IRAQI MINISTRIES

of

Water Resources

Municipalities and Public Works

Environment

NEW EDEN MASTER PLAN

FOR INTEGRATED WATER RESOURCES MANAGEMENT IN THE MARSHLANDS AREA

Volume I

Overview of present conditions and current use of the water in the marshlands area

Book 2

Water and sanitation

Annex C

Guidelines for the preliminary survey on water and sanitation systems

Prepared in cooperation with

The Italian Ministry for the Environment and Territory and Free Iraq Foundation

ITALY - IRAQ

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List of contents

FORM A: TOWN/VILLAGES/SETTLEMENTS

Main data for each village, in terms of population, built-up area, production sites and existing public services will be collected. All villages with more than 50 residents should be assessed.

Town/village/settlement identification

The first information to be put into the form will regard the location of the village: this will be used, when information will be entered in the database, to assign an identification code to each town/village/section.

Data about location regard:

- *Governorate*

- *District/Sub-district*: wherever possible, the sub-district should be indicated. If the sub-district is not known, then surveyor will indicate the district.

The complete set of Governorates and Districts/Sub-districts (together with their corresponding codes) is listed below.

The code to be put into the form will consist of as follows:

- *Governorate* (2 digits): the list of governorates, along with their respective identification numbers, is provided below

  35 - BASRAH

  33 – THI QAR

  34 - MISSAN

- *District/Sub-districts* (3 digits): the list of districts, along with their respective identification numbers, is provided below

Governorate name	District Sub-District	Governorate	District/ subdistrict
Basrah	**Basrah**	35	**010**
	Basrah city	35	011
	Hartha	35	012
	Abu Al Khasib	35	**020**
	Al Zubayr	35	**030**
	Al Zubayr City	35	031
	Um Qasr	35	032
	Safwan	35	033
	Qurnah	35	**040**
	Qurnah	35	041
	Al Dair	35	044
	Al Thagar	35	045
	Fao	35	**050**
	Shatt Al Arab	35	**060**
	Shatt Al Arab City	35	061
	Al Nashwa	35	062
	Mudainah	35	**070**
	Mudainah City	35	071
	Al Huwair (Aliz)	35	072
	Talha	35	073

Governorate name	District Sub-District	Governorate	District/ subdistrict
Thi-Qar	**Nasiriya**	33	**010**
	Nasiriya City	33	011
	Al Islah	33	012
	Batha'a	33	014
	Said Dakhail	33	015
	Ur (Sidainawiya)	33	016
	Rafai	33	**020**
	Rafai City	33	021
	Kalaat Sukkar	33	022
	Al Nasir	33	023
	Fajir	33	024
	Suq Ash Shuyukh	33	**030**
	Suq Ash Shuyukh City	33	031
	Akaika	33	032
	Karmat Bani Saeed	33	033
	Al Fadiliya	33	034
	Tar	33	035
	Shattrah	33	**050**
	Shattrah City	33	051
	Dawaya	33	052
	Al Gharraf	33	053
	Chubayish	33	**040**
	Chubayish City	33	041
	Al Fuhud	33	042
	Al Hammar	33	043

Governorate name	District Sub-District	Governorate	District/ subdistrict
Missan	**Amarah**	34	**010**
	Amarah City	34	011
	Kumait	34	012
	Ali Al Gharbi	34	**020**
	Ali Al Gharbi City	34	021
	Ali Al Sharqi	34	022
	Qalat Saleh	34	**040**
	Qalat Saleh City	34	041
	Al Uzair	34	042
	Al Maimona	34	**030**
	Al Maimona City	34	031
	Al Salam	34	032
	Said Ahmad Al Rifai	34	033
	Al Majar Al Kabeer	34	**050**
	Al Majar Al Kabeer City	34	051
	Al Adil	34	052
	Al Khair	34	053
	Al Kahla'a	34	**060**
	Al Kahla'a City	34	061
	Al Mushra'a	34	062
	Bani Hashim	34	063

Name

The name of each town/village/settlement will be put in this section

Coordinate x, Coordinate y

The coordinate, that will be read by the surveyor on the GPS instrument, will give the location of the settlement in terms of grades (°), minutes (') and seconds (").

