WORKSHOP
on
Policy & Development Planning for
Water Supply and Sewage
and
Operation & Maintenance for Water Supply

December 8 – 11, 2004
Amman, Jordan.

Japan International Cooperation Agency (JICA)

in cooperation with

Baghdad Municipality

Prepared by Husni M. Olama and Mu'taz F. Al-Taher

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Abbreviations

BM	Baghdad Municipality
BSD	Baghdad Sewage Department
BWD	Baghdad Water Department
EU	European Unity
GIS	Geographical Information System
GTZ	German Agency for Technical Cooperation
HR	Human Resources
HRM	Human Resources Management
JICA	Japan International Cooperation Agency
MIS	Management Information System
MIWR	Ministry of Irrigation and Water Resources
M & E	Monitoring & Evaluation
NGO	Non-Government Organization(s)
OMWS	Operation and Maintenance for Water Supply
O & M	Operation and Maintenance
PPM	Project Planning Matrix
PPWS	Policy & Development Planning for Water Supply and Sewage
QC	Quality Control
SCADA	Remote monitoring and controlling system through the use of computer software
SMART	Specific, Measurable, Achievable or Attainable, Realistic, and Time bound
UFW	Unaccounted for Water
UNDP	United Nations Development Programme
WTP	Water Treatment Plant

1. ***Introduction***

The Government of Japan, represented by Japan International Cooperation Agency (JICA) has conducted two training programs for twenty Water Supply and Sewage staff of Baghdad Municipality (BM). The two courses are: Policy & Development Planning for Water Supply and Sewage (PPWS), and Operation & Maintenance for Water Supply (OMWS). At the end of each training course a workshop has been conducted in Amman, Jordan during the period of December 8th-December 11th. This report is describing the work of the two workshops.

2. ***Objectives***

Through the PPWS workshop, JICA representatives and the Iraqi participants have been able to:

- ❖ Analyze the PPWS (water supply and sewage) current situation in Baghdad Municipality.
- ❖ Identify the current issues/problems in the PPWS of the municipality.
- ❖ Analyze current issues/problems in the PPWS of the municipality.
- ❖ Identify priority projects to be tackled with in the survey.
- ❖ Define the results (outputs) of the OMWS development plan.
- ❖ Formulate outlines of a development plan and Terms of Reference for Baghdad work in the form of survey plan.
- ❖ Identify possible technical cooperation programs.
- ❖ Identify contents of the final report that will be issued at the end of the training.

While through the OMWS workshop the Iraqi participants have been able to:

- ❖ Analyze the OMWS current situation in Baghdad Municipality.
- ❖ Identify the current issues/problems in the OMWS of the municipality.
- ❖ Analyze current issues/problems in the OMWS of the municipality.
- ❖ Identify possible technical cooperation programs.
- ❖ Define the results (outputs) of the OMWS action plan.
- ❖ Formulate the Action Plan.

3. ***Methodology***

For conducting stage: Participatory approach with the utilization of MetaPlan tools (cards and sheets) have been used whenever possible.

- ❒ Conducting the two Workshops.
- ❒ Writing one Report for the two workshops.
- ❒ The report is including the action plan/development plan for each component (OMWS and PPWS).

4. ***Workshop language***

Arabic and English were the languages for the two workshops. The Report is in English.

5. ***Workshop schedule***

Each of the two workshops has run according to the following schedule:

Day	Time	Subject
1st day Dec. 8th	08:15	Workshop opening, objectives and icebreaker
	08:30	Participation (stakeholders) analysis
	09:15	Situation analysis and Problem identification
	11:00	Coffee/Tea break
	11:30	Problem identification (Two working groups)
	13:00	Lunch break
	14:00	Problem clustering (Two working groups)
	15:00	Coffee/Tea break
	15:15	Problem analysis (Two working groups)
	16:00	Concluding the 1st day
2nd day Dec.9th	09:00	Reviewing the work of the previous day
	09:15	Problem analysis (Two working groups)
	11:00	Coffee/Tea break
	11:30	Problem tree (Two working groups)
	13:00	Lunch break
	14:00	Objective tree (Two working groups)
	15:00	Coffee/Tea break
	15:15	Defining possible development projects (Two working groups)
	16:00	Concluding the 2nd day
3rd day Dec. 11th	09:00	Reviewing the work of the previous day
	09:15	Defining the development/action plan indicators
	11:00	Coffee/Tea Break
	11:30	Formulating the plan (Two working groups)
	13:00	Lunch break
	14:00	Formulating the plan (continuation)
	15:00	Coffee/Tea Break
	15:15	What is next
	15:45	Workshop evaluation
	16:00	Concluding the workshop

6. ***Workshop rules***

The rules that have been presented, accepted, and followed by all were:

- Cards are to be used. Each idea is on one single card, using wide pens (markers), and we would be aiming for the consensus of the participants.
- Let us consider this Workshop as a learning experience for everyone; there is no training nor are trainers or trainees.
- Smoking is allowed outside the Workshop room.
- Mobile phones to be put on “silent”, and can be used outside the Workshop room.
- Let us conduct our Workshop with acceptable flexibility.
- Let us make the workshop a joyful event.

7. ***Participants***

The participants' names and posts are:

