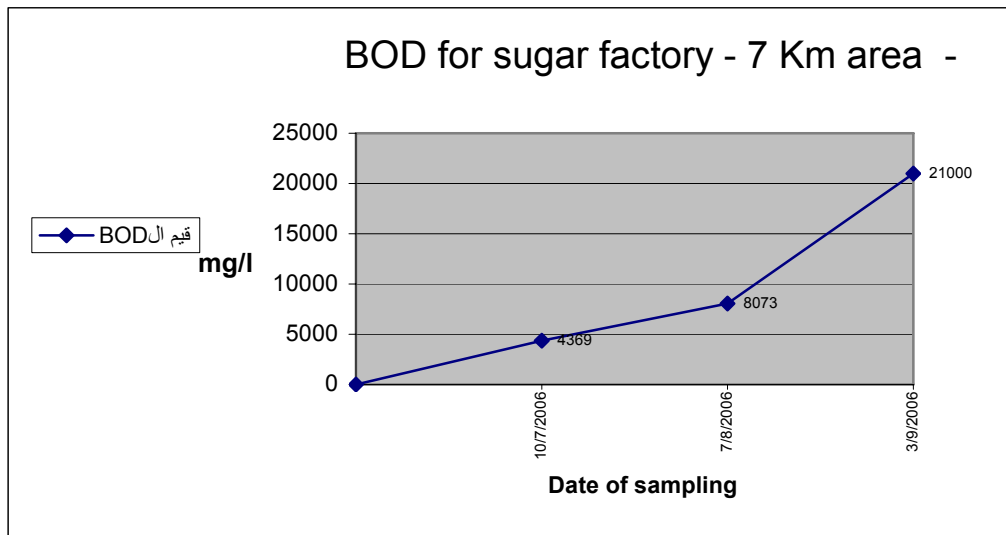
(COD – BOD – CL – EC –TDS- NH₃ – SS- –Color – Turbidity) .

We notice that the values are increasing directly especially the results of final sample analysis as there is a big difference of the results of previous samples analysis, that's because of increasing working hours till 24 hours,

Plus the factory is old and using low manufactured quality of raw material as (sugar beet) which leads to raise the discharged organic material in a dangerous way since outlet of the factory pours out into agricultural drainage canal before discharging in Euphrates River.

According to mentioned reasons and high increasing of temperature especially in summer, the fermentation takes place causing stinging smells, putrefaction and pollution.

This pollution causes breakdown the refining water station of Hatla Alzoya, thus the providing of drinking water stop for a month sin the outlet of sugar factory locates before the raw input of the refinery station about 500/m



*Conserve food factory:

The factory is located in Mayadeen city, as the industrial waster water mixes with waste water in same canal to discharge directly in the river without any treatment. Since the industrial waste carries organic and plant, residual (pees shells, tomato sediment-etc)

The factory works depending on the availability of raw materials especially in summer.

The required sampling in annual report for 2006 were not done because of:

*The first sample in April, factory stopped working because of unavailability of raw material.

*Second sample in October, factory stopped working because of the allocated fuel lack for sampling car.

Secondly: Domestic Waste Water

There is no treatment for Domestic Waste Water in Deir ez zor and its cities and villages. As it discharged directly in Euphrates River, including discharged waste water by public and private hospital, slaughters and cow farm.

The location of sampling for domestic wastewater:

It locates in Hrabish area on the small branch of Euphrates River, the west of Deir ez zor; it is considered as the main outlet of the whole city.

There are agricultural lands on the riverbanks, as the citizens use the polluted water of the river for irrigation, plus there is a stinking smell around which causes a lot of diseases.



The main outlet of domestic wastewater in Deir Ezzor

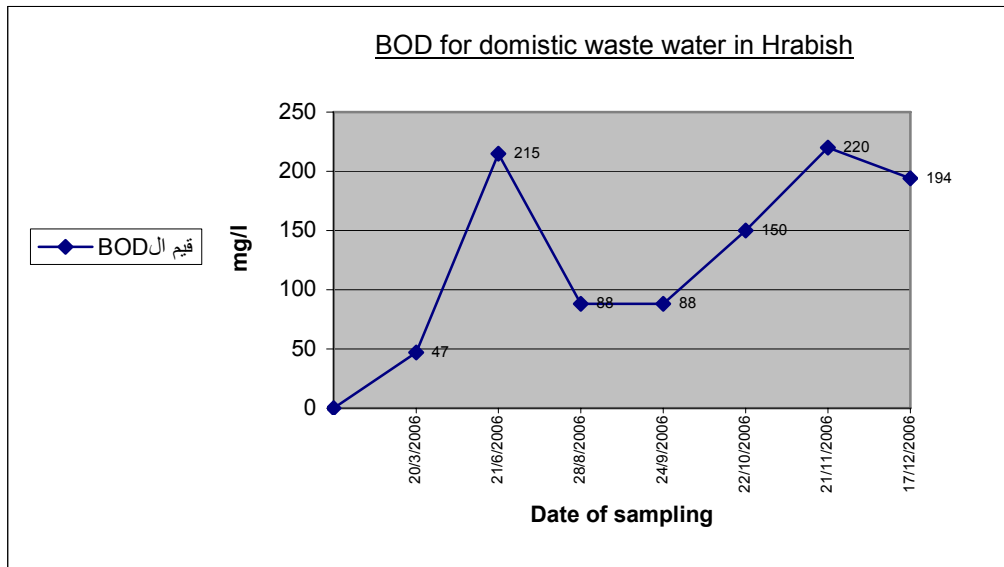
The following table shows the results of domestic wastewater analysis during 2006:

Domestic waste water	Values	PH	EC	TDS	DO	Color	SS	COD	BOD	NO3	PO4	NH3	CL	Turbidity	Flow rate	Frequency
	Medium	7.8	1277	644	-	477	84	233	143	4.9	11.21	31	110	52.9	0.7-1	7
	Max	8.37	1581	819	-	1233	131	398	220	12.6	14.13	39	132	118		
	Min	7.36	1065	523	-	268	52	123	47	2.1	8.50	25	84	25.6		

There is an increasing of some parameters comparing with approved Syrian parameters, which are:

(COD – BOD – CL – EC –TDS- NH3 – SS- –Color- Turbidity)

That's increasing because of unavailable treatment station for domestic waste water, as for contrast of the results; it is due to difference of domestic discharging in quantity and quality during the year.



Using domestic waste water in irrigation by citizens

Thirdly: Rivers:

1-Agricultural wastewater:

The salty lands spread out in Deir Ezzor with different percentages beginning from Altabani area till the end of Albokamal area to the Iraqi bounds.

To mitigate this problem, the governor set up reclamation projects, digging agricultural waste cannels on the riversides but without treatment for discharged water

The location of sampling for agricultural wastewater:

The main agricultural waste canal in Almreia village(Third section), was chosen for sampling .the village locates on Deir Ezzor- AlboKaml road , it is far 10 km from Deir ez zor .many cannel by neighboring agricultural lands pour out into the main cannel ,plus the domestic waste water discharged by citizens .

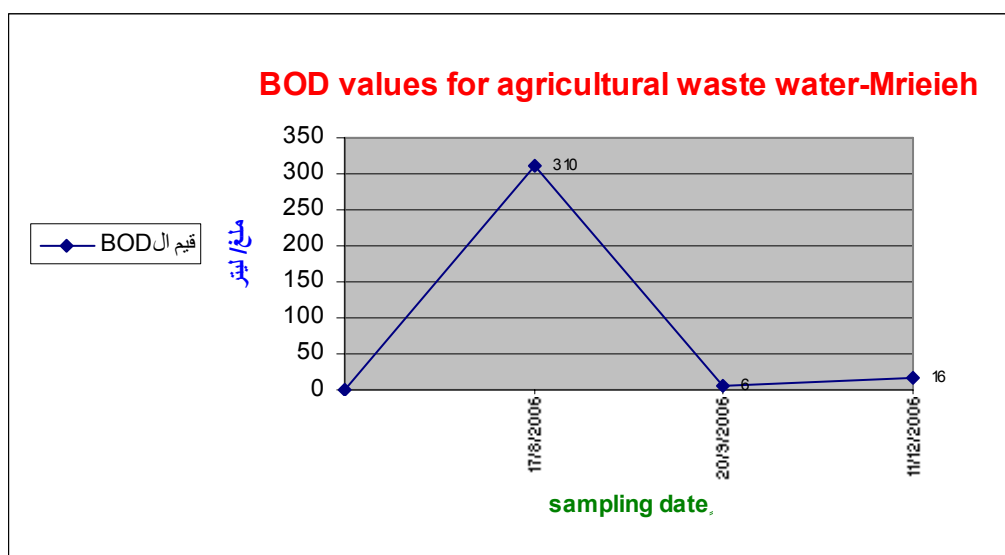


Main agricultural waste cannel (Third section)

Through the following table we had the results of water analysis to this canal during 2006

Agricultural waste	values	PH	EC	TDS	DO	color	SS	COD	BOD	NO3	PO4	NH3	CL	TUR	Flow	Freq
Average	8.1	4099	1785	6.6	112	39	212	111	6.2	4.1	0.6	277	27.7	0.5-0.7	6	
Maximum	8.6	5540	2810	7.2	219	53	565	310	13.6	7.9	1	566	76.7			
Minimum	7.7	2979	2090	5.2	45	25	33	6	0.7	0.4	0.2	41	7.4			

It was clear through the analysis of the agricultural waste water for the main canal in Al-Mrieieh area, that some Parameters are higher than the Syrian standards as mentioned above due to the extra usage of fertilizers and pesticides and depending mainly on the economical crops (wheat, cotton) and applying the methods of the agricultural cycle in addition to the violation of the nearby residence to the canal through discharging their municipal waste water to it which led mainly in summer time when the temperature reached to the highest levels and the agricultural waste water is almost stopping and water level is relatively low and it is very low

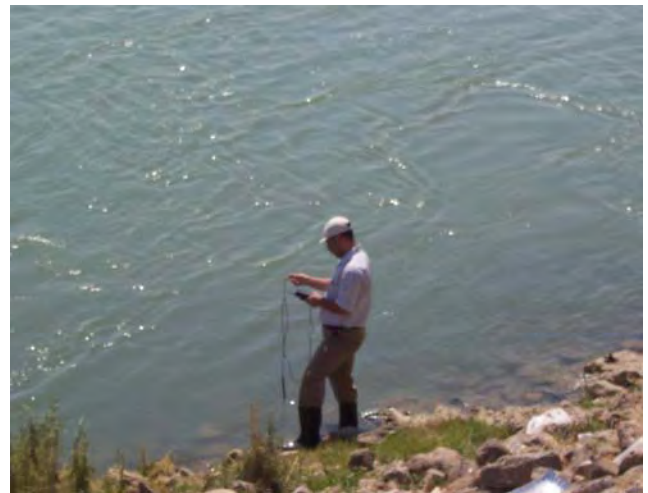


1. Raw Water

Euphrates river can be classified as the Natural discharging body and only for waste water (Municipal, Industrial and Agricultural) for Deir Ezzor Governorate and this water is considered one of the most important pollution sources of the river which led the DFEA of Deir Ezzor to include the Monitoring of the raw water in the EMP 2006 and three locations were selected for Sampling (before the city, inside the city and after the city)

❖ Before the city:

It is located in Baghlia village 3 km before the entrance of the Euphrates to the city in order to know the water quality of the river before entering the city.



Location of Raw water before the city

The following table shows the results of water analysis for this location 2006

Before the city	value	PH	EC	TDS	DO	color	SS	COD	BOD	NO3	PO4	NH3	CL	TUR	flow	freq
	ave	8.2	638	312	7.6	134	31	6	12	0.4	0.7	0.08	44	26	>1	2
	higher	8.3	695	343	8.4	222	40	7	20	0.7	0.8	0.09	53	48		
	lower	8.2	580	281	6.9	45	22	5	4	0.2	0.6	0.08	35	4		

- ❖ Inside the city: the sampling station was selected near the hooked bridge which could be almost in the center of Deir Ezzor, some pollution sources are located before the sampling point.
- ☒ Final discharge of the paper factory 700 m
- ☒ Outlets of sewerage for some restaurants built on the river bank
- ☒ Outlet of the Euphrates hospital 300 m



Location of raw water inside the city (hooked bridge)

The following table shows the analysis results for this location 2006:

Inside the city	value	PH	EC	TDS	DO	color	SS	COD	BOD	NO3	PO4	NH3	CL	TUR	Flow	Freq
	ava	8.7	639	312	7	125	29	8	12	0.5	0.6	0.09	54	27	>1	2
	higher	9.3	701	343	8.2	208	36	12	19	0.8	0.6	0.1	70	49		
	lower	8.1	577	280	5.9	41	22	4	4	0.2	0.5	0.08	38	4.5		

- ❖ After the city: this site was selected in Aljafra village after approximately 7 km of the exit of the Euphrates river from Deir Ezzor and the river in this point is carrying with it all pollutants from the outlets in all types (industrial, Municipal, Agricultural, etc..) in the governorate of Deir Ezzor.



Location of raw water after city (Aljafra)

The following table shows the results of water analysis for this location 2006

After the city	values	PH	EC	TDS	DO	color	SS	COD	BOD	NO3	PO4	NH3	CL	TUR	flow	Freq
	ave	8.4	779	380	5.8	239	49	7	14	0.7	1	0.3	59	53	>1	2
	higher	8.8	928	454	7.5	423	75	9	23	1.1	1.3	0.4	75	102		
	lower	7.9	629	306	4.2	54	22	5	5	0.2	0.6	0.2	43	4		

We notice through the tables of the analysis results for the raw water of the river (before, center, after) the city are the values are within the allowed limits in spite that there are some differences in the values between before the city and after the city and this is attributed to discharges of the factories, sewerage, hospitals, slaughter houses

and others to the river bed without any active treatment for this water, so the monitoring should be continuous for this water because the governorate is progressing towards an industrial development which will increase the rate of the pollutants at the river in case they are not treated properly.

We noticed as well the decrease in the values in the second sampling due to the rain and heavy floods which poured directly in the river bed so the water flow increased as well as water level so a natural cleaning for the river happened.

Fourth : Complaints

1- Mo Hasan complaint: Mo hasan town is located in the east of Deir Ezzor city about 20 km on the banks of the Euphrates. The residence in this town presented a complaint to the DFEA in Deir Ezzor about the existence of some bonds for bad water in front some houses with very bad odor surrounded by planted lands with different kinds of crops and vegetables as well as there is cows, sheep and others brought up by the residence of that area.

The laboratory staff visited the site, took samples of that water and the results of the analysis is shown in the following table:

Mo Hasan complaint	Parameters	PH	EC	TDS	DO	color	SS	COD	BOD	NO3	PO4	NH3	CL	TUR	Flow	Freq
	Values	6.7	2520	1281	-	>550	401	700	310	35	>33	>55	117	390	-	1

We noticed big increase in all parameters because there is no sewerage in that area were water resulting from the residences is discharged to septic tanks and due to filling of those tanks by this water so water appeared on the surface and formulated the pond of that bad water associated with bad smell and odor and diseases.

- 2 the complaint of the National Progressive Front in Deir Ezzor:

The DFEA received a letter from Bath Party branch through the governor office requesting to identify the pollution rates in the Euphrates due to the discharges of the factories, sewerage, land reclementation to the river which causes the damage to the water creatures, agricultural lands and public hygiene. The DFEA members took samples for this purpose from the following sites:

1. Yarn factory
2. Sugar Factory
3. Paper factory
4. Agricultural Sewerage canal

As for the outlets of the paper, sugar factories and the agricultural sewerage canal samples were taken and they were explained in details before, but as for:

Al Furat for Yarns and Textile:

This company is located on Deir Ezzor Hasakeh road (7 km area). It was established 1975, the company has official sewerage network having inspection paces where waste water is collected in the waste water treatment plant which was established since 1978 and it is a mechanical treatment station for the sewerage depending on the sludge separation (organic materials) in settlements and sedimentation tanks and the waste water is coming out (discharging canal) ending to an opened shared canal with the discharging canal of the sugar factory existed near the railway in the west to be discharged finally in the Euphrates.