Existed prior to Marsh draining?

In this section it is required to indicate if the village was created before or after the draining of the marshes (for example to house refugees coming from the marshland areas).

Distance to closest river/canal

The surveyor should assess, basing both on maps and on field survey, the distance to the closest river/canal and indicate the name of it (***Name of river/canal***).

Resident population

Total population of each town/village/settlement, in terms of population permanently living there, will be put in this section.

Seasonal residents

This section requires the information on the population present in the town/village/settlement only for a limited period of time (i.e. people staying for tourism during holiday periods or people visiting town/village/settlement for religious purposes or even commuters that stay in town only during working days).

Urbanized area

Data on the total surface (in hectares) occupied by the built-up area of each town/village/settlement should be assessed, basing mainly on field surveys: the assessment of urbanized area can also be made using topographic maps at appropriate scale.

Industrial activities

This section requires an appraisal of the significance of industrial activities into the town/village/settlement social frame and will be described according to three different marks:

1 – *Very significant*: total people employed in industrial activities are more than 1.000 or, alternatively, more than 25% of resident population

2 – *Significant:* total people employed in industrial activities are more than 250 or, alternatively, more than 10% of resident population

3 – *Not significant*

In any case, when industrial areas include the following production sites

- thermal power plants
- oil extraction and refining plants
- petrochemical plants
- chemical plants
- pharmaceutical plants
- fertilizers production plants
- food and beverages production plants
- textile plants
- clothing production plants

- paper production plants
- manufacture of concrete, cement
- iron and steel production and manufacturing plants

the ***"Production sites"*** significance should be marked as *1 – Very significant*.

Prevailing industrial productions

Information on production sites typology should be put in this section. Information on consistency of main production sites (i.e. total employee for main sites) can also be but in the ***Notes*** section.

Agricultural activities

This section requires an appraisal of the significance of agricultural sites into the town/village/settlement social frame and will be described according to three different marks:

1 – *Very significant*

2 – *Significant*

3 – *Not significant*

Prevailing agricultural productions

This section requires the indication of main current agricultural productions of the town/village/settlement (rice, wheat, vegetables, cereals, corn, fruits). It will be very useful to receive form the surveyor an assessment of the percentage of each product compared to the total agricultural production.

Number of water buffalos

In many of the rural settlements there is a significant number of water buffalos. This section requires an assessment of the total number of water buffalos currently present in each settlement.

Main activity for livelihood

This point requires an assessment of the main means of sustenance of each settlement in terms of percentage of people dedicated to fishery, agriculture , livestock or to other activities.

Main handcraft activities

This section requires the indication about the main handcraft activities on this settlement.

Public services

Education

This section requires to define the availability and organization of education sites in each town/village/settlement. It is required to fill in, for each level of education, the number of existing kindergartens, schools (primary, intermediate and secondary) and universities of each town/village/settlement and the approximate total number of students attending each type of school.

Medical services

Hospitals

This section requires the indication both of the number of hospitals and of the total number of beds available in the hospitals for each town/village/settlement.

Medical centers

This section requires the indication of the number of medical centers not identifiable as "hospitals" (i.e. first aid centers) available for each town/village/settlement.

Other services

Military barracks

This section requires the indication of the number of existing military barracks and the total number of soldiers employed in the barracks for each town/village/settlement.

Hotels/resorts

This section requires the indication of the number of existing hotel/resorts and the total number of beds available in each town/village/settlement.

Connection to power grid

This section requires the indication if the town/village/settlement is connected to national and/or local power grid. If also a part of the town/village/settlement is served, it should also be estimated the power service coverage (in terms of % of buildings served):this information will be put in the ***Notes*** section.

Current power availability

This section requires the evaluation of the current availability of power supply to each town/village/settlement (good/acceptable/poor). The current availability will be described according to three different marks:

- 1 – *Poor*: total coverage of power supply is less than 80% (in terms of domestic users) and/or power is available for less than 12 hours per day;
- 2 – *Acceptable*: total coverage is more than 80% and power is available for more than 12 hours per day. Power availability satisfies basic domestic needs.
- 3 - *Good*: the coverage is almost complete and no major interruptions of service take place. Power availability satisfies domestic and industrial needs.