No.	Name	Post
		O&MWS Participants
1	Mr. Haider Mohammad Haider	Head of Consultancy & Development, BWD
2	Mr. Taleb Ahmad Abdallah	Eng., Al-Karkh Water Project, BWD
3	Mr. Ibrahim Ahmad Abdallah	Eng., Al-Karkh Water Project, BWD
4	Mr. Sa'ad Abed Hasan	Eng., East Tigris Project
5	Mr. Mudhafar Ali Ghulam	Eng. Head of Implementation, BWD
6	Mr. Mushrek Taleb Mohammad	Eng. Head of GIS Unit, BWD
7	Mr. Sabah Rasheed Sa'eed	Chief Engineer. Dourah Project Manager, BWD
8	Ms. Sahar Ali Mardi	Al-Wathbah Laboratory Manager, BWD
9	Ms. Jullanar Abdeelsaheb	Laboratoris Department Manager, BWD
10	Ms. Zahraa Kamal Mahdi	Hief Engineer. Executive Department, BWD
		PPWS Participants
11	Ms. Dijlah Hassan Yassin	Design Engineer. Study & Design Department, BWD
12	Ms. Ahlam Abbas Ali	Head of Planning and Management Dept., BWD
13	Ms. Intisar Jalil Khalil	Design Engineer. Design Dept., BWD
14	Mr. Haider Ade Al-Janabi	Eng. Sewage Dept. Baghdad Municipality, BM
15	Mr. Hamzeh Wadi Kadhem	Sewage Dept.
16	Mr. Sa'ad Abboud Ridah	Chemist. Karkh Sweage Treatment Plant, BM
17	Mr. Ahmad Radi Abbas	Head of Sewage Dept., BM
18	Mr. Sabah Al-Ani	Head of Planning. Water Implementation Public Co. BWD
19	Mr. Alaa Labeeb Tawfik	Chief Engineer. Al-Durah Water Treatment Plant, BWD
20	Mr. Essam Hashim Shaker	Sewage Dept.
		Resource Participants
21	Mr. Shohei Sata	JICA Expert
22	Mr. Koichi Iwasaki	JICA Expert
23	Abdelmajid Belhaj Yahia	JICA – Tunisia
24	Ms. Reiko Kawanabe	JICA –Tunisia
25	Mr. Abdel Hamlim Koundi	National Development Office. Tunis
26	Mr. Basem Zawaydeh	Water Authority of Jordan
27	Mr. Susumu Yozurio	JICA-Jordan
28	Mu’taz Al-Taher	Workshop Facilitator
29	Husni Olama	Workshop Facilitator

8. ***Participants' expectations of the Workshops***

The participants were asked about their expectations of the tow Workshops. Their answers were as the following:

- ✓ Come up with future plans for new projects.
- ✓ Solve water shortage in Baghdad.
- ✓ Have a unified concept for future projects.
- ✓ Gain new experience to the available knowledge.
- ✓ Gain additional technical and planning information.
- ✓ Develop the laboratories and testing methods.
- ✓ Use new ways to determine Unaccounted for Water (UFW).
- ✓ Solve sewage problems.
- ✓ Define new project.
- ✓ Improve network performance.
- ✓ Document the network data through GIS.
- ✓ Define direction of study in Baghdad.
- ✓ Confirm requirements for water supply in Baghdad.
- ✓ Improve sewage system.
- ✓ Improve potable water quality.
- ✓ Solve the current problems of the network.
- ✓ Reduce UFW.
- ✓ Define possible technical cooperation projects.
- ✓ Reduce work related problems.
- ✓ Improve work efficiency.
- ✓ Know sewage situation in Iraq.
- ✓ Develop technical cooperation between Iraq and Japan.
- ✓ Define urgent action.

9. ***Participation (stakeholders) analysis***

The participants defined all the stakeholders of Water Supply in Baghdad in terms of Planning, financial, technical, legal, implementation, and/or users of the services as in the table below:

#	Stakeholders	Can be involved at and/or in					
		Plan.	fin.	tech.	legal	Impl.	user
1	Ministry of Interior (Traffic Department).				✓		
2	Funding agencies.		✓				
3	Ministry of Information[1].					✓	
4	Ministry of Finance.		✓		✓		
5	Neighboring countries: partners with the water resources.			✓			

[1] In the past, there was such ministry. If it is not recently in existence, then the participants have mistakenly mentioned it.

#	Stakeholders	Can be involved at and/or in					
		Plan.	fin.	tech.	legal	Impl.	user
6	Ministry of Irrigation.	✓		✓	✓	✓	
7	JICA.	✓	✓	✓	✓	✓	
8	Residents of Al-Rusafah part of Baghdad.						✓
9	Planning and follow up Dept. of BWD.	✓		✓	✓	✓	
10	Baghdad residences.						✓
11	Ministry of Industry.			✓			
12	Ministry of Electricity	✓		✓		✓	
13	Industrial plants.	✓		✓			✓
14	Ministry of Environment.	✓		✓	✓	✓	
15	NGO's.	✓		✓	✓		✓
16	Ministry of Planning and Development Cooperation.	✓	✓		✓	✓	
17	Farmers.						✓
18	Baghdad Sewage Dept.	✓		✓		✓	
19	Water Authority of Jordan.			✓			
20	Laboratories and Quality Control Division.	✓		✓		✓	
21	Baghdad Water Department (BWD).	✓	✓	✓	✓	✓	
22	Engineers in Baghdad Municipality.	✓		✓		✓	
23	Engineering and management staff working for supplying water.	✓		✓		✓	
24	Middle management staff in BWD.	✓	✓	✓	✓	✓	
25	Ministry of Health.	✓		✓	✓	✓	

10. ***Analysis of the current situation***

The Workshop participants were asked to write 2 cards on their perception and/or assessment of the current situation related to water and wastewater management in Baghdad Municipality. The presented ideas were then discussed and classified as either positive features or challenges/problems (weaknesses, threats, etc.). The positive features are presented hereinafter in a list, while the challenges/problems are presented in a problem tree format.

10.1 ***Positive features***

- Continuing to work in spite of the very difficult conditions.
- The economic conditions of employees are improving.
- Sewage network is covering about 80% of Baghdad.
- Cleaning sewage network of diameter of 3m and more has started, without stopping major pumping stations.
- Qualified staff availability in the laboratories.
- Some water network has been renewed.

- Studying using GIS has started.