The following table shows the results of the analysis of the waste water of the factory after coming out from the treatment plant

Yarn Factory	parameter	PH	EC	TDS	DO	color	SS	COD	BOD	NO3	PO4	NH3	CL	TUR	Flow	Freq
	values	7.7	975	468	3.9	67	22	24	18	1.7	4.73	4	66	10	<0.2	1

It was clear for us through the results of the analysis for the waste water of the factory that there is no danger for this water because it is resulting from cotton yarning and spinning and no industrial waste water is generating but the waste water is the normal municipal waste water of the factory and cooling water for the air conditioning and both are treated by the waste water treatment plant of the factory.

- the results of analyzing the samples from the paper factory is as follow:

Paper factory	parameters	PH	EC	TDS	DO	color	SS	COD	BOD	NO3	PO4	NH3	CL	TUR	Flow	freq
	values	8.2	1087	504	3.92	416	265	662	240	2.5	1.94	1	113	471	0.7-1	1

We discovered through the results of the analysis of the sample from the factory that there is some increase in some parameters (color, Turbidity, EC, TDS, BOD, COD) compared with the Syrian standards which was mentioned before.

- The results of the analysis of the sugar factory is described

Sugar Factory	parameters	PH	EC	TDS	DO	color	SS	COD	BOD	NO3	PO4	NH3	CL	TUR	flow	freq
	values	9.2	1603	798	0.24	6808	1412	8073	7800	5.5	13.40	20	108	1603	0.5-0.7	1

It was clear to us that there is some increase in some parameters in comparison with the Syrian standards and this is due to some reasons, which were mentioned before.

- The results of the analysis of the sample from the agricultural waste water canal were as follow:

Waste water canal	parameters	PH	EC	TDS	DO	color	SS	COD	BOD	NO3	PO4	NH3	CL	TUR	Flow	Freq
	values	8.4	5540	2810	6.58	219	53	565	310	9.1	7.8	1	82	77	0.5-0.7	1

It was clear to us that there is some increase in some parameters in comparison with the Syrian standards and this is due to some reasons which were mentioned before.

Table for the number of samples for the year 2006 at Deir Ezzor DFEA

Number	Type of Sample
13	<ul style="list-style-type: none"> • Industrial waste water
12	<ul style="list-style-type: none"> • Rivers
9	<ul style="list-style-type: none"> • Sewerage
5	<ul style="list-style-type: none"> • Others (complaints)
39	Total

Reagents consumption for 2006

Notes	consumed	number	unit	usage	Reagent name	
	1	2	500 ml	Calibration of pH	pH 4.01	1
Expired	2	2	500 ml		pH 7.00	
Expired	2	2	500 ml		pH 10.00	
	0	2			pH paper	
	1	1	100 ml	Calibration of EC-TDS	180 ms / cm	2
	1	1	100 ml		1000 ms / cm	
Expired	1	1	100 ml		18000 ms / cm	
Expired	1	1	Standard bottle	Calibration of Turbidity	0.1 ntu	3
Expired	1	1	Standard bottle		20 ntu	
Expired	1	1	Standard bottle		100 ntu	
Expired	1	1	Standard bottle		800 ntu	
	7	31	tests/pk25	Analysis of COD	-COD reagents	4
	1	8	tests/pk100	NO3-N	-NO3-N reagents	5
Expired	8	Amino acid 8	tests/pk100	PO4	PO4 reagents	6
	1	موليبيدات 8				
Expired	8	14396	tests/set100	chlorine	Chloride reagents	7
	2	8 14397				
	4	15	tubes/pk 50	NH3 - N	NH3 -N reagents	8
Expired	1	1	25 ml	BOD	Nitrification inhibitor	9
	4	15	pillows/pk 50	BOD	BOD pillows	10
Expired	7	7	cspsules/bottle50	BOD	seeds	11
	0	1	pack	BOD	NaOH pack	12

Reagents with low detection limits

Notes	consumed	number	unit	usage	Reagent name	
	1	2	tests/pk25	COD	COD reagents	1
	1	1	tests/pk100	NO3-N	NO3-N reagents	2
	1	1	tests/pk100	PO4	PO4 reagents	3
	1	1	tubes/pk 50	NH3 - N	NH3 -N reagents	4

The EMP for Deir Ezzor DFEA 2007

The EMP for Deir Ezzor DFEA 2007 was prepared by the laboratory staff in accordance with the environmental law No 50 and the have the right to implement it by special authorization of the Minister of MOLAE and Governor of Deir Ezzor.

Objectives of the EMP

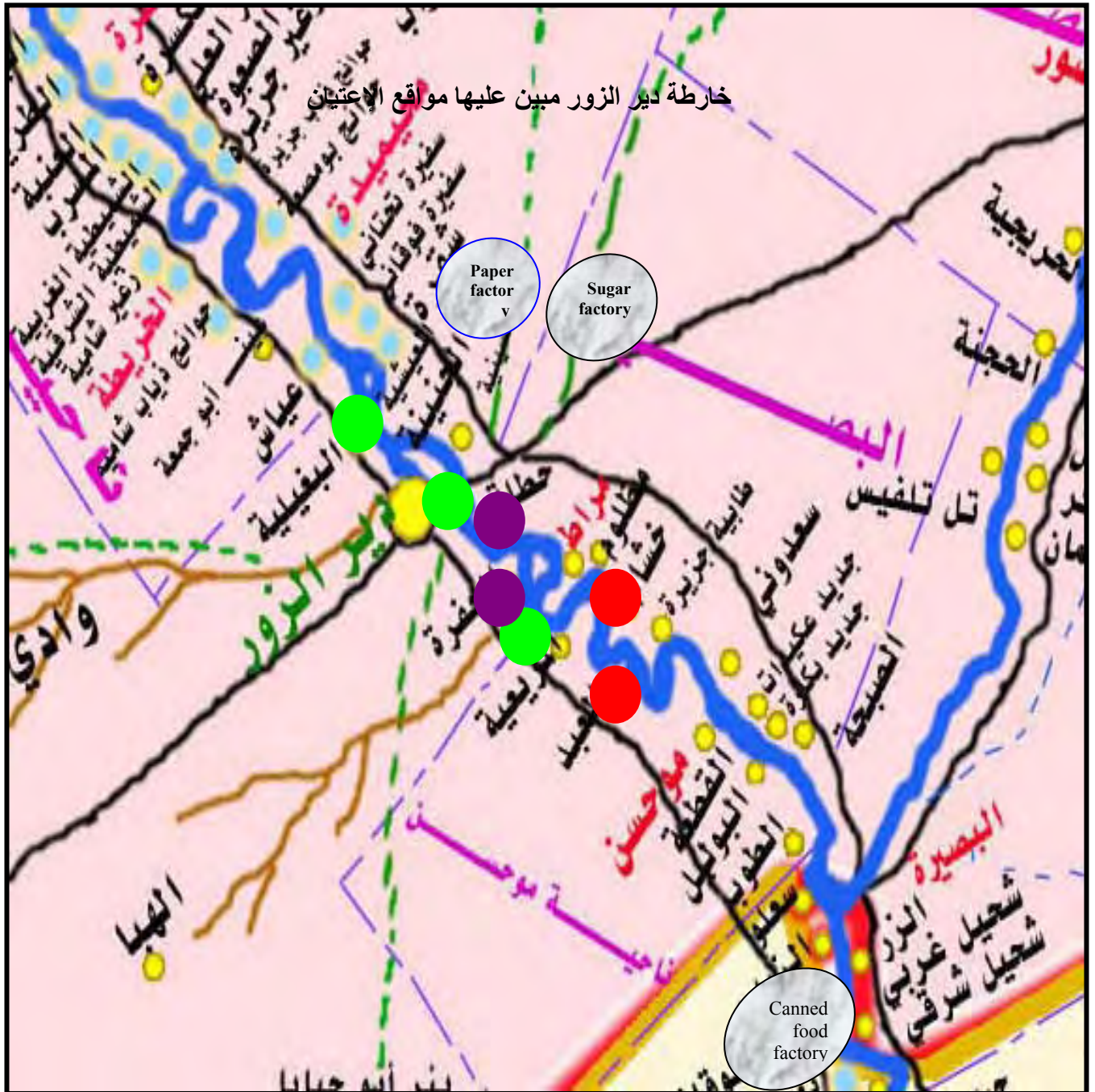
Monitoring most of the pollution sources located on the Euphrates River mostly the followings:

- (1 monitoring the industrial waste water to check the water quality and comparing with the Syrian standards.
- (2 Monitoring the water quality of the sewerage and comparing with the Syrian standards and regulations.
- (3 Monitoring the water quality for the Agricultural waste water canals to compare it with the Syrian regulations and standards.
- (4 Checking the raw water of the river in specific points to measure the pollution
- (5 Emergencies (complaints)

Monitoring stations:

Location	Type	No. of Stations	Water body
- Deir Ezzor 7 km area - Deir Ezzor Alhosainieh - Deir Ezzor Almiadien - Deir Ezzor 7 km area	- Sugar factory - Paper factory - Canned food factory -Yarns and textile factory	4	1- industrial waste water
- Deir Ezzor Harabesh - Deir Ezzor	- main sewerage outlet - Hawika area outlet	2	2- Municipal waste water
- Dier Ezzor Almrieieh - Dier Ezzor Al abed	Agricultural waste water canal Agricultural waste water canal	5	3- Rivers
- before the entrance of the city - inside the city - after the city	Raw water from the river directly		
			4- Emergencies

Site map



Deir Ezzor Map with Sampling Stations

Sampling stations for agriculture waste water



Sampling stations for raw water



Sampling stations for sewage



Duration of the Monitoring and Frequency

The environmental monitoring plan started since 1st March 2007 till 31st Dec 2007 with frequency as mentioned in the table below:

No.	symbol	frequency	Stations	Water body
8	Dez-I-001	8/ year	1- Paper factory	1- Industrial waste water
4	Dez-I-002	4/ year	2- Sugar Factory	
2	Dez-I-003	2/ year	3- Canned Food Factory	
3	Dez-I-004	3/year	4- Textile and yarns factory	
5	Dez-D-001	5/ year	1- Main outlet for sewerage	2- Municipal waste water
5	Dez-D-002	5/ year	2- Hawika area outlet	
5	Dez-R-001	5/ year	Agriculture waste water canal (Al mrieieh)	3- River, Lakes and ponds
4	Dez-R-002	4/ year	Agriculture waste water canal (A lAbed)	
2	Dez-R-003	2/ year	- before entering the city	
2	Dez-R-004	2/ year	- in the city center	
2	Dez-R-005	2/ year	- after exit of the city	
35	Dez-C-00?			4- Emergencies
77				Total

Standards analysis:

Standards analysis will be done about 10% of the total number of samples which will be analyzed in 2007 plan or when required.

parameters should be analyzed

Others	Rivers and lakes	Municipal waste water	Industrial waste water	Parameter	No
	0	0	0	PH	1
	0	0	0	Water Temperature	2
				Air Temperature	3
	0	0	0	EC	4
	0	0	0	TDS	5
	0		0	DO	6
	0		0	Color	7
	0	0	0	SS	8
	0	0	0	BOD	
	0	0	0	COD	9
	0	0	0	NO3	10
	0	0	0	Nh3	11
	0	0	0	PO4	12
	0	0	0	CL-	13
	0		0	Turbidity	14

Analysis methods for parameters as mentioned in 2006 EMP as followings:

Notes	Analysis method	Parameter
	Electrode method	PH
	Thermometer	Water Temp
		Air Temperature
	Electrode method	EC
	Electrode method	TDS
	Membrane electrode method	DO
	Platinum -cobalt APHA	Color
	Photometric method	SS
	Pressure sensor method	BOD
	Reactor digesting method	COD
	Cadmium reduction method	NO3
	Salicilate method	NH3
	Amino acid method	PO4
	Silver nitrate method	CL-
	Niphilometric method	Turbidity

Table of the required materials for the laboratory 2007:

Required quantity	Unit	Usage	Reagent	
1	500 ml	Calibration of ph	ph4.01	1
1	500 ml		ph7.00	
1	500 ml		ph10.00	
1	100 ml	Calibration of EC-TDS	180 ms / cm	2
1	100 ml		1000 ms / cm	
1	100 ml		18000 ms / cm	
1	Standard bottle	Turbidity calibration	0.1ntu	3
1	Standard bottle		20 ntu	
1	Standard bottle		100 ntu	
1	Standard bottle		800 ntu	
10	tests/pk25	COD analysis	COD reagents	4
2	tests/pk100	NO3-N analysis	NO3-N reagents	5
2 Amino acid	tests/pk100	PO4 analysis	PO4 reagents	6
No. / 4 / 14396	tests/set100	Chlorine analysis	Chlorine reagents	7
2	25 ml	BOD estimation	Nitrification inhibitor	8
2	cspsules/bottle50	BOD estimation	seeds	9

Reagents of low detection limits

Required quantity	unit	usage	reagent	
5	tests/pk25	COD analysis	COD reagents	1
2	tests/pk100	NO3-N analysis	NO3-N reagents	2
2	tests/pk100	PO4 analysis	PO4 reagents	3
3	tubes/pk 50	NH3 - N analysis	NH3 -N reagents	4

Difficulties and obstacles that faced the laboratory in Deir Ezzor DFEA:

1. Non-stability of the laboratory staff and continuous change for several reasons such as traveling outside Syria and motherhood vacations and the borrowed staff from other departments will go back to their original job.
2. Laboratory staff is not full time for the work but they are asked to do other jobs.
3. The new location of the laboratory was not ready which affected the plan negatively due that building and working in the laboratory were done simultaneously.
4. the laboratory is not ready from the technical point of view such as:
 - Power supply is not enough to operate all the equipment together.
 - There is no possibility to operate the air conditioning in summer and heaters in winter.
 - Water filters were not installed
 - The boiler was not provided with electricity so that hot water was not provided.
5. Difficulties in data interpretation that is done by the laboratory staff in addition to the shortage in the scientific references which can help in this field.
6. The expired reagents could not procured from the suppliers because they are far away from the DFEA, so the staff used the expired reagents.
7. There is no possibility to provide a boat for sampling raw water from the river.
8. The gasoline allocations for the laboratory vehicle are not enough to cover all the areas of the big governorate and especially the agricultural wastewater canals along the Euphrates River.
9. Special uniform for the laboratory staff during the sampling is not available.
10. Shortage in knowledge of the laboratory staff in the objectives of the environmental monitoring and the inspection.
11. weak role of the public awareness through knowing how to publish the results of the analysis among the society members and decision members in order to take the necessary countermeasures in order to eliminate the pollution to match law No. 50
- 12 there is no network connection between DFEA and GCEA and this caused difficulties in data exchange and analysis results.
- 13 law No. 50 is not applied effectively

Suggestions and recommendations

1. Increasing the number of technicians in the laboratory and try to stabilize them and being full time for the laboratory work.
2. More training for data interpretation in the project and increasing the number references and knowledge.
3. Facilitation of the procurement of the missing reagents for the analysis in each beginning step of this plan.
4. Supplying the data transfer system and database using the networking through the STE branch in Deir Ezzor between the DFEA in Deir Ezzor and GCEA.
5. Completing all the missing equipment for the laboratory work, which is very important
6. Providing a boat to take the samples of the raw water from the river by borrowing from other authorities such as the fish department at the directorate of agriculture in Deir Ezzor Governorate.
7. Increasing the quantity of the gasoline for the sampling vehicle in order to cover all the locations of the agricultural wastewater canals along the Euphrates.
8. Training the laboratory staff on the inspection procedures for the industrial establishments and others.
9. Activation of the role of public awareness though using the results of the analysis in the awareness of the citizens.
10. The necessity of conduction Environmental auditing for the industrial activities (sugar, paper, textile, canned food, etc...) in some authorized companies by GCEA.
11. The necessity of building the wastewater treatment facilities for the industrial activities to stop all kinds of industrial pollution and it should be matching the Syrian standards.
12. The necessity of establishing the sewerage treatment plants for all the outlets of the sewerage along the Euphrates, and not to establish any future sewerage network without any treatment plant.
13. Rationalizing and monitoring the usage of the fertilizers and pesticides by the farmers especially during the economical crops to reduce the impact of the agricultural wastewater and soil sanitation.
14. Stopping the violation on the agricultural wastewater canals and monitoring them and in case of finding high rates, this water should be treated before discharging to the river.
- 15 assuring the implementation of law No. 50

Appendixes:

- ❖ **Final results for the industrial waste water locations**
- ❖ **Final Results for the sewerage locations.**
- ❖ **Final Results for the river's locations (raw water, agricultural waste water)**
- ❖ **Final Results of the complaints.**

Annex 3-6: **Annual Reports 2006 (Basic Water Quality)**

3.6.8 Idleb DFEA

Syrian Arab Republic
Ministry of Local Administration and Environment
General Commission for Environmental Affairs
Directorate of Environmental Affairs in Idleb

الجمهورية العربية السورية
وزارة الإدارة المحلية والبيئة
الهيئة العامة لشؤون البيئة
مديرية شؤون البيئة بإدلب

No:.....