Notes

This section of the form should be used to summarize information collected during the survey which could be useful, during the following phases of the study, in determining the actions to be taken. Information could, for example, provide further details about town/village current state (that will also outlined with pictures taken on site), typology of non-resident population, consistency of industrial sites, location of production sites (distance from town/village/settlement), other significant public services not specifically listed in the form etc.

Name of surveyor

Each surveyor should put his/her name in this section in order to allow people performing the data entering into the database system to be able to identify easily the person that visited each specific town/village/settlement.

FORM B: SERVICES PROVIDED, PER TOWN/VILLAGE/SETTLEMENT

Town/village/settlement ID code

The code assigned in Form A "Town/village/settlement" should be used. It's very important to check the code in order to avoid entering wrong data in the database.

Name

The name of each Town/village/settlement will be put in this section.

WATER SUPPLY NETWORK

Drinking water source/Service water source/Other purposes water source

First of all information on drinking, service and other purposes water sources are required. As for drinking and service water sources, more than one option can be chosen: that will be the case of a settlement which is served partly by a water network and partly directly by a tank/reservoir.

- The option "*public supply*" means that a water supply network has already been built (even if it supplies only a small part of the settlement).

- The option "*tank/reservoir*" means that a part of the people living in the settlement have to get water directly from one or more tanks/reservoirs: no water supply network have been built for that part of the settlement yet.

- The options *"marsh"* mean that water is taken directly from water bodies.

- The options *"canal"* that water is taken directly from water bodies.

- Where drinking water (or also service water) is supplied by trucks coming form outside the settlement, the "*water truck*" option should be chosen.

The following part of the form is strictly relate to "*public supply*" option, and the main characteristics of drinking and/or raw water supply system (even if for a single part of the settlement) will be recorded on the form. If there is not "*public supply*" the following part of the form is not required.

Service coverage (potable water supply network and raw water supply network)

Estimation of the percentage of resident population which is connected to the potable water supply network and/or to the raw water supply network, compared to the total population living in each town/village/settlement, should be put in this section. It should not be considered people served by other means than water supply network (for example water collected directly form fountains, tanks, reservoirs etc.; see below in the *"Tank/reservoir"* section).

Boosting stations

Total quantity of boosting stations installed on trunk main should be entered in this section.

Length of trunk main

Total length of the transmission mains (potable water and/or raw water systems) connecting water intake/uptake to the town/village/settlement water supply network. The length should be calculated from the water intake/uptake till the first users of the urban supply network.

Length of water supply network (potable water supply network and/or raw water supply network)

Total length (in terms of km) of the potable water supply network and of the raw water supply network should be put in this section. If information is not available, the data should be estimated, based on the location of water sources, water treatment plant, and on the size of the town/village/settlement area served by the water supply network.

Average age (potable water supply trunk main/network and raw water supply trunk main/network)

This section requires the information about the age of the transmission mains and of the network of the two systems (potable water and raw water). The age is assigned to each of the following age categories as a percentage:

1 – age $\leq$ 10 years

2 – 10 years < age $\leq$ 30 years

3 - age $\geq$ 30 years

Prevailing materials (potable water supply trunk main/network and raw water supply trunk main/network)

This section requires the indication of the prevailing materials of the potable water supply network and/or of the raw water supply network expressed in terms of percentage on total water supply network extension.

Operational performance (potable water supply network and raw water supply network)

This section requires the evaluation of the current operational performance of the potable water supply network and of the raw water supply network, in terms of continuity of the service. The performance will be described according to three different marks:

> *Mark **1*** – The performance can be considered to be *good*: service interruptions are rare and normally due to external causes more than to water system (water sources, water treatment plants, mains and distribution network) failures.
>
> *Mark **2*** – The performance can be considered hardly *acceptable*: the service is interrupted for less than 10 days per year but the interruptions are mainly due to water system failures.
>
> *Mark **3*** – The performance must be considered *unacceptable*: the service is interrupted for more than 10 days per year.