10.2 *Negative features*

The facilitators proposed to cluster negative features under key headings and to clarify the inter-relationships between the different issues; i.e. the ***Cause-Effect*** relationships. The analysis is presented in the problem tree according to the following:

- ☒ For clarification purposes, issues at the same level have been surrounded by borders of the same style so that the reader can have a feeling of the different levels of the cause-effect relationships.
- ☒ The analysis helped in establishing that the citizen is the one paying the price for the inefficiencies and deficiencies of the water management and distribution system:
  - **Deterioration in the quality of life of the citizens.**

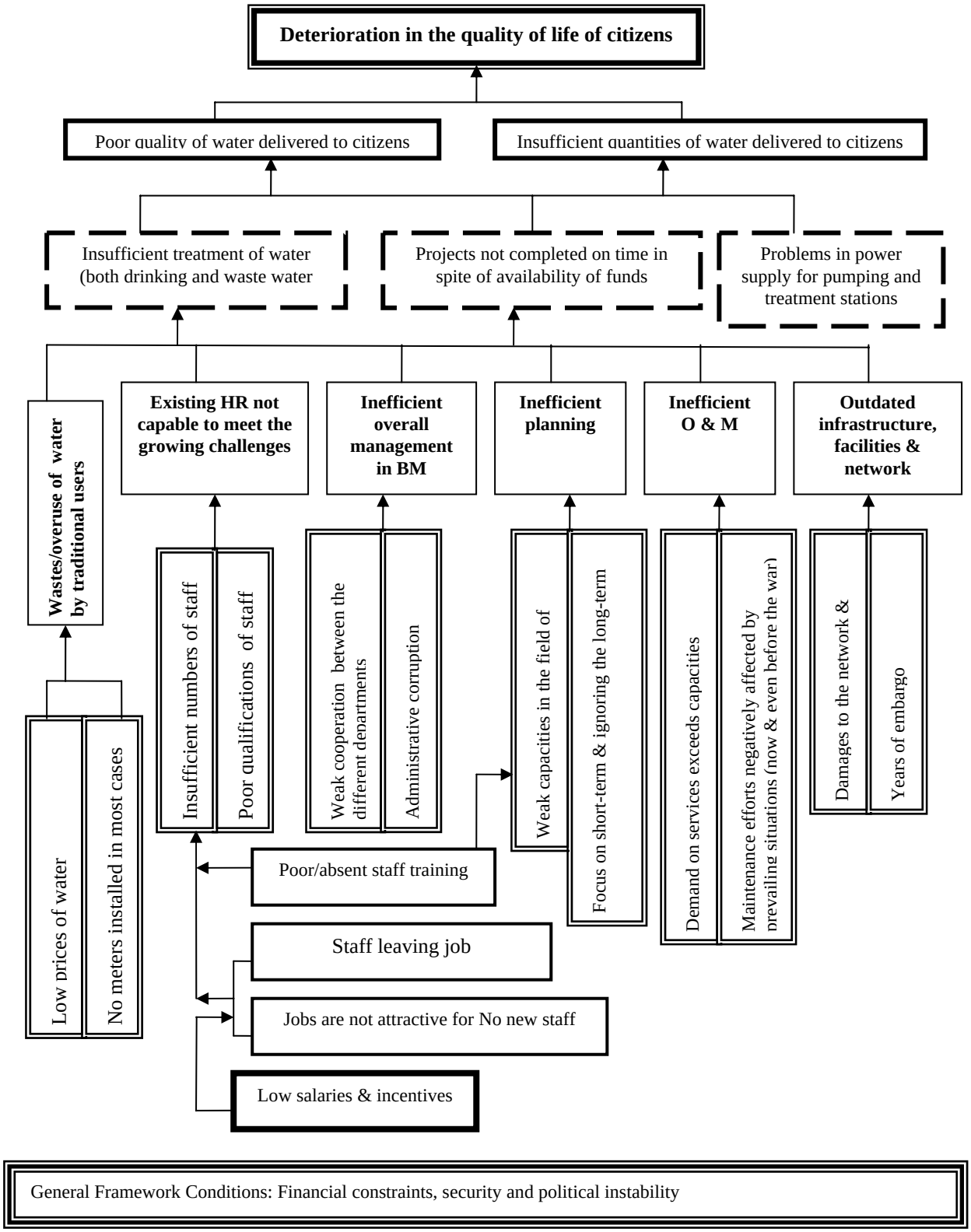
- ☒ This situation is the outcome of the following:
  - **Poor quality of water delivered to citizens.**
  - **Insufficient quantities of water delivered to citizens.**

- ☒ The following factors led to the aforementioned situation:
  - **Insufficient treatment of water (both drinking and waste water.**
  - **Projects not completed on time in spite of availability of funds.**
  - **Problems in power supply for pumping and treatment stations.**

- ☒ The key causes behind this were identified as follows:
  - **Inefficient overall management in Baghdad Municipality.**
  - **Inefficient planning.**
  - **Inefficient O & M.**
  - **Outdated infrastructure, facilities & network.**
  - **Existing HR not capable to meet the growing challenges.**
  - **Wastes/overuse of water by traditional users.**

- ☒ The analysis details the root causes underlying the above mentioned points**.**
- ☒ Some important issues are of cross-cutting nature and can be considered as general framework condition affecting all other issues and these are:
  - **Financial constraints.**
  - **Security and political instability.**

10.3 ***Current situation challenges/problems tree***



11. Policy & development Planning for Water supply & Sewage Workshop (PPWS)

11.1 ***Problem analysis***

Explanatory notes on the problem analysis (Tree) for development planning and water policy (Workgroup sessions):

- The participants identified issues/challenges affecting the performance of the Baghdad Water Department (BWD) and the Baghdad Sewage Department (BSD) in the field of development planning and water policy.
- The same sequence used earlier for the general problem analysis was followed in this part of the workshop, namely: Brainstorming; Clustering, Building Cause-Effects relationships and refining the analysis.
- The resulting problem tree describing the situation is detailed in the diagram in the following section.
- For clarification purposes, issues at the same level have been surrounded by borders of the same style so that the reader can have a feeling of the different levels of the cause-effect relationships.
- The analysis helped in building consensus on the inefficiencies and deficiencies the field of development planning and water policy. These were:
  - No commitment to implementing existing plans.
  - Weak/absent coordination between plans on water supply and plans for wastewater.
  - The need to allocate the bulk of the resources for solving problems & maintenance.