**Capacity Development for Environmental Monitoring at
DFEAs in the Governorates
In cooperation with JICA**



**First Annual Report
The Laboratory at Idleb DFEA
2006**

Idleb 11th Feb 2007

Laboratory Chief
Eng. Samir Da'bool

**Director of Idleb DFEA
Eng. Jumana Hasan**

Contents

1- Executive Summery

- a) Purpose of the report

2- Introduction

3- Details

- a) Metrology
- b) Water
- c) Administrative distribution and population
- d) Industry
- e) Properties of the governorate
- f) Monitoring plan for the year 2006

4- Results and discussions

- a) Introduction
- b) Analysis Results of the measurements

5- Recommendations and future plan

- a) Recommendations
- b) Monitoring plan for the year 2007
- c) Obstacles for the implementation of the monitoring plan
- d) Conclusion

6- Appendix

- a) Photos for the sampling stations
- b) Implementation schedule for the monitoring plan of 2007

1- Executive Summery

a) Purpose of the report: this is the first annual report for Idleb DFEA which shows the work and results of the laboratory during one year of the training period of the capacity development project at DFEAs in the governorates which is conducted in close cooperation between MOLAE and JICA.

So the report is a training report aiming to be trained for the issuance of the annual reports for the laboratories as well as the results of the

analysis shown in this report is not accurate 100% because the laboratory staff at that time was in the training period for the analysis and received several lecture and on job training by JET at Idleb DFEA.

The purpose of the annual reports after finalizing the training period and the accreditation of the laboratory officially is to evaluate the water quality at the governorate in order to be a scientific reference in the hands of the decision makers and the public to guide the directions of the environment protection.

2- Introduction

Water pollution is a real problem increasing day by day especially that Syria is located in semi dry area and the capital share of drinking water is decreasing annually, Idleb governorate is a part of the interior region which has low storage of drinkable water due to metrological and development reasons and due to the increase in the population.

This report covers one year of the laboratory work in the environmental monitoring for all kinds of water in the governorate through the interpretation of the results shown in the report which got by the analysis of different kinds of the water discharges and water resources in the governorate.

The Environmental monitoring plan was set for the Laboratory of Idleb DFEA for the year 2006 and it was the first monitoring plan which is set by the DFEA supervised by the JET and it is a training plan aiming to develop the capacity of the laboratory staff in sampling, analyzing and other required works. It was taken in consideration all kinds of water in the governorate.

This plan was implemented associated with other monitoring activities carried out by Idleb DFEA as well as other samples of water were analyzed.

In addition, it was conducted in cooperation with other authorities in the governorate as the directorate of water resources in Idleb especially in the field of Environmental Monitoring for Water quality.

Directorate of water resources in Idleb Governorate is conducting the monitoring for all kinds of natural water resources, the industrial discharges and sewerage and sending the results to Idleb DFEA through their laboratory because there was no laboratory at Idleb DFEA.

In addition, the general establishment for water and sewerage is conducting the monitoring for water quality for the ground water wells in the governorate and they have an accredited laboratory to conduct the special analysis required for the quality of drinking water.

As well as there is under going project regarding Orantes river is conducted by the University of Aleppo and SERC.

3- Details

a) Metrology: Idleb governorate is spreading over a total geographic land estimated 7,000 km² it means 2/3 of Lebanon Area and it has a variety of geography and metrology.

the summer is hot and the average summer temperature is (29-27 C°) as well as warm winter (5-8 C°) so the average temperature is (16-18 C°).

the dominating wind in Idleb is western and southern – western and the average of wind velocity (1-3 m/sec), humidity remains high in the north and west of the governorate and the humidity is about (60-65%) all over the year and decreases in the eastern part of the governorate to 35% and most of the rain is winter rains decreasing from the west to the east (Jisr Elshoughour 700 mm, Idleb 500 mm, Saraqeb 350 mm, Abo Alzouhour 250 mm)

in the governorate there are several metrological regions: humid metrology can be found in the southern western part of the governorate and semi humid in Jisr Elshoughour and semi dry in all parts of the governorate, while the dry metrology can be found in the east

b) water in the Governorate :Orantes river is passing the governorate with its tributary Al-Abyad river which recently a new dam was constructed on to irrigate 10,700 hec of the lands, while the ground water in Idleb Governorate belongs to Orantes and Aleppo basin where the springs were in the western part of Alzaweieh mountain and supporting Alghab area unfortunately most of them are dried such as (Northern and middle Eree spring) and some are still having water such as (Ein Altaka spring, Shagourit and Ein Alzarka)

in the Orantes basin there are Shiekh Issa hot mineral water which help in the remedy of some skin diseases. The storage of the ground water in Idleb is big and reaches to 350-70 m.

c) Administrative distribution and population: the population of Idleb reaches by the end of 2000 (1,484,354) living in 11 cities are (Idleb, Jisr Alshougour, Ariha, Ma'aret Alno'man, Harem, Selkin, Bensch, Kafr Nobl, Khan Shikoun, Ma'aret Masreen and Sarakeb), these cities having 33% of the total population of the governorate while 67% are living in the countryside in 19 towns and 421 villages.

d) Industry: the types of the existing industries in the Governorate are agricultural industries depending on the agricultural

products produced in the Governorate and the Most Important establishments:

- 1- Olive Oil Extracting
- 2- Arjoun Oil Extracting
- 3- Plants oil Industry
- 4- Fodder Industry
- 5- Grain storage industry
- 6- Animals brought up establishments
- 7- Simple converting industries
- 8- Food Industry, (Sugar, Dairy, Agro food, etc.)
- 9- Asphalt Mixers
- 10- Stone and Marble Queries.

The liquid discharges resulting from these industries excluding the olive oil extracting and sugar do not exist due to non-usage of water in the production process like fodder and some times very little not more than several cubic meters per day due to the small size of the industrial establishments.

As well as all the establishments that depend on the agro, products are seasonal such as olive oil mills.

e) Properties of the Governorate:

- 1- Idleb is not an industrial governorate, and most of the existing industries are small scale and most of them are not using water in the production purposes as well as they don't use special establishment which don't use water and has very few amount of discharges are very small scale industries and the water consumption will not exceed few cubic meters per day. (agro food products, dairy factory).
- 2- Existence of big number of Olive Extracting mills (more than 140) which produce polluted liquid discharges due to the high loads of organic ten times more than the allowed limits compared with waste water or sewerage and discharging them without any treatment to the sewerage networks and valleys and river beds and nearby the springs and wells.
- 3- Non-treatment of the sewerage resulting from the residential units and these wastes arrive to the rivers and springs and used for the irrigation of the crops, but recently some studies are carried out and the implementation will be by 2007.
- 4- The pollution of the Orantes river and its tributaries as well as the winter flood roads to it which enters the Governorate polluted and the pollution is increasing within the governorate area due non protection of the river bed and due to the discharges of the waste water (discharges of olive mills, sugar factory, sewerage, etc.)

which are discharged in the river and the pollution indicators are increasing annually due to the weak flow rate and especially in summer and the pollution of this river might lead to the pollution of the spring for drinking water existing in the river basin.

f) Monitoring Plan for the year 2006:

the plan was set under the supervision of JICA Expert Team according to the available data and information at the DFEA about Natural water resources, and existing industrial activities located in the governorate, this plan was modified in 2007 due to the real situation we found when applying 2006 plan, some sampling stations were removed while others were added and other new operations were implemented.

Environmental Monitoring Plan

No. 001 Idleb DFEA (8th Jan 2006)

Prepared by the Laboratory staff

Signature: Director of DFEA

1. Logical base:

The Environmental Monitoring plan was prepared in Idleb DFEA in accordance with the law No.50.

Idleb DFEA has the right to implement the Environmental Monitoring Plan authorized by the Minister of local Administration and Environment and Idleb Governor.

2. objectives of the Environmental Monitoring

- 1) Monitoring the discharges from the Industrial Establishments to support the environmental inspection activities when the laboratory is officially accredited.
- 2) Monitoring the discharges of the municipal wastewater for the main cities of the governorate to check any new changes (new pollution source).
- 3) Monitoring the water quality for the ground water (wells) nearby expected pollution sources or depending on the request of the decision makers or even depending on a complaint.
- 4) Monitoring the water quality for some natural resources (rivers, reservoirs, dams) in some important locations.

3. Parameters should be analyzed and monitored:

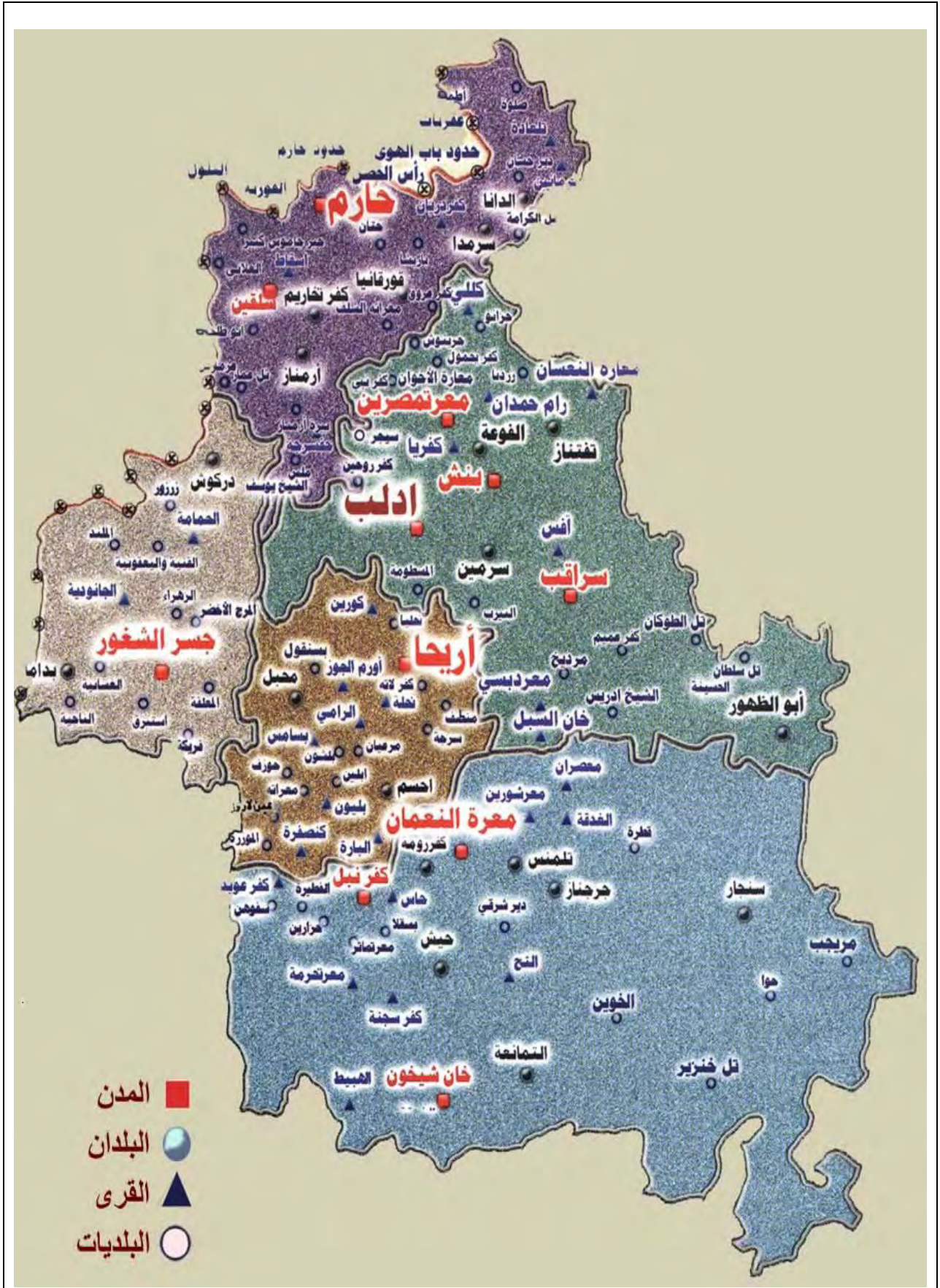
Others ground water	Sea and costal areas	Rivers and Lakes	Municipal waste water	Industrial waste water	parameter	No
-1 Field Measurements						
+		+	+	+	PH	1
+		+	+	+	Temp water Temperature	2
+		+	+	-	EC	3
+		+	+	+	TDS	4
-		+	-	-	DO	5
-2 Laboratory analysis						
+		+	-	-	COLOR	1
-		+	+	+	SS	2
+		+	+	+	CODcr	3
+		+	+	+	BOD5	4
+		+	+	-	NO3-N	5
+		+	+	+	PO4	6
+		+	+	+	CL-	7
+		+	+	+	NH3-N	8
+		+	-	-	Turbidity TUR	9

4. Monitoring Stations

Notes	location	No. of stations	Water body
Total number of samples 28 sample per year one sample from each station except Sugar Factory 2 samples per year	<ol style="list-style-type: none"> 1) Oil plants factories 3 (Idleb, Saraqeb, Ma'r Tamsareen) 2) Arjoun Oil Factories 4 (Idleb, Ma'r Tamsareen, Armanaz, Silkeen) 3) Sugar Factory 1 (Jisr Alshougur) 4) Painting Factories 2 (Idleb, Talmans) 5) Dairy Factories 3 (Bensh, Alqanieh, Hass) 6) Beverage factory 1 (Jisr Alshougur) 7) Detergent and soap 	27 stations	1- Industrial waste water

	<ul style="list-style-type: none"> 2 (Idleb) 8) Caned food factories 2 (Idleb) 9) Pixels factories 3 (Mar tamsareen, Idleb) 10) Zaizoun Thermal plant 1 (Jisr Alshoughour) 11) tanneries 2 (Marret Alno'man) 12) olive extracting mills 3 (Idleb) 		
Total number of samples 10 (2 samples of each station annually)	<ul style="list-style-type: none"> 1) Idleb sewerage (next to Alfahd petrol station) 2) Ariha Sewerage (Ariha Idleb road) 3) Marr'at Sewerage 4) Jisr Alshoughour 5) silkeen 6) others to be set later 	5 stations + 2 expected stations	2- Municipal waste water
Total number of samples 12 in the year	<ul style="list-style-type: none"> 1) Orantes river 2 before and after Jisr Alshoughour city 2) Orantes river before Turkish border 3) Orantes river 1 before Darkoush town 4) Al Balla'a Dam 5) Al Zo'ainieh river 6) Al ayyad river (before connecting with Orantes river – Aljanoudieh) 	7 stations	3- rivers and lakes
	Non		4- Sea and costal areas
4 samples annually + 2 expected	<ul style="list-style-type: none"> 1) 2 ground water wells near the Idleb Landfill site (Hammoud well, Habboush well) 2) 2 ground water 	4 stations + 2 expected (such as near the dumping site of Jisr Alshoughour)	5- Others