Current state (potable water supply network and raw water supply network)

This section requires the evaluation of the current state of the potable water supply network and of the raw water supply network. The current state will be described according to three different marks:

> Mark **1**: the state is to be considered *good*. Major damages only on few localized areas: water leakages below 25%.
>
> Mark **2**: the state is to be considered hardly *acceptable*. Major damages distributed in different areas: water leakages below 40%.
>
> Mark **3**: the state is to be considered *poor*. The entire network has major damages: water leakages above 40%.

Reservoir/Tank volume

Total available volume of all the reservoirs and tanks available for each town/village /settlement should be put in this section.

Service coverage by reservoir/tank

Estimation of the percentage of resident population which is served directly by tank/reservoir (no network available) compared to the total population living in each town/village/settlement. It should not be considered people served by water supply network connected to the same reservoirs/tanks.

Water treatment plant

This section requires the indication of the names of all the water treatment plants that supply the drinking water system of the town/village/settlement.

If the water supply network is connected to more than 8 treatment plants, it will be necessary to use additional forms. In this case, the only data to be entered for additional forms will be the town/village/settlement ID code: it will not be necessary to repeat such a procedure for all the other information (% served etc.)

NOTES

This section of the form should be used to summarize information collected during the survey which could be useful, during the following phases of the study, in determining the actions to be taken. Information could, for example, provide further details about the areas to be assessed for water sources, existing projects not completed yet, specific problems of the existing water supply system etc.

Name of surveyor

Each surveyor should put his/her name in this section in order to allow people performing the data entering into the database system to be able to identify easily the person that visited each specific town/village/settlement.

SEWER NETWORK

Wastewater disposed to

First of all it is required to indicate the final disposal of the wastewater of the settlement, more than one option can be chosen.

- The option *"Public sewer"* means that a sewer system have been built yet. This data is referred only to underground piped systems: open-type sewerage made of ditches and channels should not be considered.
- The option *"Soil"*: this option means that wastewater disposed to soil;
- The option *"Marsh/canal"*: this option means that wastewater disposed to marsh/canal;
- The option *"Underground"*: this option means that wastewater disposed to underground.

The following part of the form is strictly relate to "*public sewer*" option, and the main characteristics of wastewater sewer and/or raw combined sewer and/or stormwater sewer (even if for a single part of the settlement) will be recorded on the form. If there is not "*public sewer*" the following part of the form is not required.

Service coverage (wastewater, combined and stormwater sewers)

Estimation of the percentage of resident population which is connected to the wastewater, combined and stormwater networks, referred to the total population living in each town/village/settlement, should be put in this section.

Length of network

Total extent of the wastewater (separate), combined and stormwater networks should be put in this section. If the information is not available, the data must be estimated, based on the location of wastewater treatment plants and/or of the final disposal location and on the size of the town/village/settlement area served by the water supply network.

Pumping stations

This section requires the indication of the total number pumping stations operating on each type of network.

Average age

This section requires the information about the age of the sewage network. The age is assigned to each of the following age categories as a percentage:

1 – age ≤ 10 years

2 – 10 years < age ≤ 30 years

3 - age ≥ 30 years

Prevailing materials

This section requires the percentage of prevailing materials of the entire network (combined + stormwater + wastewater network).

Operational performance

This section requires the assessment of the current operational performance of the sewer system, in terms of wastewater collection and stormwater drainage. The performance will be described according to three different marks:

*Mark **1*** – The performance can be considered to be good: wastewater collection is assured and no flooding has occurred during the last 5 years.

*Mark **2*** – The performance can be considered hardly acceptable: flooding has occurred occasionally (max 1 per year) during the last 5 years.

*Mark **3*** – The performance must be considered unacceptable: flooding has occurred quite frequently (more than once per year) during the last 5 years.

Current state

This section requires the appraisal of the physical state of the entire network. The current state will be described according to three different marks:

*Mark **1***: the state is to be considered good. No major pipe damages: wastewater losses from the network are rare.

*Mark **2***: the state is to be considered hardly sufficient. Some sections of the network have serious damages and need major repair works.