- This situation is the outcome of the:
  - **Focus on activities (short-term) rather than on achievements.**

- The following factors led to the aforementioned situation:
  - **Inefficient planning.**
  - **Inefficient Monitoring & Evaluation.**

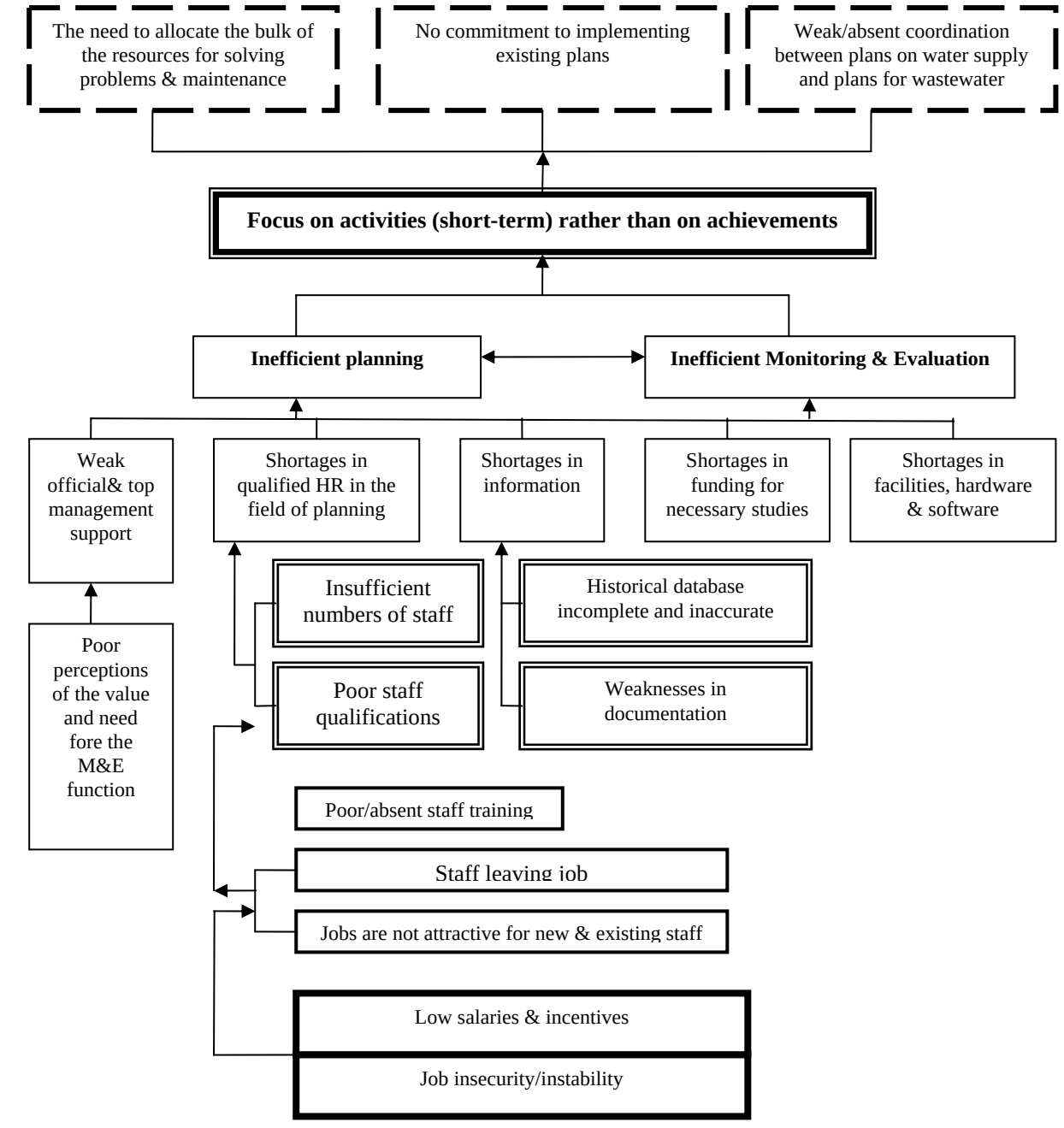
- The key causes behind this were identified as follows:
  - **Weak official & top management support.**
  - **Shortages in qualified HR in the field of planning.**
  - **Shortages in information.**
  - **Shortages in funding for necessary studies.**
  - **Shortages in facilities, hardware & software.**

- The analysis details the root causes underlying the above mentioned points**.**
- Some important issues are of cross-cutting nature and can be considered as general framework condition affecting all other issues and these are:

- **Financial constraints (for implementing plans).**
- **Political and financial considerations take precedence over environmental & technical considerations.**
- **Problems inherited from the past regime.**
- **Absence of a comprehensive national vision to guide planning in the different institutions and sectors.**

11.2 ***Problem tree***

Development Planning and Water Policy Group



General Framework Conditions:

* Financial constraints (for implementing plans)
* Political and financial considerations take precedence over environmental & technical considerations
* Problems inherited from the past regime
* Absence of a comprehensive national vision to guide planning in the different institutions and sectors

11.3 ***Objectives/ Activities***

Moving from the problem analysis (Tree) to the objectives and action plan for development planning and water policy (Workgroup sessions):

- The participants used the problem analysis to form the basis for identifying the future strategic objectives and directions in the field of development planning and water policy.
- The process consisted of converting the negatively phrased challenges into positively phrased statements. The statements can be either of the following:
  - **Objectives:** They are the direct responsibility of the Baghdad Municipality; Baghdad Water Department and/or Baghdad Sewage Department, or
  - **Results: I**ntermediary objectives leading to the achievement of the relevant objective under which they are being discussed.
  - **Activities:** That are necessary to produce the result under which they are being discussed (ideally the activities should be grouped under projects and programs), or
  - **Assumptions:** External conditions, that are necessary for the success of our development initiatives. The decisions or responsibilities for the assumptions are not under the direct control of the Baghdad Municipality; Baghdad Water Department and/or Baghdad Sewage Department.

- Statements were then reflected in a Planning Matrix (See following section); more details on the concept can be found in Annex 1.
- The discussions highlighted that the current structures and existing capacities, both technical and human, are not supportive of a viable and efficient development planning and water policy function. Therefore, the key objectives identified by the workshop participants was:
  - **Well-developed, and continuously updated institutional capacities in the area of development planning and policies.**
- The results expected to lead to this objective were identified as follows:
  - **Result (1):** Qualified human resources available and enabled to perform.
  - **Result (2)**: Necessary facilities, hardware and software available.
  - **Result (3):** Improved level of awareness of the different managerial and execution levels on the importance of M&E.
  - **Result (4):** A reliable and regularly updated database.
  - **Result (5):** Improved organizational communication and coordination.