	<p>wells near the final discharging point of the sewerage of Idleb and Aleppo (near Alsiha pond)</p> <p>3) wells and other sites for surface and ground water depending on complaint (Almaghara village wells)</p>		
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5- Duration of the Monitoring and its Frequency

the duration of the Environmental Monitoring plan is from 1st January to 31st Dec 2006. the Frequency of the monitoring is shown in the table below:

Times (Jan-Dec)	frequency	stations	Water body
1 time	Once a year for each station	(1 plant oil factories 3 stations	1- Industrial Waste Water
1 time	Once a year for each station	(2 Arjoum oil factories 4 stations	
2 times	twice a year for each station	(3 Sugar factory one station	
1 time	Once a year for each station	(4 painting factories 4 stations	
1 time	Once a year for each station	(5 Dairy factories 3 stations	
1 time	Once a year for each station	(6 Beverage factory 1 station	
1 time	Once a year for each station	(7 Detergent factories 2 stations	
1 time	Once a year for each station	(8 Caned food factories 2 stations	
1 time	Once a year for each station	(9 Pixels factories 3 stations	
1 time	Once a year for each station	(10 Zaizoun Thermal plant 1 station	
1 time	Once a year for each station	(11 Tanneries 2 stations	
1 time	Once a year for each station	(12 Olive extracting mills 3 stations	
- 2 times - 2 times -2 times - 2 times - 2times	- once each 6 months - once each 6 months - once each 6 months - once each 6 months - once each 6 months	1- Idleb Sewerage 2- Ariha Sewerage 3- Ma'rrat sewerage 4- Jisr Ashougour sewerage 5-Silkeen sewerage 6 others (expected)	
- 2 times - 2 times - 2 times - 2 times - 1 time	- once each six months/ station - once each six months - once each six months - once a year - once a year	1 Orantes river 2 stations before and after Jisr Alshoughour 2 Orantes River before the Turkish border 3 Orantes River 1 station after Darkoush town 4 Alzouainieh River (Alzouaineh) 5 Al bal'a Dam	3- Rivers and Lakes

- 1 time	- once a year	6 Alabyad river (Aljanoudieh)	
		Not available	4 seas and costal areas
1 time	1 time /year for each station	1 wells 2 near Idleb landfill site (Hammoud well, Habboush well)	5- others : wells nearby expected pollution sources or depending on complaints
1 time	1 time /year for each station	2 wells 2 in the final discharge of the sewerage of both Aleppo and Idleb cities (near Siha pond Area)	
	not specified	3 wells and other locations due to complaints (wells of Maghara village)	

6- Analysis method

Notes	Analysis method	Parameters
	Electrode method	PH
	Thermometer	Temp
	Electrode method	EC
	Electrode method	TDS
	Membrane electrode method	DO
	Platinum -cobalt APHA	COLOR
	Photometric method	SS
	Reactor digesting method	CODcr
	Pressure sensor method	BOD5
	Cadmium reduction method	NO3-N
	Amino acid method	PO4
	Silver nitrate method	CL-
	Salicilate method	NH3-N
	Niphilometric method	TUR

7- Other Notes

7.1 Responsible staff

Note	Item	Responsibility	Position	Name
	Since the beginning of the project	Laboratory Chief	Chemical Engineer	Eng. Samir Da'boul
	Since the beginning of the project	Analyzer	Chemical Engineer	Eng. Mostapha Aldghayyem
	Beginning 2006	Analyzer + data managment	Agronomist	Eng. Ayman Kahwaji
	Beginning 2006	Analyzer+ public awareness	Agronomist	Eng. Eyad AlHousien

7.2 others: Important Notes on the Plan

- 1- Total number of the samples 53 + expected undefined samples 2-4
- 2- since the laboratory staff is not full time for the work , so the plan was set according to the maximum available time for the staff.
- 3- In Idleb Governorate most of the industrial activities are small so their waste water is not stable and connected directly to the public sewerage so sometimes we cant find intake where we can sample from those establishments and since this is the first plan so we are concentrating on the industrial establishments and for this reason it will be flexible to deal with when implementation.
- 4- Water quality for some natural water resources (rivers, reservoirs) will be monitored less frequency due to the existence of other authorities doing the same monitoring activities.
- 5- Any new sampling stations will be noted and added to the plan if possible or at least to for next plans and especially for those belonging to industrial waste water due the industrial investment is increasing rapidly in the governorate.

4- Results and Discussions

1 introduction: it is proved that the results of the analysis which will be shown in this report are not fully accurate because the laboratory staff are still in the training period trough the capacity development for Environmental Monitoring project as well as the laboratory hasn't been accredited yet, but those results give at least preliminary evaluation for the water quality because the analysis of the polluted water required high experience in the field of the analysis and scientific knowledge to identify the results and making interpretation for them, since the detection equipment are not so complicated but the chemical interference due to the water content of polluted materials and chemical materials that might be an obstacle to achieve accurate analyzing results

- 1) Water that was monitored is
 - 1 discharges of the Industrial establishments existed in Idleb Governorate.
 - 2 discharges of the sewerage for the main cities in the Governorate.
 - 3 ground water (wells) nearby expected pollution sources or depending on orders from the decision makers or even the complaints.
 - 4 some natural resources (rivers, reservoirs)

5- The recommendation and the future work

1– Recommendations:

- SS symbol in the Syrian standards means settleable solids while TSS means Total Suspended Solids and it is one of the 14 parameters we are conducting the analysis for. So in order to avoid any mistake in our labs we should adopt TSS instead of SS.
- 1- We propose the possibility of adding some parameters to the adopted standard (Maximum Limits for the pollution indicators of the industrial wastes to the water environment) in order to include the 14 parameters applied in the capacity development project in the standards.
- 2- Starting a program for laboratory accreditation on the national level

-2 Environmental Monitoring Plan 2007

No. 002 Idleb DFEA (8th Feb 2007)

The Environmental Monitoring Plan was prepared by the Laboratory Chief Eng. Sameer Da'boul

Signature: Director of Idleb DFEA

5. logical base

this environmental monitoring plan was prepared by Idleb DFEA in Idleb Governorate in accordance with Law No. 50

Idleb DFEA has the right to implement the Environmental Monitoring Plan authorized by the Minister of MOLAE and Governor of Aleppo.

6- Objectives of the Environmental Monitoring

- 1) Monitoring the discharges from the industrial activities to support the environmental inspection when the lab is officially accredited.
- 2) Monitoring the discharges of the sewerage of the main cities at the governorate to search for any sensible changes (new pollution source)
- 3) Monitoring the water quality of the ground water (wells) nearby expected pollution sources or depending on request from the decision makers or a complaint.
- 4) Monitoring the water quality of the natural resources (Rivers, reservoirs) in some important locations.
- 5) Acquiring the practical and scientific expertise in the field of the sample analysis, data interpretation and Environmental Monitoring.

6. parameters should be analyzed and Monitored

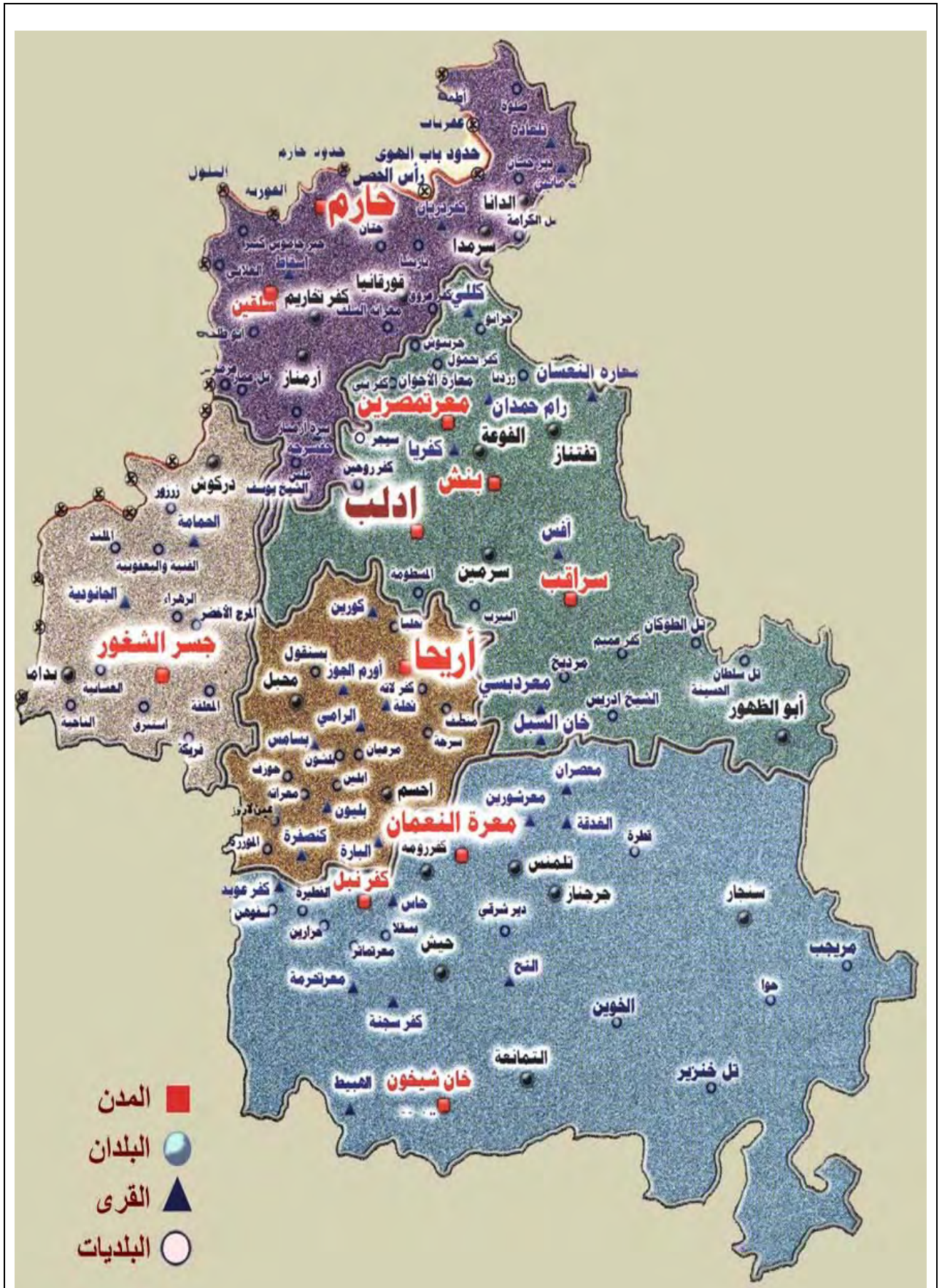
Others ground water	Sea and costal areas	Rivers and lakes	Municipal waste water	Industrial waste water	parameters	No

wells						
-1 field measurments						
+		+	+	+	PH	1
+		+	+	+	temp	2
+		+	+	-	EC	3
+		+	+	+	TDS	4
-		+	-	-	DO	5
-2 Laboratory analysis						
+		+	-	-	COLOR	1
-		+	+	+	SS	2
+		+	+	+	CODcr	3
+		+	+	+	BOD5	4
+		+	+	-	NO3-N	5
+		+	+	+	PO4	6
+		+	+	+	CL-	7
+		+	+	+	NH3-N	8
+		+	-	-	TUR	9

7. Monitoring Stations

Notes	locatio	No. of stations	Water body
Total number of samples 28 sample per year one sample from each station except Sugar Factory 2 samples per year	13) Oil plants factories 4 (Idleb 1, Saraqeb 2, Ma'r Tamsareen 1) 14) Sugar Factory 1 (Jisr Alshougur) 15) Dairy Factories 3 one of the following factories (Bensh, Arihia, Idleb, Ezmarin, Alfou'a, Termanin) 16) Caned food factories 3 (Idleb2, Ariha 1) 17) Pixels factories 3 (Mar tamsareen, Idleb, Bensh) 18) Zaizoun Thermal plant 1 (Jisr Alshoughour) 19) olive extracting mills 3 (Idleb) 20) Grain mills 4 (Idleb 3, Saraqeb 1) 21) Industrial Area in Idleb 22) Other establishment 4 (new not categorized, complaints)	27 stations	1- Industrial waste water
Total number of	7) Idleb sewerage (next to	5 stations	2- Municipal waste

samples 5 + 1 expected	Alfahd petrol station) 8) Ariha Sewerage (Ariha Idleb road) 9) Marr'at Sewerage 10) Jisr Alshoughour 11) silkeen 12) others to be set later		water
Total number of samples 12 in the year	7) Orantes river 2 before and after Jisr Alshoughour city 8) Orantes river before Turkish border (Ezmarin) 9) Orantes river 2 before and after Darkoush town 10) Al Balla'a Dam 11) Aldweisat Basin 12) Al Zo'ainieh river 13) Al ayyad river (before connecting with Orantes river – Aljanoudieh)	7 stations	3- rivers and lakes
	Non		4- Sea and costal areas
5 samples annually + 5 expected	4) Ein Alzarka spring 5) Gathering basin of Ein Alzarka. 6) 2 ground water wells near the Idleb Landfill site (Hammoud well, Habboush well) 7) ground water wells 1 near the final discharging point of the sewerage of Idleb and Aleppo (near Alsiha pond)	5 stations + 5 expected depending on request or complaint	5- Others



- Duration of the Monitoring and its frequency

the duration of the Environmental Monitoring Plan is from 1st Jan to 31st Dec 2007 and the frequency of it is shown in the table below:

Times (Jan-Dec)	frequency	stations	Water body
1 time 2 times 1 time 2 time 1 time 1 time 1 time 1 time 1 time 1 time	Once a year for each station twice a year for each station Once a year for each station Once a year for each station Once a year for each station Once a year for each station Once a year for each station Once a year for each station Once a year for each station Once a year for each station	(1 plant oil factories 4 stations (2 Sugar factory one station (3 Dairy factories 3 stations (8 Caned food factories 3 stations (9 Pixels factories 3 stations (10 Zaizoun Thermal plant 1 station (12 Olive extracting mills 3 stations (13 grain mills 4 (Idleb 3, Sarakeb 1) (14 Industrial area in Idleb	1- Industrial Waste Water
- 1 time - 1 time -1 time - 1 time - 1time	- once each 6 months - once each 6 months - once each 6 months - once each 6 months - once each 6 months	1- Idleb Sewerage 2- Ariha Sewerage 3- Ma'rrat sewerage 4- Jisr Ashougour sewerage 5- Silkeen sewerage 6 others (expected)	2- Municipal Waste water
- 1 time - 1 time - 1 time - 1 time - 1 time - 1 time	- once a year / station - once a year / station - once each six months - once a year - once a year - once a year	1 Orantes river 2 stations before and after Jisr Alshoughour 2 Orantes River before the Turkish border 3 Orantes River 2 stations before and after Darkoush town 4 Alzouainieh River (Alzouaineh) 5 Al bal'a Basin 6 Alabyyad river (Aljanoudieh)	3- Rivers and Lakes
		Not available	4 seas and costal areas

1 time	2 time /year for each station	1 Ein Alzarka spring	5- others : wells nearby expected pollution sources or depending on complaints
1 time	2 time /year for each station	2 Ein Alzarka gathering basin	
1 time	1 time /year for each station	3 wells 2 near Idleb landfill site (Hammoud well, Habboush well)	
1 time	1 time /year	4 wells 1 in the final discharge of the sewerage of both Aleppo and Idleb cities (near Siha pond Area)	
1 time	1 time /year	5 expected stations 5 due to request or complaints	

8. Analysis Method

Notes	Analysis method	Parameters
	Electrode method	PH
	Thermometer	Temp
	Electrode method	EC
	Electrode method	TDS
	Membrane electrode method	DO
	Platinum -cobalt APHA	COLOR
	Photometric method	SS
	Reactor digesting method	CODcr
	Pressure sensor method	BOD5
	Cadmium reduction method	NO3-N
	Amino acid method	PO4
	Silver nitrate method	CL-
	Salicilate method	NH3-N
	Niphilometric method	TUR

9. Data Records and Publications

- 1) Record at DFEA
- 2) Record at the directorate of laboratories at GCEA
- 3) Record at the Governorate
- 4) Arrangement of Data book
- 5) Annual Report should be prepared and published

10. other notes

10.1 Responsible Staff

Note	Item	Responsibility	Position	Name
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	Since the beginning of the project	Laboratory Chief	Chemical Engineer	Eng. Samir Da\boul
	Since the beginning of the project	Analyzer	Chemical Engineer	Eng. Mostapha Aldghayyem
	Beginning 2006	Analyzer+ public awareness	Agronomist	Eng. Eyad AlHousien
	Beginning 2007	Data management	Computer engineer	Eng. Qais Abazli

10.2 Others: Important Notes to the plan

- 1- Total number of the samples mentioned in the plan 44 sample + 10 undefined expected samples
- 2- The staff is not fully assigned for the laboratory work, so the plan was put due to the maximum time for the laboratory staff.
- 3- In Idleb Governorate most of the industrial activities are small scale and seasonal and their waste water are little and connected directly to the public sewerage, so we cant find some times sampling points, for this reason the plan should be flexible when implementation according to the current situation.
- 4- Any new sampling stations will be noted if possible within this plan or in the next coming plans and especially the sampling stations for the industrial waste water because e the industrial investment is developing rapidly.