*Mark **3***: the state is to be considered poor. Almost all the network is strongly compromised: wastewater losses all over the network

Sewer connected to wastewater treatment system

This section requires the indication if a wastewater treatment system has already been built. In this case, Form D should then be filled in.

Untreated wastewater from sewer system disposed to

When at least a part of the sewer system is not connected to a treatment system, it should be indicated the location of the final disposal of this part of the network.

Wastewater treatment systems

This section requires the indication of the names of all the wastewater treatment plants that serve the sewer system of the town/village/settlement.

If the sewer network is connected to more than 6 treatment plants, it will be necessary to use additional forms. In this case, the only data to be entered for additional forms will be the town/village/settlement ID code: it will not be necessary to repeat such a procedure for all the other information.

NOTES

This section of the form should be used to summarize information collected during the survey which could be useful, during the following phases of the study, in determining the actions to be taken. Information could, for example, provide further details about existing projects not completed yet, specific problems of the existing sewer network or of a part of it etc.

Name of surveyor

Each surveyor should put his/her name in this section in order to allow people performing the data entering into the database system to be able to identify easily the person that visited each specific town/village/settlement.

FORM C: DRINKING WATER TREATMENT PLANT

Town/village/settlement ID code

In this section the ID code of the Governorate and of the District/Sub-district related to the water treatment plant should be indicated.

For treatment plants serving a single settlement this section will contain the Governorate and District/Sub-district codes of that specific settlement.

For treatment plants serving more than one settlement, the Governorate and District/sub-district codes will be the ones of the closest settlement to the treatment plant.

Name of the settlement

The name of the settlement being served by the treatment will be put in this section. As indicated above, when the plant serves more than one village, the name of the closest village to the plant should be put in this section.

Plant name

This section contain he name of the treatment plant. The name must be written in the same way as it has been written on Form B.

Coordinate x, Coordinate y

The coordinate, that will be read by the surveyor on the GPS instrument, will give the location of the plant in terms of *degrees* (°), *minutes* (') and *seconds* (").

Plant

First of all it is necessary to indicate if the plant supplies more than one town/village/ settlement.

Then it has to be indicated the type of plant currently in place. Three different choices are given:

- Conventional treatment facility
- Compact unit
- Reserve osmosis plant/unit

Characteristics

This section describes the main characteristics of the plant, both in term of treatment capacity (expressed as m^3/h) and of the type of treatment applied.

It is sufficient to specify which of the following treatment sections is currently working:

- Clarification/flocculation
- Filtration
- Desalination
- Disinfection
- Sludge treatment

Current state

This section requires the appraisal of the present state of the plant in terms of:

Structures (concrete tanks, reactors, buildings etc.)

and

Machinery (pumps, blowers mixers, screens, instruments, electrical system etc.)

The current state will be described according to three different marks:

*Mark **1***: the state is to be considered good

*Mark **2***: the state is to be considered hardly acceptable

*Mark **3***: the state is to be considered unacceptable.

Moreover, it is possible to indicate whether the plant have not been built yet (mark **4**) or if the plant is under construction (mark **5**).

Operational performance

This section requires the assessment of the current operational performance of the water treatment plant. The performance will be described according to three different marks:

*Mark **1*** – The performance can be considered to be good.

*Mark **2*** – The performance can be considered hardly acceptable.

*Mark **3*** – The performance must be considered unacceptable.

If the plant is not working, the mark **4** should be used.

DRINKING WATER SOURCE

Town/village/settlement ID code

In this section the ID code of the Governorate and of the District/Sub-district related to the drinking water source should be indicated.

For water sources serving a single treatment plant this section will contain the Governorate and District/Sub-district codes of that specific treatment plant.

For water sources serving more than one treatment plant, the Governorate and District/sub-district codes will be the ones of the closest settlement to the water source.

If the water treatment plant is connected to more than one water source, the data of each water source should be entered in different forms. In this case, the only data to be entered for additional form will be the water treatment plant ID code: it will not be necessary to repeat such a procedure for all the other information (location of WTP, characteristics etc.)

Water source name

This section contain the name of the water source.