- ***The participants agreed that the available information is too limited to help them fill the matrix satisfactorily, and more particularly to identify specific development projects and interventions, and that it would be more prudent to address this issue after the results of the planned survey are adopted and are endorsed as a basis for rational decision making.***
- The team of Japanese consultants participating in the discussion as resource persons expressed agreement on the logic of the argument.

11.4 *PPWS Tentative project planning matrix*

Specific Objectives, Results & Activities	Measurable Indicators	Achievable Assumptions	Resources	Responsibilities	Time Frame		
					Year 1	Year 2	Year 3
Objective: Well-developed, and continuously updated institutional capacities in the area of development planning and policies	Agreed policies, and action plans available		International expertise	BM, BWD	✓		
Result (1): Qualified human resources available and enabled to perform	HR performing the planned outputs	HR Section is established within the Admin. & Fin.	HR	BWD	✓		
Activity 1. 1 Implement a needs-based training program	End of year Training Report	Training section within HR	HR, training facilities	Admin. & Finance Section	✓	✓	✓
Activity 1.2 Assign staff who have the skills and the desire to work in the field of planning	Qualified staff assigned	Civil Service / HRM regulations supporting this direction	HR	Admin. & Finance Section	✓		
Sub-Activity 1.2.1 Develop Jobs' description and profiles			HR systems	Admin. & Finance Section	✓		
Sub-Activity 1.2.2 Design and implement a career path and staff replacement system			HR systems	Admin. & Finance Section	✓	✓	✓
Sub-Activity 1.2.3 Design and implement a performance-based incentives system			HR systems	Admin. & Finance Section	✓	✓	✓
Result (2): Necessary facilities, hardware and software available	Facilities available and in use		International expertise	BM, BWD	✓	✓	✓
Activity 2.1 Specify and provide necessary facilities				BWD	✓	✓	
Activity 2.2 Specify and provide necessary hardware and software				BWD	✓	✓	

Specific Objectives, Results & Activities	Measurable Indicators	Achievable Assumptions	Resources	Responsibilities	Time Frame		
					Year 1	Year 2	Year 3
Result (3): **Improved level of awareness of the different managerial and execution levels on the importance of M&E**	M&E system applied		M&E system	BWD, Planning & Follow-up Section	✓	✓	✓
Activity 3.1 Design & implement M&E system	Designed M&E System			Planning & Follow-up Section	✓	✓	✓
Result (4): **A reliable and regularly updated database**	Reliable Database		Hardware, International expertise	Computer & Collection Section		✓	✓
Activity 4.1 Explore the international standards and practices in the area of databases			International expertise	Computer & Collection Section	✓		
Activity 4.2 Specify needs and steps for building and sustaining a database that fulfills the needs of the different managerial & operational levels			International expertise	Computer & Collection Section	✓		
Activity 4.3 Implement the basis survey with the support of JICA	Implemented Survey action plan	Details in the attached action plan for the survey	HR, International expertise	BWD, BSD	✓		
Result (5): **Improved organizational communication and coordination**	MIS			BWD		✓	✓
Activity 5.1 Specify and update information documentation & communication procedures			HR, International expertise		✓		

11.5 ***PPWS Survey plan***

Explanatory notes on the Survey Plan for development planning and water policy (Workgroup sessions):

- The following table lists the main activities and responsibilities for implementing the survey as well as the possible sources and approaches to be used. These were based on the sequence of actions proposed by the Japanese side and discussed with the Iraqi group.

- The team of Japanese consultants participating in the discussion as resource persons instructed the participants on which items to focus on in the coming period and which items to leave out on the basis of the availability of information

- The original numbering of the headings and activities was maintained to facilitate easy cross-checking with the initial plan.

The participants agreed that the survey should not be limited to the water supply and demand areas and that it should cover areas related to wastewater/sewage due to the interdependencies between the two areas and the need for enhanced future coordination amongst them.

What?		How?	Who?	Time Frame			
				22.01.05	01.02.05	06.02.05	12.02.05
				1st Draft	**Feedback**	**Final Draft**	**Amman**
1. Evaluation of present conditions of water supply (& sewage services)[2]							
2.1	Problems in Project	✓ From workshop ✓ Interviews / Focus groups with projects' managers & others	Dijlah (water) Hamza (Wastewater)	✓	✓	✓	✓
2.2	Policies	✓ Past studies (Penny & Partners) on Baghdad Master Plan ✓ Meetings with Baghdad water Authority (BWD) ✓ Meetings with Baghdad Sewage Department	Sabah (Water) Essam (Wastewater)	✓	✓	✓	✓
2.3	Legal & Institutional Framework	✓ Desk Review	Intisar (Water) Essam (Wastewater)	✓	✓	✓	✓
2.4	Water Resources	✓ Meetings	Ala's (water)	✓	✓	✓	✓

[2] This activity (the evaluation) is suppose to be completed by the end of those two Workshops. The remaining functions, that is 2.1 to 3.5 are to be done during the Time Frame

What?		How?	Who?	Time Frame			
				22.01.05	01.02.05	06.02.05	12.02.05
				1st Draft	**Feedback**	**Final Draft**	**Amman**
2.5	Existing Facilities	with/information from Ministry of Irrigation & water Resources (MIWR) ✓ Desk Research (BWD & MIWR)	Haydar (wastewater)	✓	✓	✓	✓
2.6	Conditions of the implementing agencies	✓ Desk review	Ahlam (Water) Hamza (Wastewater)	✓	✓	✓	✓
3. Formulation of Master Plan					✓	✓	✓
3.1	Basic policy & strategy of Master Plan	✓ Participatory discussions with stakeholders	Sabah (Water) Ahmad (Wastewater)	✓	✓	✓	✓
3.2	Future water demand	✓ Desk review of existing studies (Example: General Company for Water Projects implementation 2027)	Dijlah (water) Essam (Wastewater)	✓	✓	✓	✓
3.4	Water (& wastewater) Supply facilities plan	✓ Desk review of existing studies (Example: General Company for Water Projects implementation 2027)	Sabah / Ahlam (Water) Essam (Wastewater)	✓	✓	✓	✓
3.5	Water Consumption & Awareness	✓ Questionnaire (!!!! If possible) ✓ Existing studies	Intisar (Water) Essam (Wastewater)	✓	✓	✓	✓