-3 Obstacles of the implementation of the EMP

- 1- All industrial activities in the governorate which have liquid discharges have a seasonal work and this was adopted in the plan.

- 2- Most of the establishments don't have steady work, it means there is no discharged wastes continuously, so the staff visited this kind of establishments several times to make sampling.
- 3- Some establishments don't have special intake for sampling.
- 4- The quantity of the discharged wastes is little
- 5- The establishments are affected by their locations in the governorate (total area of Idleb 7000 km²)
- 6- The sampling vehicle is not equipped to preserve the samples from shocks and weather factors.
- 7- There are no financial incentives for the laboratory staff.

-4 Conclusion

- 1- All laboratory equipment are in good technical condition
- 2- The laboratory has received recently new equipment to measure the air pollution and oil content meter, the supplier will make the training, and that equipment will be used to support the activities of the environmental monitoring within the plan of the laboratory work and in the environmental inspection and the environmental monitoring in general.
- 3- The location of the sampling stations will be identified clearly on the map of Idleb Governorate.

Please consider and approve

6- Appendix

- 1 photos for some sampling stations:
- 2 schedule of the implementation of the EMP 2007



I-006-01



I-007



I-012



I-002



I-008



D-002



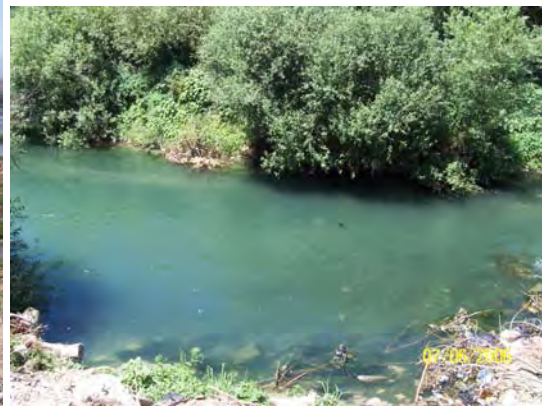
D-004



L-001



R-002



R-004



C

-2 Implementation Schedule for the EMP 2007

December				November				October				September				August				July				June				May				April				March				February				January				Location	Sampling station				
4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1						
				+	+	+	+																																													Plant oil 4	Industrial waste water
										+																	+																					Sugar factory 1					
														+				+									+																					Dairy 3					
										+					+								+																													Canned food 3	
															+				+				+																													Pixels factory 3	
																															+																					Zaizoun thermal plant 1	
		+	+	+																																																Olive mills 3	
																			+								+																									Grain mills 2	
																											+								+																	Industrial Area in Idleb	

Annex 3-6: **Annual Reports 2006 (Basic Water Quality)**

3.6.9 Hasakeh DFEA

Syrian Arab Republic (SAR)
Ministry of Local Administration and Environment (MOLAE)
General Commission for Environmental Affairs (GCEA)

**The Annual Report
for Environmental Monitoring Plan**

**In Hasakeh Directorate
for Environmental Affairs**

In the year 2006

Contents:

- 1- Introduction
- 2- Executive summary
- 3- Objectives
- 4- Related monitoring activities
- 5- Details
- 6- Operation and maintenance of the lab (O/M)
- 7- Cleaning and arranging the lab and the equipments
- 8- Data Management, Quality Control & Quality Assurance (QC&QA)
- 9- Environmental Monitoring Plan in 2007
- 10- Appendix

1- introduction:

This is our first report about Environmental Monitoring in our DFEA, after one year and a half of training on lab work (theoretical and practical). Under supervision of JICA Experts, we feel now that we reach an acceptable level of training, (and that what JICA Experts assure in every visit to our DFEA), because of our serious pursuit depending on theoretical references provided and what we learned from our mistakes.

However, the most important thing is that we were asking JICA Experts directly when any problem faced us.

We aim this report will give a clear idea about our activities in 2006, and hope from the reader to tell us about any gap in this report to avoid it in our next reports.

Notes:

- Tables of results mentioned here are in small, anyone wants to get better knowledge about them can find the original Excel files in our DFEA.
- Discussion and recommendations item is included within some other items.

2- Executive summary:

Environmental Monitoring Plan for this year began in February and ended in December 2006. It contained five basic monitoring points:

- 1- Jaghjagh River -at the Harbi Bridge- 4 times per month.
- 2- The Khabour River: near Almjarje'e village, two times per month.
- 3- Domestic wastewater: near Albeirut Bridge in Hasakeh, 4 times per month.
- 4- Basel Alasad Lake (South Dam of Hasakeh): two times per month.
- 5- Emergency: 50 samples during the year.

In addition, because of the loss in gasoline assigned for the car, sampling station of Jaghjagh River in Al Kamioshli city cancelled, while the distance between Kamioshli and Hasakeh is 90 km.

It was supposed to take 170 samples, but the actual implementation of the plan shows that this number must reduced according to the circumstances of the stuff work. Because we are not devoted for lab work completely, and we did not take into account the weather circumstances accurately, because of our little experience since we are still under training of practicing the plan. This makes us modify the plan more than one time to be as follows:

- 1- Jaghjagh River -Al Harbi Bridge-: one time per month.
- 2- The Khabour River: near Almjarje'e village, one time per month.
- 3- Domestic wastewater: near Albeirut Bridge in Hasakeh, one time per month.
- 4- Basel Alasad Lake (South Dam of Hasakeh): One time per month.
- 5- Emergency: 30 samples during the year.

This means 67 samples during the plan time.

We will try to give an idea about the volume of pollution in the sampling stations mentioned above according to the 14 parameters we get training on; the results mentioned in the following table:

		21 February	14 March	12 April	27 April	31 May	26 June	4 October
		11:25	11:38	10:48	10:44	10:37	09:35	10:45
المادة Item	الوحدة Unit							
الطقس Weather	المرجع في الأسفل ref. below	Δ	☉	☉	☉	☉	☉	◆
Air temp.	°C	19.0	26.0	25.0	25.0	41.0	34.5	31.0
River width	m	11-20m	11-20m	11-20m	11-20m	11-20m	20-30m	30m
عمق المياه في نقطة الاعتيان Water depth	m	0.1-0.3m	2-5m	2-5m	2-5m	7-10m	1-2m	2_5m
سرعة تدفق المياه عند نقطة الاعتيان Flow velocity	m/s	0.2-0.4	Not obvious	0.2-0.4	0.2-0.4	<0.2	<0.2	<0.2
الرائحة Odor	-	No	No	No	No	No	No	No
pH	-	7.3	8.2	8.1	8.2	8.2	7.6	7.9
درجة الحرارة color	°C	11.0	16.0	21.0	20.0	29.0	28.4	24.1
اللون color	-	463	236	417	543	168	541	728
Total dissolved solids (TDS)	mg/l	635	1194	612	1488	1713	1418	1389
DO	mg/l	7.26	7.20	5.45	5.59	5.52	4.00	4.91
Total suspended solids (SS)	mg/l	64	32	64	<22	<22	86	96
COD	mg/l	<30	<30	<30	32	44	<30	<30
BOD ₅	mg/l	1	2	2	37	?	1	4
NO ₃ ⁻	mg/l	<0.8	1.2	<0.8	1.0	2.8	<0.8	1.2
PO ₄ ³⁻	mg/l	<0.14	<0.14	<0.14	<0.14	<0.14	3.00	0.21
Cl ⁻	mg/l	270	107	168	363	567	385	415
NH ₃ -N	mg/l	1	<1	1	<1	<1	<1	<1
الناقلية الكهربائية E C	μS/cm	1283	2357	1244	2913	3307	2785	2730
العكارة Turbidity	NTU	85.1	36.1	49.7	67.8	20.4	94.0	96.8

2- Analyses results of Jaghjagh River in Hasakeh

شكل المسجل للتخيل الأساس للمياه														
Recording Format for Basic Water Analysis (for all 14 DFEAs)														
الرمز	المحافظة	المدينة	البلدة											
Code	Governorate	City	Town	Village										
R-001	hasakeh	hasakeh												
نهر جعجع بالقرب من الجسر الحربي														
River/Lake/Factory														
السنة														
2006														
Year														
تاريخ الاعين اليوم / الشهر														
sampling date (day/month)														
وقت الاعين: (ساعة/دقائق)														
sampling time (hh:mm)														
		12-يناير	01-مارس	20-مارس	16-ابريل	15-توفمبر	/	/	/	/	/	/	/	/
		11:44	10:20	10:25	09:26	11:00	:	:	:	:	:	:	:	:
المادة	الطريقة	الوحدة	المعمق	المعدل السنوي										
Item	Analysis Method	Unit	Depth	av.										
الطقس	يدوي	تربح في الأسفل	1-2	الاقصى										
Weather	manual	ref. below		min.										
	thermometer			max.										
Air temp.		°C		19.0										
	يدوي	m												
River width	manual													
عمق المياه في نقطة الاعين	يدوي	m												
Water depth	manual													
سرعة تنفق المياه عند نقطة الاعين	يدوي	m/s												
Flow velocity	manual													
الرائحة	يدوي	-												
Odor	manual													
pH	pH meter	-	السطح											
			m											
			m											
درجة الحرارة	pH meter	°C	السطح											
Water temp.			m											
	portable colorimeter	-	السطح											
اللون			m											
Color			m											
	portable EC/TDS meter	mg/l	السطح											
Total dissolved solids (TDS)			m											
			m											
DO	portable DO meter	mg/l	السطح											
			m											
			m											
Total suspended solids (SS)	portable colorimeter	mg/l	السطح											
			m											
			m											
COD	colorimeter	mg/l	السطح											
			m											
BOD ₅	culture	mg/l	السطح											
			m											
			m											
NO ₃ ⁻	portable colorimeter	mg/l	السطح											
			m											
			m											
PO ₄ ³⁻	portable colorimeter	mg/l	السطح											
			m											
			m											
Cl	Digital Titrator	mg/l	السطح											
			m											
			m											
NH ₃ -N	portable colorimeter	mg/l	السطح											
			m											
			m											
التقليبة الكهربائية	portable EC/TDS meter	µS/cm	السطح											
Electrical Conductivity			m											
			m											
المكارة	portable turbidity meter	NTU	السطح											
Turbidity			m											
			m											
المرجع صف حالة الجو خلال فترة الاعين وعند نقطة الاعين مشبوا إلى التالي:														
صحو/شمس ☀، غائم ☁، مطر (خفيف) △، مطر (بشدة) ▲														
Reference: Describe the weather on sampling time at a sampling point referring to the following marks;														
clear/sunny ☀, overcast ☁, rain (gentle) △, rain (heavy): ▲														
اسم الشخص المسؤول عن إدارة البيانات														
Name of Person in charge of Data Management														
محمد مسلط														