Coordinate x, Coordinate y

The coordinate, that will be read by the surveyor on the GPS instrument, will give the location of the water source in terms of *grades* (°), *minutes* (') and *seconds* (").

Type of source

The drinking water source will be identified as surface water source (mark **1**) if the water is supplied by reservoirs, lakes, marshes, rivers, channels etc. or as underground water source (mark 2) if water is supplied through wells or springs.

Salinity content

This section requires the information on total salinity (expressed as mg/l) of the water fed to the water supply system.

Length of supply main

Total length of the trunk main connecting the water source(s) to the water treatment plant.

NOTES

This section of the form should be used to summarize information collected during the survey which could be useful, during the following phases of the study, in determining the actions to be taken. Information could, for example, provide additional details on water source quality (turbidity, suspended solids, BOD, etc.), state of specific sections of the treatment plant, existing projects not completed yet etc.

Name of surveyor

Each surveyor should put his/her name in this section in order to allow people performing the data entering into the database system to be able to identify easily the person that visited each specific town/village/settlement.

FORM D: WASTEWATER TREATMENT PLANT

Town/village/settlement

In this section the ID code of the Governorate and of the District/Sub-district related to the wastewater treatment plant should be indicated.

For treatment plants serving a single settlement this section will contain the Governorate and District/Sub-district codes of that specific settlement.

For treatment plants serving more than one settlement, the Governorate and District/sub-district codes will be the ones of the closest settlement to the treatment plant.

Name of the settlement

The name of the settlement being served by the treatment will be put in this section. As indicated above, when the plant serves more than one village, the name of the closest village to the plant should be put in this section.

Plant name

This section contain he name of the treatment plant. The name must be written in the same way as it has been written on Form B.

Coordinate x, Coordinate y

The coordinate, that will be read by the surveyor on the GPS instrument, will give the location of the plant in terms of *degrees* (°), *minutes* (') and *seconds* (").

Plant

It is necessary to indicate if the plant serves more than one town/village/settlement.

Service coverage

Estimation of the percentage of resident population which is connected to the wastewater treatment system with respect to the total population living in each town/village/settlement should be put in this section.

Plant type (wastewater treatment plant process)

It should be defined the typology of the plant: 4 processes have been considered (activated sludge, extended aeration, trickling filter and oxidation pond). If a different process is applied, it should be indicated in the "*Other*" section.

Characteristics

This section describes the main characteristics of the plant, both in term of treatment capacity (expressed as P.E., population equivalent) and of the type of treatment applied.

The main units of measures used in the following treatment sections must be provided:

- Capacity (population equivalent)
- Primary sedimentation (total available surface, m^2)
- Denitrification (total volume, m^3)
- Oxidation (total volume, m^3)
- Trickling filter (total volume, m^3)
- Final sedimentation (total available surface, m^2)
- Disinfection
- Filtration (available surface, m^2)
- (Sludge) aerobic stabilization (total volume, m^3)
- (Sludge) anaerobic digestion (total volume, m^3)
- Sludge thickener (total volume, m^3)
- (Sludge) mechanical dewatering (sludge flow-rate fed to the machine, m^3/h)
- (Sludge) drying beds (total surface, m^2)

If the data required are not available, for one or more sections, it must be indicated at least if the section is in stage (mark 1) or is not in stage (mark 0).

Current state

This section requires the appraisal of the present state of the plant in terms of:

Structures (concrete tanks, reactors, buildings etc.)

and

Machinery (pumps, blowers mixers, screens, instruments, electrical system etc.)

The current state will be described according to three different marks:

*Mark **1***: the state is to be considered good

*Mark **2***: the state is to be considered hardly acceptable

*Mark **3***: the state is to be considered unacceptable.

Moreover, it is possible to indicate whether the works have not been built yet (mark **4**) or if the plant is under construction (mark **5**).

Operational performance

This section requires the assessment of the current operational performance of the water treatment plant. The performance will be described according to three different marks:

*Mark **1*** – The performance can be considered to be good.

*Mark **2*** – The performance can be considered hardly acceptable.

*Mark **3*** – The performance must be considered unacceptable.

If the plant is not working, the mark **4** should be used.