11.6 ***PPWS Possible development projects*.**

Even though the participants of the PPWS Workshop have felt that at this stage of the planning cycle it is early to define possible development projects, the Workshop Facilitator could spot, from the above two action plans and the discussions raised during the Workshop sessions, some possible development projects:

- ☒ Practical training program on strategic planning.
- ☒ Promoting and adopting Operational Planning Methodology.
- ☒ Practical training program on HR systems.
- ☒ Practical training on MIS.
- ☒ Management skills training program targeting BWD top and middle managers.
- ☒ International HR systems adapted by the trained Iraqis to the Iraqi conditions.
- ☒ Provision of MIS hardware and software.
- ☒ Provision of Procurement System (hardware and software).
- ☒ International expertise in documentation system .

12. Operation & Maintenance for Water Supply Group (OMWS)

12.1 ***Problem identification and analysis***

For OMWS group of 10 participants, each was asked to write on cards the two most problems that OMWS is affected by. After collecting each card, eliminating the repeated problems, agreeing by all the participants on the final wording of the problems, building cause-effect analysis, and refining the analysis the problems were classified in the form of a tree. That process can be detailed as the following:

- The resulting problem tree describing the situation is detailed below.
- For clarification purposes, issues at the same level have been given the same color and surrounded by borders of the same style so that the reader can have a feeling of the different levels of the cause-effect relationships.

- The analysis helped in building consensus on the different problems, or difficulties in the field of O&MWS in general.

- The key causes behind most of the issues are:
  - Merging BWD with Baghdad Municipality.
  - BWD management is unable to lobby for furnishing sufficient funds for its functions.

- The analysis details the root causes underlying the above mentioned points**.**

- Some important issues are of cross-cutting nature and can be considered as general framework condition affecting most issues and these are:
  - Financial constraints.
  - Having a long history of not being able to build a trustful relationship with the citizen of Baghdad. This is because of having long history of promising the citizens with unaffordable solutions.
  - The difficulty of importing modern water supply technologies, due to the sanctions.
  - Unstable security conditions.

- So many cause problems are leading to a major issue, that is high ratio of the Unaccounted For Water (UFW)**.**

In summary, problem analysis can be explained as: Problem(s) causing other problem(s) are put below, and problem(s) affected by the previous are put on top, which leads to the Problem Tree as in section 12.2.

To make it visually easy, that is to differentiate between the types of the problems, different types of the problems within the problem tree were given different colors and borders as the following examples:

Box with this green color includes the core problem, when reversed it becomes the **overall goal**.

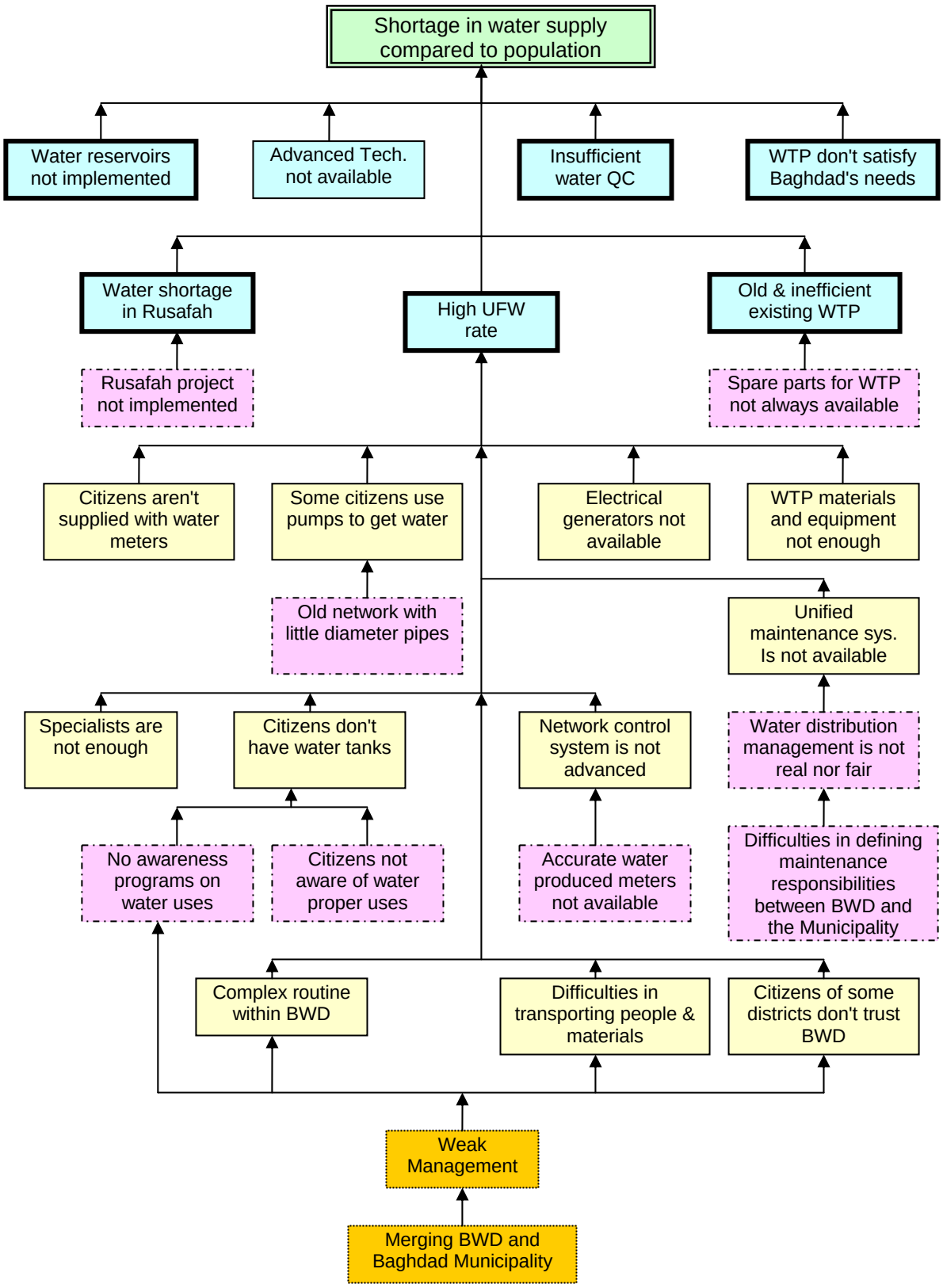
Boxes with this blue color include effect problems, when reversed they become **outputs/results.**