3- Analyses results of Domestic Water near Albeirut River

مكل المسجل للتحليل الأساسى للمياه																					
Recording Format for Basic Water Analysis (for all 14 DFEAs)																					
الرقم	المحافظة	البلدية	البلدية	البلدية									البلدية								
Code	D-001	Governorate	hasakah	City	hasakah									Town	Village						
مجرى الصرف الصحي بالقرب من جسر البيروتى																					
River/Lake/Factory																					
السنة																					
2006																					
تاريخ الاغتيان اليوم / الشهر																					
sampling date (day/month)																					
وقت الاغتيان (ساعة/دقائق)																					
sampling time (hh:mm)																					
المادة																					
Item	الطريقة	الوحدة	العمق	1-2	0.4-0.6	0.1-0.3	0.1-0.3	0.4-0.6	0.4-0.6	0.4-0.6	0.4-0.6	0.4-0.6	0.1-0.3	0.4-0.6	الاقصى	الاقصى	المعدل				
Weather	تدوي	مخرج في الاسفل	Depth	o	o	□	□	□	□	□	□	□	□	min	max	av.					
thermometer	°C	ref. below																			
Air temp.	18	23	18	25	32	30	38	31				27.10	14.80	14.8	37.8	25.7					
River width	تدوي	m		2_3	1_2	1_2	1_2	1_2	1_2	1_2	1_2	1_2	1_2	0.0	0.0	#DIV/0!					
Water depth	تدوي	m		0.4-1	0.1-0.3	0.1-0.3	0.1-0.3	0.4-0.6	0.4-0.6	0.4-0.6	0.4-0.6	0.1-0.3	0.4-0.6	0.0	0.0	#DIV/0!					
Flow velocity	تدوي	m/s		0.5-0.7	0.7-1	0.2-0.4	0.5-0.7	0.5-0.7	0.2-0.4	0.7-1	0.5-0.7	0.7-1	0.5-0.7	0.0	0.0	#DIV/0!					
Odor	تدوي	-		قليلة	معتدلة	قوية	قوية	قوية	قوية	قوية	قوية	قوية	معتدلة	0.0	0.0	#DIV/0!					
pH	pH meter	-	السطح	6.6	7.3	7.2	7.1	7.2	7.2	8	7	7.93	8.21	6.6	8.2	7.3					
			m											0.0	0.0	#DIV/0!					
			m											0.0	0.0	#DIV/0!					
Water temp.	pH meter	°C	السطح	14.3	16	17	21	23	26	29	29	26.20	16.50	14.3	28.9	21.8					
			m											0.0	0.0	#DIV/0!					
			m											0.0	0.0	#DIV/0!					
Color	portable colorimeter	-	السطح	715	—	—	—	—	—	—	—	—	—	715.0	715.0	715.0					
			m											0.0	0.0	#DIV/0!					
			m											0.0	0.0	#DIV/0!					
Total dissolved solids (TDS)	portable EC/TDS meter	mg/l	السطح	1018	907	873	845	990	939	971	929	945.00	1140.00	845.0	1140.0	955.7					
			m											0.0	0.0	#DIV/0!					
			m											0.0	0.0	#DIV/0!					
DO	portable DO meter	mg/l	السطح	0.64	—	0.39	—	—	—	—	—	—	—	0.4	0.6	0.5					
			m											0.0	0.0	#DIV/0!					
			m											0.0	0.0	#DIV/0!					
Total suspended solids (SS)	portable colorimeter	mg/l	السطح	93	80	159	93	61	68	69	50	71.00	137.00	50.0	159.0	88.1					
			m											0.0	0.0	#DIV/0!					
			m											0.0	0.0	#DIV/0!					
COD	colorimeter	mg/l	السطح	175	238	340	180	198	228	256	224	227.00	178.00	175.0	339.6	224.4					
			m											0.0	0.0	#DIV/0!					
			m											0.0	0.0	#DIV/0!					
BOD ₅	culture	mg/l	السطح	90	132	163	185	110	128	153	123	105.00	85.00	85.0	185.0	127.4					
			m											0.0	0.0	#DIV/0!					
			m											0.0	0.0	#DIV/0!					
NO ₃ ⁻	portable colorimeter	mg/l	السطح	1.4	7.5	10.9	31.1	17.5	27	16	33	<0.8	<0.8	1.4	32.7	18.1					
			m											0.0	0.0	#DIV/0!					
			m											0.0	0.0	#DIV/0!					
PO ₄ ³⁻	portable colorimeter	mg/l	السطح	7.5	10.9	13.9	26.4	4.8	6.6	22.7	15.3	14.90	13.00	4.8	26.4	13.6					
			m											0.0	0.0	#DIV/0!					
			m											0.0	0.0	#DIV/0!					
CT	Digital Titrator	mg/l	السطح	333.0	143.8	133.3	174.2	244.2	202.5	158.8	186.3	170.00	295.00	133.3	333.0	204.1					
			m											0.0	0.0	#DIV/0!					
			m											0.0	0.0	#DIV/0!					
NH ₃ -N	portable colorimeter	mg/l	السطح	29	25	46	35	26	34	32	18	30.00	33.00	18.0	46.0	30.8					
			m											0.0	0.0	#DIV/0!					
			m											0.0	0.0	#DIV/0!					
Electrical Conductivity	portable EC/TDS meter	µS/cm	السطح	2023	1807	1743	1681	1974	1883	1942	1855	1883.00	2260.00	1681.0	2260.0	1905.1					
			m											0.0	0.0	#DIV/0!					
			m											0.0	0.0	#DIV/0!					
Turbidity	portable turbidity meter	NTU	السطح	87.1	—	—	—	—	—	—	—	—	—	87.1	87.1	87.1					
			m											0.0	0.0	#DIV/0!					
			m											0.0	0.0	#DIV/0!					
المرجع: صف حالة الجو خلال فترة الاغتيان وعند نقطة الاغتيان مشيراً إلى التالي: صحو/مشمس ☀، غائم ☁، مطر (خفيف) △، مطر (شدّة) ▲																					
Reference: Describe the weather on sampling time at a sampling point referring to the following marks;																					
clear/sunny ☀, overcast ☁, rain (gentle) △, rain (heavy) ▲																					
													اسم الشخص المسؤول عن إدارة البيانات								
													Name of Person in charge of Data Management								
													م. عصام منوط								

4- Analyses results of Basel Alasad Lake

شكل المسجل للتخيل الأساسي للمياه																			
Recording Format for Basic Water Analysis (for all 14 DFEAs)																			
الرقم	المحافظة	المدينة	البلدة	القرية															
Code	L-001	Governorate	hasakeh	City	hasakeh	Town	Village												
بحيرة الشبيد بابل الأسد				وصف موقع الاختبار															
River/Lake/Factory				Sampling site description															
السنة																			
2006				Year															
River/Lake/Factory				المعدل السنوي															
تاريخ الاختبار اليوم / الشهر				الاقصى															
sampling date (day/month)				min															
وقت الاختبار (ساعة/ دقائق)				max															
sampling time (hh:mm)				av.															
				21-فبراير	14-مارس	12-ابريل	27-ابريل	22-مايو	19-يونيو	/	/	/	/	/	/	/	/	/	
				10:19	10:45	9:56	11:30	09:44	10:00	:	:	:	:	:	:	:	:	:	
العنصر	الطريقة	الوحدة	العمق																
Item	Analysis Method	Unit	Depth																
الطقس	يدوي	الرجوع الى الأعلى																	
Weather	manual	ref. below																	
Air temp.	thermometer	°C		14	23	25	31	32	32										
River width	يدوي	m																	
River width	manual	m																	
عمق المياه في نقطة الاختبار	يدوي	m		0.1-0.3m	0.1-0.3	0.0	0.1-0.3	0.1-0.3	0.1-0.3										
Water depth	manual	m																	
سرعة تدفق المياه عند نقطة الاختبار	يدوي	m/s		0.0	0.0	0.1-0.3	0.0	0.0	0.0										
Flow velocity	manual	m/s																	
الرائحة	يدوي	-		غائبة	غائبة	غائبة	غائبة	غائبة	غائبة										
Odor	manual	-																	
pH	pH meter	-	السطح	7.6	8.6	8.8	8.6	8.2	8.4	7.6	8.8	8.4							
			m											0.0	0.0	#DIV/0!			
			m											0.0	0.0	#DIV/0!			
درجة الحرارة	pH meter	°C	السطح	10.70	17.9	20.40	25.1	25.3	28.6	10.7	28.6	21.3							
Water temp.			m											0.0	0.0	#DIV/0!			
			m											0.0	0.0	#DIV/0!			
اللون	portable colorimeter	-	السطح	159	317	340	525	165	64.0	64.0	525.0	261.7							
Color			m											0.0	0.0	#DIV/0!			
			m											0.0	0.0	#DIV/0!			
Total dissolved solids (TDS)	portable EC/TDS meter	mg/l	السطح	626	2660	1284	1304	1402	1431	626.0	2660.0	1451.2							
			m											0.0	0.0	#DIV/0!			
			m											0.0	0.0	#DIV/0!			
DO	portable DO meter	mg/l	السطح	7.43	7.02	7.45	7.75	6.34	-	6.3	7.8	7.2							
			m											0.0	0.0	#DIV/0!			
			m											0.0	0.0	#DIV/0!			
Total suspended solids (SS)	portable colorimeter	mg/l	السطح	21	44	41	71	24	<22.1	21.3	71.0	40.3							
			m											0.0	0.0	#DIV/0!			
			m											0.0	0.0	#DIV/0!			
COD	colorimeter	mg/l	السطح	9	48	44	46	217	32	8.5	217.0	66.0							
			m											0.0	0.0	#DIV/0!			
			m											0.0	0.0	#DIV/0!			
BOD ₅	culture	mg/l	السطح	2	11	13	37	2.0	7	2.0	37.0	12.0							
			m											0.0	0.0	#DIV/0!			
			m											0.0	0.0	#DIV/0!			
NO ₃ ⁻	portable colorimeter	mg/l	السطح	1.30	<0.8	<0.8	<0.8	<0.8	<0.8	1.3	1.3	1.3							
			m											0.0	0.0	#DIV/0!			
			m											0.0	0.0	#DIV/0!			
PO ₄ ³⁻	portable colorimeter	mg/l	السطح	<0.14	<0.14	<0.14	<0.14	<0.14	0.5	0.5	0.5	0.5							
			m											0.0	0.0	#DIV/0!			
			m											0.0	0.0	#DIV/0!			
Cl	Digital Titrator	mg/l	السطح	313.0	205.8	186.7	390.0	413.0	285	186.7	413.0	298.9							
			m											0.0	0.0	#DIV/0!			
			m											0.0	0.0	#DIV/0!			
NH ₃ -N	portable colorimeter	mg/l	السطح	<1	<1	1.00	<1	<1	<1	1.0	1.0	1.0							
			m											0.0	0.0	#DIV/0!			
			m											0.0	0.0	#DIV/0!			
التقنية الكبريتية	portable EC/TDS meter	µS/cm	السطح	1264	1352	2527	2560	2740	2790	1264.0	2790.0	2205.5							
Electrical Conductivity			m											0.0	0.0	#DIV/0!			
			m											0.0	0.0	#DIV/0!			
المكارة	portable turbidity meter	NTU	السطح	14.10	29.00	26.20	50.70	14.40	6.64	6.6	50.7	23.5							
Turbidity			m											0.0	0.0	#DIV/0!			
			m											0.0	0.0	#DIV/0!			
الرجوع صف حلة الجو خلال فترة الاختبار وعند نقطة الاختبار مشيراً إلى التالي: صحو/مشمس(☀)، غائم(☁)، مطر (خفيف) (☂)، مطر (شدّة) (☔) ▲																			
Reference: Describe the weather on sampling time at a sampling point referring to the following marks: clear/sunny: ☀, overcast: ☁, rain (gentle): ☂, rain (heavy): ▲																			
Name of Person in charge of Data Management																			
معداد مسلط																			

5- Example of complains analyses

Water Quality Results

نتائج نوعية المياه

Parameter المعيار	Unit الوحدة	Sample (No.1) Result نتيجة العينة رقم 1	Replicate Sample (No.2) Result نتيجة العينة المكررة رقم 2	Replicate Sample (No.3) Result نتيجة العينة المكررة رقم 3	Final Result of the Sample النتيجة النهائية للعينة	Name and Signature:of Analyst اسم المحلل	Remarks
Field Measurement القياسات الميدانية							
pH	pH units وحدات	7.44	7.57		7.51	Eng. Nawaf	
Air temp. حرارة الهواء	⁰ C	32	32		31.8	Eng. Nawaf	
Water temp. حرارة الماء	⁰ C	28	29		28.3	Eng. Nawaf	
EC	μ S/cm	2510	2520		2515	Eng. Nawaf	
TDS	mg/l	1209	1273		1271	Eng. Nawaf	
DO	mg/l	3.65	3.43		3.54	Eng. Nawaf	
.							
Color	Unit	1405	1480		1443	Eng. Aysar	
SS	mg/l	101	115		108	Eng. George	
COD _{Cr}	mg/l	3575	3540		3558	Eng. George	
BOD ₅	mg/l	-	-		-	Eng. Nawaf & Aysar	
NO ₃ ⁻ -N	mg/l	19.8	19.6		19.7	Eng. Aysar	
PO ₄ ³⁻	mg/l	11.9	9.2		10.6	Eng. Aysar	
Cl ⁻	mg/l	420	940		380	Eng. Nawaf	
NH ₃ -N	mg/l	<1	<1		<1	Eng. Nawaf	
Turbidity العكارة	NTU	201	226		214	Eng. George	

Name of Sampling station

اسم محطة الاعتيان:

معمل سينالكو الحسكة

Type of Waterbody:

نوع جسم الماء

صرف صناعي

Date of Analysis:

تاريخ التحليل

4/7/2006

Signature of Laboratory Chief:

توقيع رئيس المخبر

Signature of Director:

توقيع المدير

3-Objectives:

Through the monitoring plan time, we try to achieve these goals:

- Make training to the lab staff about the Environmental Monitoring.
- Have an idea about pollution amount in the sampling stations.
- Learn how to make a plan more accurate, comprehensive, and realistic in the future.
- Learn how to deal with contraventions.
- Announce to the public about our activities to inform us about any emergency when necessary.

4- Related monitoring activities:

There are other bodies make some similar activities:

- General Establishment for Drinking water and Wastewater, they Monitor drinking water only.
- General Directorate of Irrigation for Dajleh and Khabour basin makes some analyses on drinkable water and water suitable for irrigation.
- Directorate of Health monitors some special parameters.

5- Details:

5-1- The Khabour River: near Almjarje'e village:

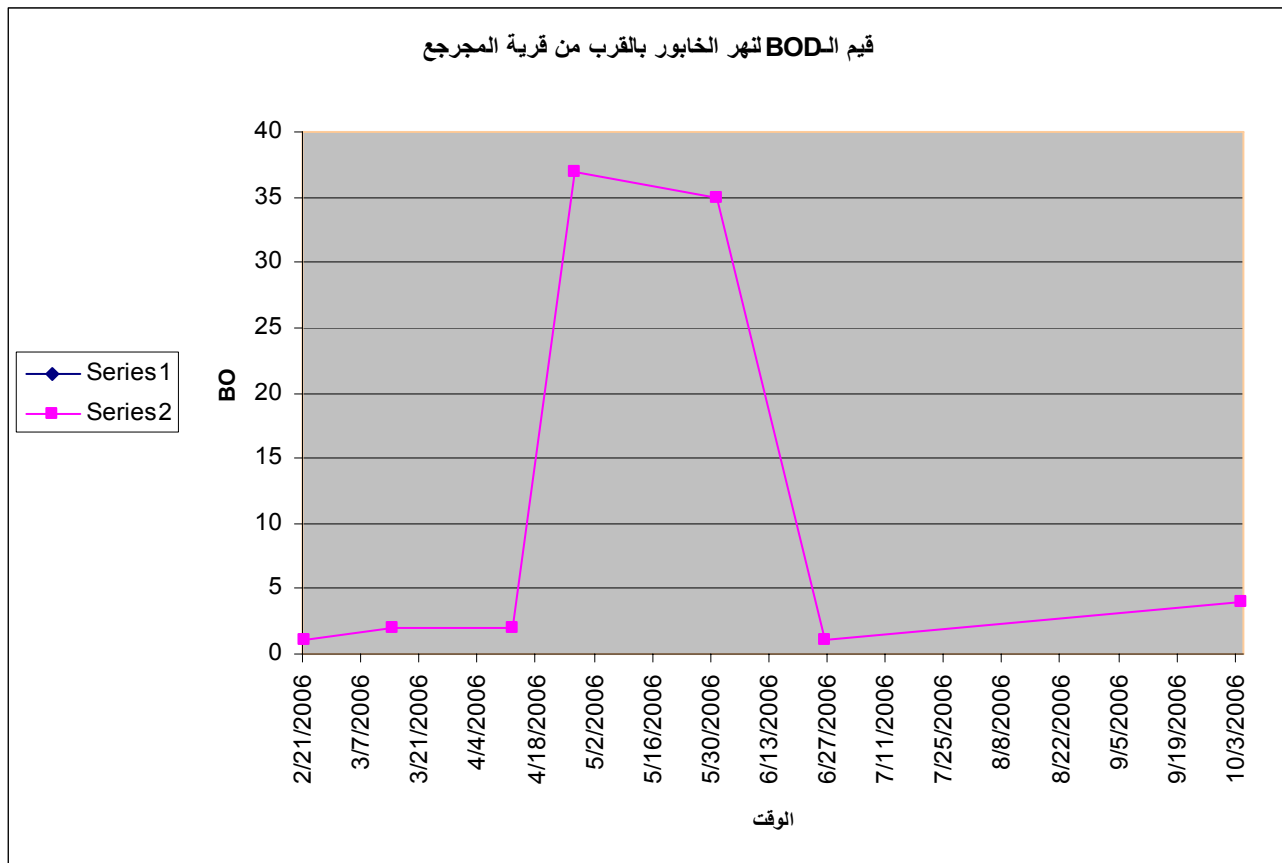


This station located near Almjarje'e village, North West of Al Hasakeh city. Al Khabour River at this station contains minimum amount of pollutants, we choose this location to make comparison with other locations of this river, after sewage discharging, after Jaghjagh River flows in, and after leaving Al Hasakeh city to discharge in Basel Alasad Lake (south dam o Hasakeh).

In summer, flow rate of the river becomes less and varies according to the amounts allowed to get from the western dam for irrigation and cleaning purposes; sometimes flow rate totally stopped.

There are some harvests in the site with fertilizers added like cotton, in spite of animal excrements resulted while grazing in the riverbed at the times when the river is completely dry, we think that these impacts must affect some analyses results especially nitrogenous ones.