Current loads

The resident and seasonal population connected to the wastewater treatment plant must be provided, as well as quantifying, in terms of population equivalents, the load coming from industrial sites/areas.

NOTES

This section of the form should be used to summarize information collected during the survey which could be useful, during the following phases of the study, in determining the actions to be taken. Information could, for example, provide additional details on wastewater quality (average values of main parameters as BOD, COD, nitrogen, phosphorus and possible presence of specific contaminants), state of specific sections of the treatment plant, existing projects not completed yet etc.

Effluent discharge location

This section requires the indication of the location of the wastewater treatment system discharge. Different cases are considered: discharge into a water body (the name of the water body is required), on the soil and in the underground (in both cases it is required to indicate the location of the final discharge).

Name of surveyor

Each surveyor should put his/her name in this section in order to allow people performing the data entering into the database system to be able to identify easily the person that visited each specific town/village/settlement.

FORM E: URBAN PLANNING

Code

Area ID code

Depending on availability of planning documentation, the form could be referred to a single district/sub-district (if specific plans have been developed) or to larger areas that include more than one district/sub-district.

The ID code will be composed of Governorate code.

Name

The name of the area being considered should be indicated in this section

District/Sub-district

The list of all districts/sub-districts completely included in the area being considered should be put in this section. The districts/sub-districts only partially interested by the area being described should not be indicated here: the part of the district/sub-district belonging to the area will be drawn in the GIS system.

Demography

Resident population increase

This section requires an evaluation of resident population increase foreseen (up to 2010) for the area.

Built-up area increase

This section requires the built-up area increase (in hectares) foreseen (up to 2010) for the area.

Refugees living in the area/coming form other areas

This section requires the assessment of the total refugees (people who had to move form their original villages after the draining of the marshes) living inside the area and of the refugees that are currently living outside but that are expected to move back to this specific area.

Towns/settlements to be developed

Main towns/villages/settlements to be developed will be put into this section.

Socio-economy

Economic activities increase

This section requires an appraisal of the significance of industrial, agricultural and fishery activity increase planned (up to 2010) for the area.

Industrial activities increase will be described according to three different marks:

*Mark **1*** – very significant (more than 100% increase in terms of total employees);

*Mark **2*** – significant (more than 50% increase in terms of total employees);

*Mark **3*** – not significant.

Agricultural and fishery activities increase will be described by the total new surface that will be dedicated to these activities.

Productions to be developed

This section requires the indication of the main productions (industrial, agricultural and fishery) to be developed.

Towns/settlements interested by industrial activity increase

This section required the indication of which towns/settlements will be more interested by industrial, agricultural, fishery activity increase.

Main hancraft activities to be developed

This section requires the indication of main handcraft activities to be developed.

Water buffalos increase

This section requires the indication of the increase of the total water buffalos for the entire area (up to 2010).

Public services

Education

This section requires to define the planned development of education facilities. It is required to fill in, for each level of education, the number of new planned kindergartens, schools (primary, intermediate and secondary) and universities for the entire area and the approximate total number of students increase for each type of school.

Medical services

Hospitals

The number of new hospitals and total beds increase (up to 2010) will be put into this section

New medical centers

This section requires the indication of the planned number of new medical centers (up to 2010) for the entire area.

Military barracks

This section requires the number of new military barracks and the total soldiers increase for the entire area.

Hotel/resorts

This section requires the indication of the number of new hotel/resorts and of the total beds increase (up to 2010) for the entire area.

Paved roads

This section requires the indication of the planned extension of paved and un-paved roads (up to 2010) for the entire area.

Railways

This section requires the indication of the planned extension of the railway system (up to 2010) for the entire area.

Airport

This section requires the indication if any new airport is planned for the area.

Solid waste disposal facility

This section requires the indication of solid waste treatment facilities planned for the entire area: it should be specified the number of different facilities (landfills, incinerators, etc.) that have been proposed for the solid waste management system of the district/sub-district.

Name of surveyor

Each surveyor should put his/her name in this section in order to allow people performing the data entering into the database system to be able to identify easily the person that visited each specific town/village/settlement.