Boxes with this yellow color include cause problems, when reversed they become **activities.**

Boxes with this pink color include cause problems, when reversed they become **activities.**

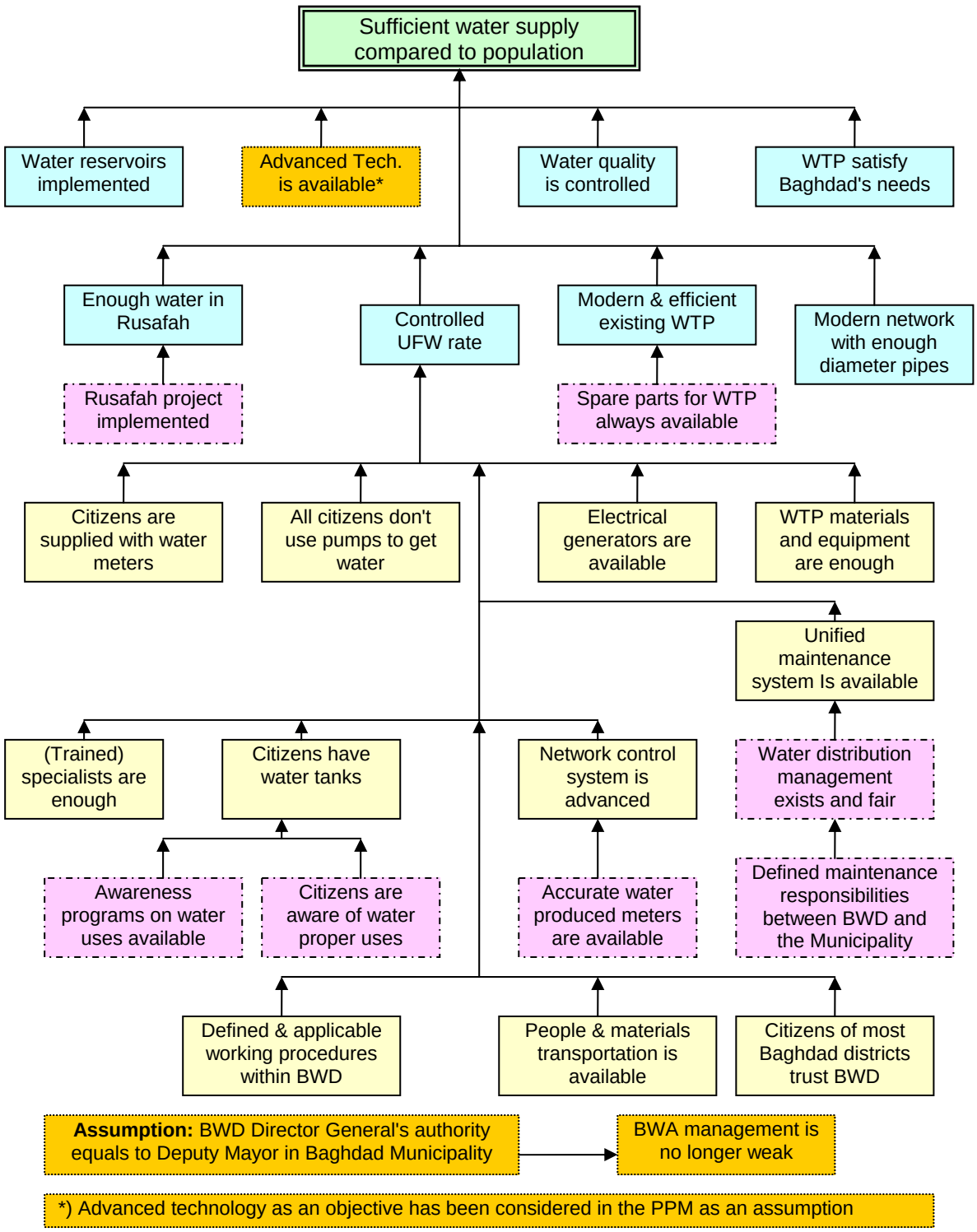
Boxes with this amber color include major cause problems, when reversed they become **assumptions.**

12.2 ***Problem tree***



12.3 ***Objectives tree***

By reversing the wording of the problem tree from negative mode into the positive, the following tree of the objectives can be formulated:



12.4 ***OMWS Tentative project planning matrix (PPM)***

From the objective tree, the participants have come up with the following PPM. At this planning stage, it is recommended that only result level or objectives should be tackled within the PPM:

Specific Objectives, Results & Activities	Measurable Indicators	Achievable Assumption	Resources	Responsibility	Time Frame		
					Year 1	Year 2	Year 3
Overall goal: Sufficient water supply compared to population density	Regions of shortages get 1 m pressure of water	Electrical power is continuous		BM, BWD			✓
Result (1): Water reservoirs implemented	Completing R3, R7, and R14		Local & Internat.	BM, BWD		✓	✓
Result (2): Water quality is controlled	Efficient QC system applied	Advanced technology available	Local & Internat.	BWD, Labs,	✓	✓	✓
Result (3): WTP satisfy Baghdad's needs	R3 (6 mgd) East Tigris (50 mgd)	Electrical power is continuous	Local & Internat.	BM, BWD			✓
Result (4): Enough water in Rusafah	Project implemented		Local & Internat.	BM, BWD			✓
Activity (4.1): Rusafah project implemented			Local & Internat.	BWD			✓
Result (5): Controlled UFW rate	UFW=45%			BM, BWD			✓
Activity (5.1): Citizens are supplied with water meters	Meters distributed		Water meters	BWD	✓	✓	
Activity (5.2): All citizens don't use pumps to get water	Enough water for citizens	Public campaign		BWD	✓	✓	✓
Activity (5.3): Electrical generators are available	Elc. Power continuous			BWD	✓	✓	✓
Activity (5.4): WTP materials and equipment are enough	No material shortages	Inventory system	Local & Internat.	BWD		✓	✓
Activity (5.5): (Trained) specialists are enough	Training report	Training section	HR, train. facilities	Admi. & Fin. section	✓	✓	✓
Activity (5.6): Citizens have water tanks	Reduced citizen pump.	Public campaign		BM		✓	✓
Activity (5.7): Network control system is advanced			Local	Implim. Dept, Operat. Dept.		✓	✓
Activity (5.8): Unified maintenance system Is available	Maintenance system		Local	BWD	✓	✓	✓
Result (6): Modern & efficient existing WTP	Projects' efficiency 80%		Local & Internat.	BM, BWD			✓
Activity (6.1): Spare parts for WTP always available	Available when needed	Inventory system	Local	BWD	✓	✓	✓
Result (7): Modern network with enough diameter pipes	UFW=45%		Local & Internat.	BM, BWD		✓	✓