Hereinafter, BOD values for the river:



BOD becomes high from April until June. We calculated the load as follows:

Width of the river (average) = 20 m.

Depth of the river (average) = 1.5 m.

Estimated velocity (average) = 0.3 m/s.

Flow rate (average) = $20 * 1.5 * 0.3 = 9 \text{ m}^3/\text{s}$

The average of BOD values = $11.7 \text{ mg/l} = 0.0117 \text{ kg/m}^3$

Load of BOD = $9 * 0.0117 = 0.1053 \text{ kg/s} = 379.080 \text{ kg/h} = 9097.920 \text{ kg/day}$
 $= 272937.6 \text{ kg/month}$
 $= 3275 \text{ ton/year}$

This value is very high in this location which is considered clean comparing with the location where the river leaves the city, so we suggest following the river path to find out the reason of this pollution, it may resulted from discharging wastewater of near villages, or from animals dead bodies thrown in it, or any other reason.

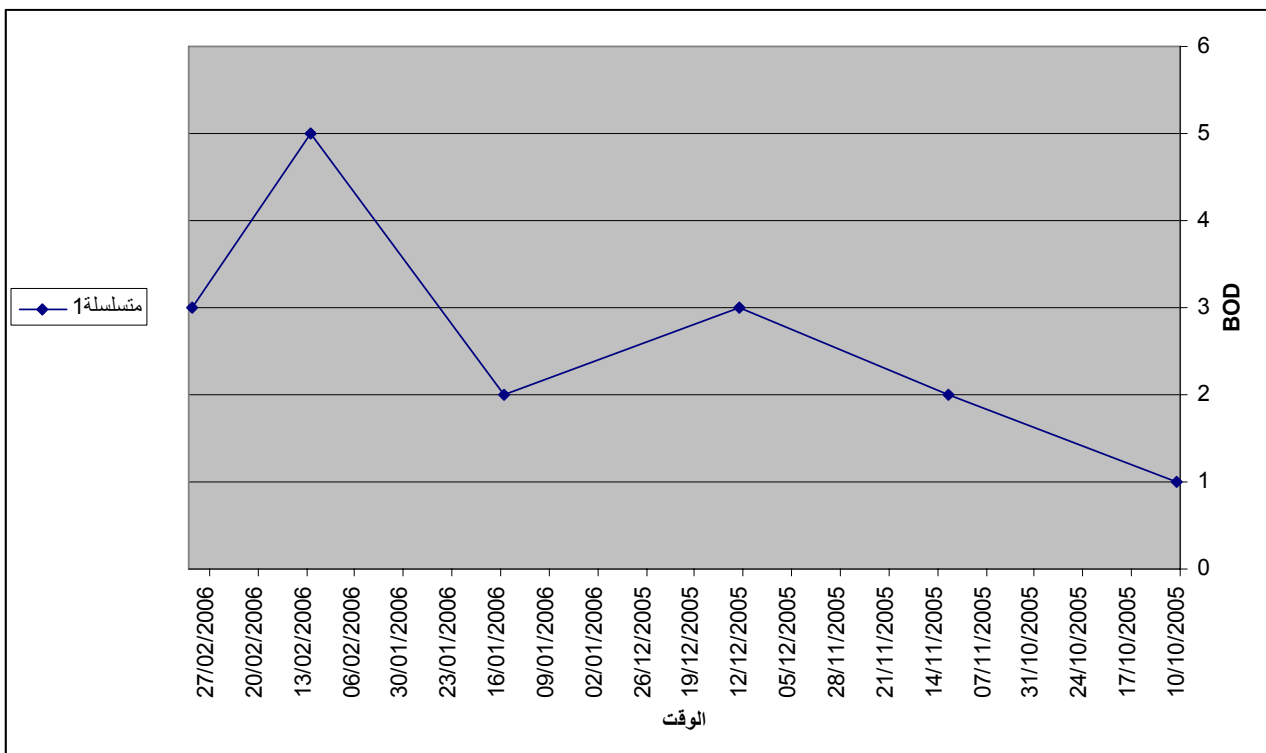
5 -2- Jaghjah River at the Harbi Bridge:



This station located North of Hasakeh where we expect the river is clean; the goal of choosing this location is to compare its results with the results of polluted locations of this river.

The river becomes dry at the upper stream point in Turkey for several months, only sewage water of Kamishli city and Nsebin (Turkish city) flows, but doesn't reach this location because farmers (along its 90 km long path) use this water for irrigation.

Hereinafter the results of BOD for this river:



In fact, the results indicate to low levels of pollution, we calculated the load as follows:
Width of the river (average) = 15 m.

Depth of the river (average) = 0.7 m.

Estimated velocity (average) = 0.6 m/s.

Flow rate (average) = $15 \times 0.7 \times 0.6 = 6.3 \text{ m}^3/\text{s}$

We will consider that the river flows for 5 months only

The average of BOD values = $3 \text{ mg/l} = 0.003 \text{ kg/m}^3$

Load of BOD = 6.3×0.003

= 0.0189 kg/s

= 48988.8 kg/month

= 245 ton/year

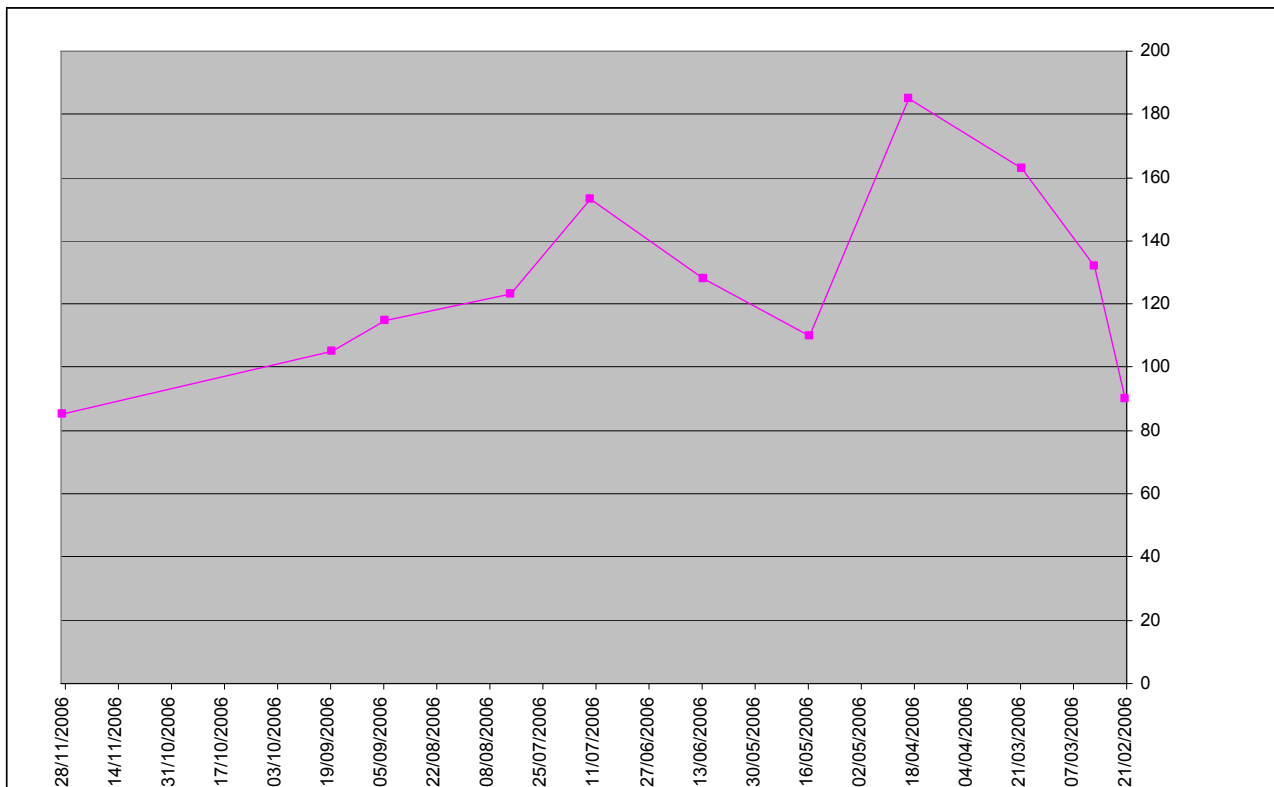
This value is logical comparing with the load of Al Khabour River, and considering the limited period of the river flow.

5-3- Domestic wastewater: -near Albeiruti Bridge in Hasakeh:

The path of Domestic wastewater is located near Albeiruti Bridge in Hasakeh; it flows in a canal: width is 2 m approximately and length is 40 m until the mouth point in Al Khabour River, Hasakeh municipality -since august- changed its path to Jaghjagh River near the previous location.



Hereinafter BOD values for domestic water in our plan



We realized that the values of BOD become high at the time when the rain stopped; we calculated the load as follows:

Width of the river (average) = 1.5 m.

Depth of the river (average) = 0.6 m.

Estimated velocity (average) = 0.6 m/s.

Flow rate (average) = $1.5 \times 0.6 \times 0.6 = 0.54 \text{ m}^3/\text{s}$

We will consider that the river flows for 5 months only

The average of BOD values = $126 \text{ mg/l} = 0.126 \text{ kg /m}^3$

Load of BOD = 0.54×0.126

= 0.016804 kg/s

= 176359.68 kg/month

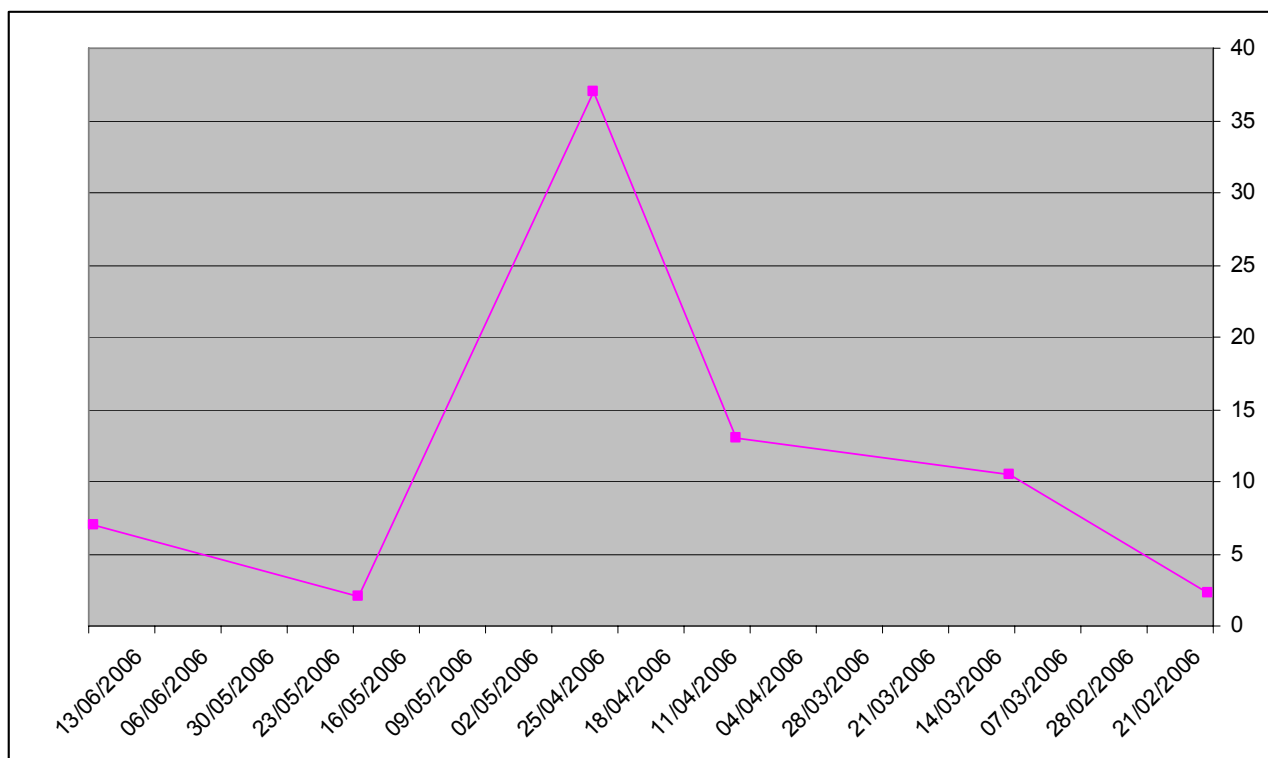
= 2116 ton/year

5-4- Basel Alasad Lake (South Dam of Hasakeh):



This lake is located on Al Hasakeh-Der Ezzor road, exposed to several kinds of pollution; first stage: the pollution comes from Al Khabour River, which already polluted by sewage, and second stage: the pollution resulted by leakage of oil to the lake from Tishreen oil field. Now the directorate of Aljibseh fields makes some kinds of treatment to clean the lake from the flow oil

Hereinafter the values of BOD we measured during our plan period:



We noticed a gradual rising in BOD values to the end of April when rain stops, and the water flows in the rivers is sewage water only; then, the value gets down when choosing another location from the lake to take samples.

In general, the average value of BOD is $12 \text{ mg/l} = 0.012 \text{ kg/ m}^3$

We can calculate the total BOD load when we know the volume of water in the lake.

6- Operation and Maintenance for the lab:

6-1- Equipments calibration:

Equipment calibration process always done before going out to the sampling location, especially for PH meter, we depend on SOP record mainly, to obtain results more reliable.

6-2- problems, failures, and repairing records:

We faced some problems like the delay in getting PH result, but we solved this problem by following up JICA experts training, we learned to shake the electrode inside the sample, and sometimes use the gel existed in the electrode.

We also learned how to clean the electrode of DO equipment in a subsequent stage of the monitoring plan.

Generally, no problems happen to the equipments, and they work correctly until this moment.

6-3- chemicals records:

Hereinafter the chemicals record we provided by JICA, taking into account that some reagents have expired, but we still use them after checking their activity by using standard solutions, these reagents give same results that they gave during their validation period.

Table 2 Operation and Maintenance (OM) Record of Reagents in DFEA (Maker of reagents: HACH; Supplier: MIMOSA)

الجدول -2- سجل استخدام وحفظ الكواشف في مديرية												17/06/2006		Only for Reference			
Name of Reagent	Usage	Unit	Number	Purchased Date	Expiration date	Existence of Toxicity	Order No.	Stored no. in the end of Mar.	Stored no. in the end of Jun.	Stored no. in the end of Sep.	Stored no. in the end of Dec.	Remarks (recorder's name)	Order No.	Unit Price (\$)	Number	Total	
اسم الكاشف	استخدامه	الوحدة	العدد	تاريخ الشراء	تاريخ انتهاء الصلاحية	وجود مواد سامة		الكمية المتبقية حتى نهاية شهر آذار	الكمية المتبقية حتى نهاية شهر حزيران	الكمية المتبقية حتى نهاية شهر أيلول	الكمية المتبقية حتى نهاية شهر كانون الأول	ملاحظات (اسم المسجل) (الرقم ...)					
pH standards, pH 4.01	pH calibration	500 ml	2	2005 Jun.	mar2009	NO	HACH 22834-49		1+one uder use		1+one uder use		HACH 22834-49	19	1	18.8	
pH standards, pH 7.00		500 ml	2		apr2007			HACH 22835-49		1+one uder use		1+one uder use		HACH 22835-49	19	1	18.8
pH standards, pH 10.00		500 ml	2		mar 2006			HACH 22836-49		1+one uder use		1+one uder use		HACH 22836-49	19	1	18.8
Conductivity standards, 180 µs/cm	EC&TDS calibration	100ml	1	2005 Jun.	10-أيار	NO	HACH 23075-42		1		1		HACH 23075-42	24	1	23.8	
Conductivity standards, 1,000 µs/cm		100ml	1					HACH 14400-42		1+one uder use		1+one uder use		HACH 14400-42	23	1	22.5
Conductivity standards, 18,000 µs/cm		100ml	1					HACH 23074-42		1		1		HACH 23074-42	23	1	22.5
Turbidity Standards Kit for 2100 P Turbidity Meter (0.1, 20, 100, 800 NTU)	Turbidity calibration	500 ml for each	1	2005 Jun.	mar 2007 apr	NO	HACH 26594-00		1 under use		1 under use		HACH 26594-00	644	1	643.8	
Reagents (High range 0-1,500 mg/l) for COD _{Cr}	COD _{Cr}	25 tests/PK	31	2005 Jun.	10-أيار	Yes (Hg, Ag, Cr)	HACH 21259-25		25box		23+one uder use		HACH 21259-25	84	10	837.5	
Reagents for NO ₃ ⁻ -N (High range, 0-30.0 mg/l)	NO ₃ ⁻ -N	100 tests/PK	8	2005 Jun.	08-أيار	Yes (Cd)	HACH 21061-69		8		8		HACH 21061-69	56	3	168.8	
Reagents for PO ₄ ³⁻ (High range, 0-30.00 mg/l)	PO ₄ ³⁻	100 tests/PK	8	2005 Jun.	feb2010 jun2009	NO	HACH 2236-32, 1934-32		8	8	7+one under use 7+one under use		HACH 2236-32, 1934-32	44	3	131.3	
Reagents for Cl ⁻ (0-10,000 mg/l)	Cl ⁻	100 tests/set	8	2005 Jun.	10-أيار	Yes (Ag)	HACH 14397-01		72005 -6 2010		62005-5 2010		HACH 14397-01	144	3	431.3	
Reagents for NH ₃ -N (High range, 0-50 mg/l)	NH ₃ -N	50 tests/PK	15	2005 Jun.	not menhaed	Yes (CN)	HACH 26069-45		12 box		11		HACH 26069-45	175	6	1050.0	
Nitrification Inhibitor	BOD	50g	1	2005 Jun.	08-أيار	NO	HACH 2533-34		1		1		HACH 2533-34	256	1	256.3	
BOD Nutrient Buffer Pillows	BOD	50 pillows/PK	15	2005 Jun.	10-نيسان	NO	HACH 14160-66		11		10+one under use		HACH 14160-66	16	5	81.3	
BOD Seed Inoculum	BOD	50 capsules/bottle	7	2005 Jun.	خريف-06	NO	HACH 24712-00		7		6+one under use		HACH 24712-00	281	2	562.5	
NaOH Pack	BOD	1000g/PK	1	2005 Jun.	?	NO	Bobel-Sweden		1 under use		1 under use		Bobel-Sweden	13	1	12.5	
Reagents (Low range 0-150 mg/l) for COD _{Cr}	COD _{Cr}	25 tests/PK	2	2006 Jun.	10-تشرين الثاني	Yes (Hg, Ag, Cr)	HACH 21258-25		2		1 under use		HACH 21258-25	104	2	207.5	
Reagents for NO ₃ ⁻ -N (Mid range, 0-5.0 mg/l)	NO ₃ ⁻ -N	100 tests/PK	1	2006 Jun.	08-أيار	Yes (Cd)	HACH 21061-69		8 /100 pock		8 /100 pock		HACH 21061-69	71	1	70.8	
Reagents for PO ₄ ³⁻ (Low range, 0-2.50 mg/l)	PO ₄ ³⁻	100 tests/PK	1	2006 Jun.	08-أيار	NO	HACH 21060-69		82/100 pock		1+50/100p under use		HACH 21060-69	85	1	84.9	
Reagents for NH ₃ -N (low range, 0-2.50 mg/l)	NH ₃ -N	50 tests/PK	1	2006 Jun.	?	Yes (CN)	HACH 26045-45		44/50 amp		30/50 amp		HACH 26045-45	210	1	209.9	
COD standard, 300 mg/l	Check COD	200 ml	1	2006 Jun.	07-كانون الثاني	NO	HACH 12186-29		1		1		HACH 12186-29	42	1	42.5	
COD standard, 1000 mg/l	Check COD	200 ml	1	2006 Jun.	07-أيار	NO	HACH 22539-29		1		1		HACH 22539-29	57	1	56.6	
NO ₃ ⁻ -N standard, 1.0 mg/l	Check NO ₃ ⁻ -N	500 ml	1	2006 Jun.	نيسان-10	NO	HACH 2046-49		1		1		HACH 2046-49	40	1	40.1	
NO ₃ ⁻ -N standard, 10.0 mg/l	Check NO ₃ ⁻ -N	500 ml	1	2006 Jun.	أيار-10	NO	HACH 307-49		1		1		HACH 307-49	40	1	40.1	
NO ₃ ⁻ -N standard, 100 mg/l	Check NO ₃ ⁻ -N	500 ml	1	2006 Jun.	كانون الثاني-11	NO	HACH 1947-49		1		1		HACH 1947-49	47	1	47.2	
PO ₄ ³⁻ standard, 50 mg/l	Check PO ₄ ³⁻	500 ml	1	2006 Jun.	11-شباط	NO	HACH 171-49		1		1		HACH 171-49	45	1	44.8	
NH ₃ -N standard, 10 mg/l	Check NH ₃ -N	500 ml	1	2006 Jun.	11-شباط	NO	HACH 153-49		1		1		HACH 153-49	40	1	40.1	
NH ₃ -N standard, 50 mg/l	Check NH ₃ -N	10 ml/16 Vohuette Amples	1	2006 Jun.	11-شباط	NO	HACH 14791-10		1		1		HACH 14791-10	61	1	61.3	
BOD standard, 300 mg/l	Check BOD	10 ml/16 Vohuette Amples	1	2006 Jun.	أيار-10	NO	HACH 14865-10		1		1		HACH 14865-10	61	1	61.3	
BOD standard, 3000 mg/l	Check BOD	10 ml/16 Vohuette Amples	1	2006 Jun.	11-شباط	NO	HACH 14866-10		1		1		HACH 14866-10	71	1	70.8	
Cl ⁻ standard, 1000 mg/l	Check Cl ⁻	500 ml	1	2006 Jun.	10-كانون الأول	NO	HACH 183-49		1		1		HACH 183-49	66	1	66.0	
Bromine Water 30g/L	NO ₂ interfering (NO ₃ testing)	29 mL	1	2006 Jun.	كانون الأول-08	NO	HACH 2211-20		1		1		HACH 2211-20	21	1	21.2	
Phenol Solution	NO ₂ interfering (NO ₃ testing)	29 mL	1	2006 Jun.	شباط-09	NO	HACH 2112-20		1		1		HACH 2112-20	24	1	23.6	
Sulfamic acid	Color interfering (PO ₄ testing)	113 g	1	2006 Jun.	أيار-10	NO	HACH 2344-14		1		1		HACH 2344-14	38	1	37.7	
Phosphate Pretreatment Powder Pillows	Turbidity and color interfering	100 pkg	1	2006 Jun.	كانون الثاني-10	NO	HACH 14501-99		1		1		HACH 14501-99	137	1	136.8	
Hydrochloric Acid, ACS	pH adjusting (NH ₃ , N, PO ₄ etc.)	500 mL	1	2006 Jun.	more 10 year	NO	HACH 134-49		1		1		HACH 134-49	52	1	51.9	
Sulfide Inhibitor Powder Pillows	S interfering (Cl ⁻ testing)	100 pkg	1	2006 Jun.	كانون الثاني-11	NO	HACH 2418-99		1box		1box		HACH 2418-99	111	1	110.8	
Mercuric Sulfate	Cl ⁻ interfering (COD testing)	28.3 g	1	2006 Jun.	?	Yes (Hg)	HACH 1915-20		1		1		HACH 1915-20	47	1	47.2	
Hydrogen Peroxide, 30% ACS	Sulfite interfering (Cl ⁻ testing)	500 mL	1	2006 Jun.	more 10 year	NO	HACH 144-11		1		1		HACH 144-11	111	1	110.8	
														3,418		5984.0 \$ 317,150 SP	

7- Cleaning and arranging lab and equipments:

We always return the equipments back to their boxes after finishing analyses, wash bottles, cells, also washing ice bags and return them to the refrigerator, then clean the floor.

8- Data Management and QA\QC:

8-1- Data records, interpreting data:

We have two records, one of them (basic one), the results written by hand, we take it with us when we go out for sampling to write the field analyses data, then write data of analyses done in the lab; and the other one is exactly the same but we input data in the PC and print it out.

Both records have a special file saved in the lab.

We reached an acceptable level in interpreting data through following up training by JICA experts, or sometimes through asking them by phone as what happened recently when the concentration of Ammonia became high in drinking water of Kamishli.

8-2- QA\QC activities:

We gave this item high interest because of the following reasons.

- Check the equipments efficiency.
- Check the results accuracy.
- And this performance makes us self-confident
- We used this activity to check the validity of expires reagents in order to use it as long as possible.

9- Environmental Monitoring Plan 2007:

This monitoring plan will begin from February until the end of December,
(Complains sampling begins from January):

1- The first station: Al Khabour River in Hasakeh before Jaghjagh River combines with it in the location shown in this picture:



Frequency for sampling at this station is once per month (11 times in total plan). We choose this station to compare with the location where river water mixed with sewage water coming with Jaghjagh River water.

2- The second station: Jaghjagh River in Hasakeh before combining with AL Khabour River in the location shown in this picture:



Frequency for sampling at this station is once per month (11 times in total plan).

3- The third station: AL Khabour River after combining with Jaghjagh River in the location shown in this picture:



Frequency for sampling at this station is once per month (11 times in total plan).

4- The fourth station: Basel Alasad Lake (South Dam of Hasakeh) located south to Hasakeh, and shown in this picture:



Frequency of sampling at this station is once every three months (4 times in total plan).

We will take samples from the dam body on 10 meters high from water surface (as JICA expert Dr Matsue determines because this location gives an obvious idea about the lake water quality).

5- The fifth station: Jaghjagh River in Al Kamishli City and the location of the station shown in this picture:

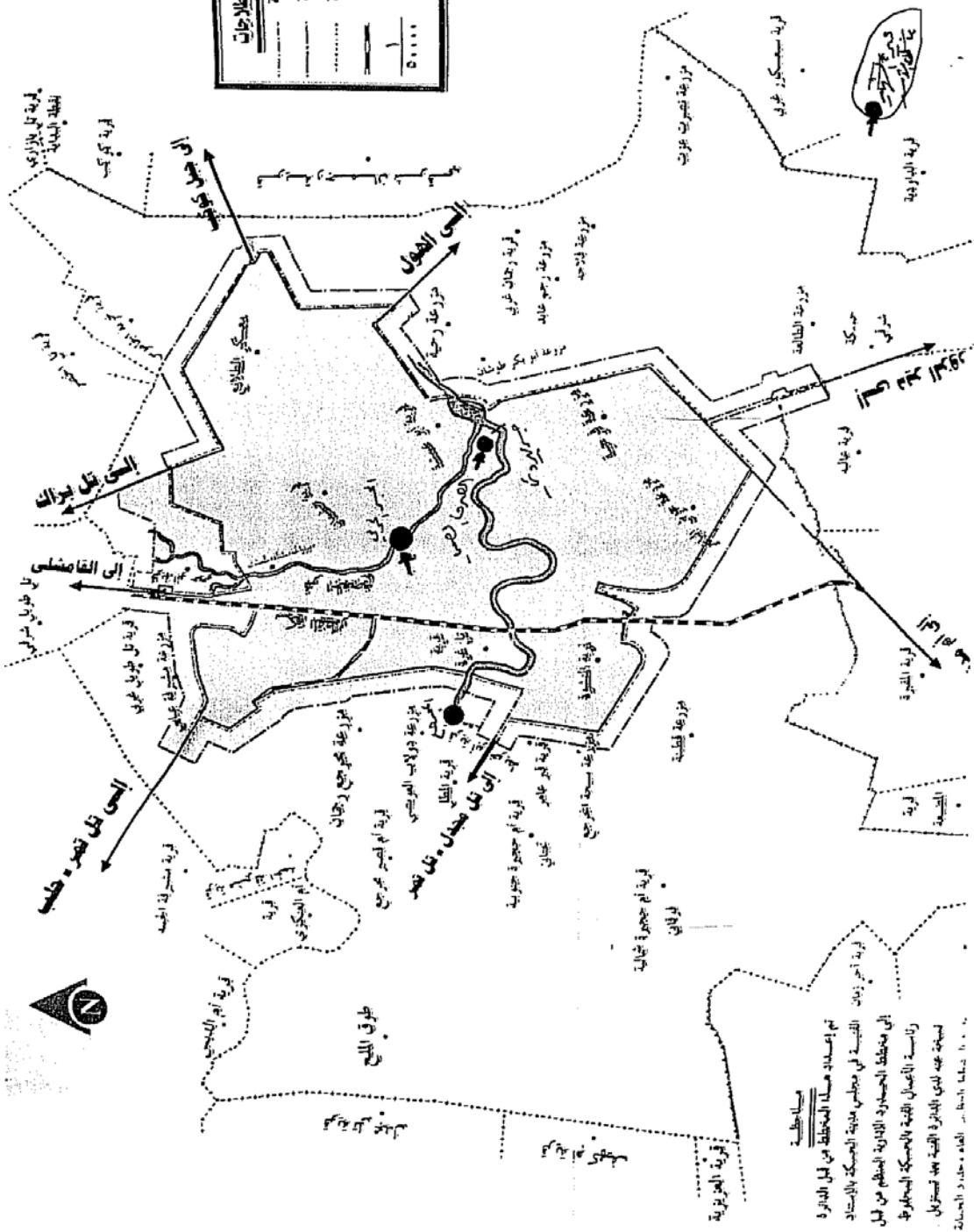
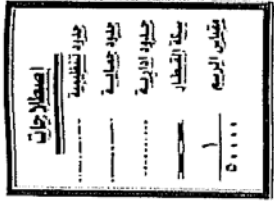


Frequency of sampling at this station is once every six months (2 times in total plan) because of the big distance between it and our DFEA.

6- Emergency: includes complains, factories, drinking water, wells, springs, and others, we assigned 30 sampling processes for this item in total plan.

The total number during the plan is 69 sampling.

**Chief of Hasakeh DFEA lab
Chemical Engineer
Nawaf Othman**



تم إعداد هذا المخطط من قبل الادارة القبية في مجلس مدينة اسيوط بالتعاون مع منظمة الجمارك الاقليمية التابعة للادارة المنظمة من قبل رئاسة الاعمال القبية بالجمهورية المصرية ليتم استكمال العمل على القية بعد استكمال العمل على القية حددت الجمارك

مكسر رقم (1) خريطة موانع محطات لاسيوط
في صفحة ٦٠٦

Environmental Monitoring Plan 2007 in Hasakeh DFEA until July 2007

Notes	July					June					May					April					March					February				January	Month Station					
	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1	4	3	2	1							
			+					+					+					+					+					+								Khabour 1
			+					+					+					+					+					+								Khabour 2
			+					+					+					+					+					+								Jaghjagh 1
		+																													+					Jaghjagh 2
																																				The Lake
																																				Emergency

Symbols:

+: Assumed date for sampling

Khabour 1: sampling location of Khabour River before combining with Jaghjagh River in Hasakeh

Khabour 2: sampling location of Khabour River ...after combining with Jaghjagh River in Hasakeh

Jaghjagh 1: sampling location of Jaghjagh River before combining with Khabour River in Hasakeh

Jaghjagh 2: sampling location of Jaghjagh River in Al Kamishli City

Lake: sampling location of Basel Alasad Lake South of Hasakeh

Lab chief: Eng. Nawaf Osma