12.5 ***O&MWS Possible development projects*.**

During the session of the same title, the participants of the Workshop defined the following possible projects:

- ☒ Water reservoir construction: Civil and electromechanical works.
- ☒ Upgrading the water laboratories in order to improve water quality.
- ☒ Implementing Rusafah project.
- ☒ Reducing UFW from 55% to 45%.
- ☒ Upgrade the existing water network.
- ☒ Technical staff capacity building: Pipe fitters, electrical technicians, and mechanical technicians.
- ☒ Management training: Process Based Management, Central Water Analysis (Quality), GIS application, Hydraulic Model,
- ☒ Develop and apply maintenance system.
- ☒ Develop work procedures.
- ☒ Procurement of transportation vehicles.
- ☒ Fully apply comprehensive GIS.
- ☒ Procurement of SCADA control system.
- ☒ Procurement of Penetrating Radar.
- ☒ Hydraulic model.
- ☒ Citizen awareness campaign.
- ☒ Inventory Management System. Existing warehouses are 2 major and 7 minors.
- ☒ Pumps, compressors, water meters and vehicle maintenance workshops.
- ☒ Mobile water laboratory.
- ☒ Twenty mobile network maintenance workshops.
- ☒ Maintenance or rehabilitation of manholes of large diameters (400 mm – 2300 mm).
- ☒ Wireless communication system to connect the central units and the field (mobile and fixed) units.

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13. ***Workshop evaluation***

At the end of the two Workshops all the participants were asked to evaluate the work according to the following six criteria:

	Very Good	Good / Acceptable	Weak / Not Appropriate
	☺	😐	☹
Methodology	**14**	**10**	**0**
Results	**12**	**11**	**0**
Program	**11**	**12**	**0**
Participants	**13**	**7**	**0**
Facilitators	**25**	**4**	**0**
Venue	**12**	**15**	**0**

14. ***Final Facilitators' comments***

The two Workshops were run according to the planned schedule, and have achieved their aimed objectives. The Facilitators would like to thank the Iraqi participants who were very dedicated officials, and professional resource experts. An appreciated gratitude is due, too to the Japanese experts and JICA officials who are responsible for the workshops.

Some points might be worth mentioning in order to ease the work of the technical cooperation between the JICA and the Baghdad Municipality, represented by Baghdad Water Department:

- ☒ When the Iraqi participants were asked to decide on the priority of implementation of any possible development project, they have emphasized the projects of soft systems, such as GIS, MIS, training, Inventory, Maintenance systems, work procedures, Hydraulic model, in addition to projects that would require huge financial investment and special international technologies, such as electromechanical equipment for WTP, High diameter pipes, land penetrating radars, mobile maintenance workshops, and wireless communication network.
- ☒ Horizontal communication among the different sections of BWD seems to be difficult, a training program for top and middle management on

management skills and effective management systems might a be considered a priority training.

- ☒ Due to merging BWD within Baghdad Municipality long time ago, the status of the General Director of BWD within Baghdad Municipality is limiting the policy making process, and the authority to make decisions and fund requests for budgeting. Upgrading the status of BWD Director into Deputy Mayor will help solving the authority issue.
- ☒ For future work with the Iraqi delegation, it is advised to have the majority of the people attended the two workshops as partners. If the majority of Iraqi partners will be of new participants, a portion of the momentum of work might be lost.

Annexes

Annex 1: ***Conceptual and theoretical basis for strategic planning***

What is Strategic Planning?

Strategic Planning can have as many different definitions as the persons who attempt to define it, amongst the definitions we find:

- Planning is a way to identify long-term goals and direct our resources towards fulfilling those goals[3],
- Planning means replacing coincidence with error[4],
- To plan is to negotiate and to simplify[5],

Characteristics of Good Strategic Planning?

Accordingly, characteristics of a good strategic planning process include the following:

- Emphasis on strategic thinking rather than producing a planning document (the document itself is one of the outputs of the process),
- Anticipation of future events and their likely impact on the fundamental institutional/organizational operations,
- Focus on identifying what is essential for institutional/organizational success and channeling resources towards those efforts,
- Concentration on results, and
- Capacity to see a desired future-state (*vision*) and construct it.

Benefits from Strategic Planning?

A well-executed planning exercise has many benefits, the most important of which are:

- It promotes a common understanding about the institution's overall direction and purpose,
- Individuals will be able to see how their actions support the institution's mission,
- It provides enhanced clarity of purpose, and hence enhances the institution's ability to recognize and concentrate on those activities or actions that are fundamentally important (*Prioritization*),
- It enhances the ability to move from crisis-driven to anticipatory decision-making with clearly established direction for the key issues,
- It provides a framework to link budget (resources) allocations to priority issues and improve accountability,
- It supports improved organizational and individual performance, and
- It improves communication between all stakeholders and players.

Factors Necessary for the Success of Strategic Planning?

- Fully supportive leadership,
- A flexible, user-friendly process based on the institutions unique needs,

[3] U. S. Small Business Administration
[4] ZOPP Objectives-Oriented Project Planning
[5] ZOPP Objectives-Oriented Project Planning

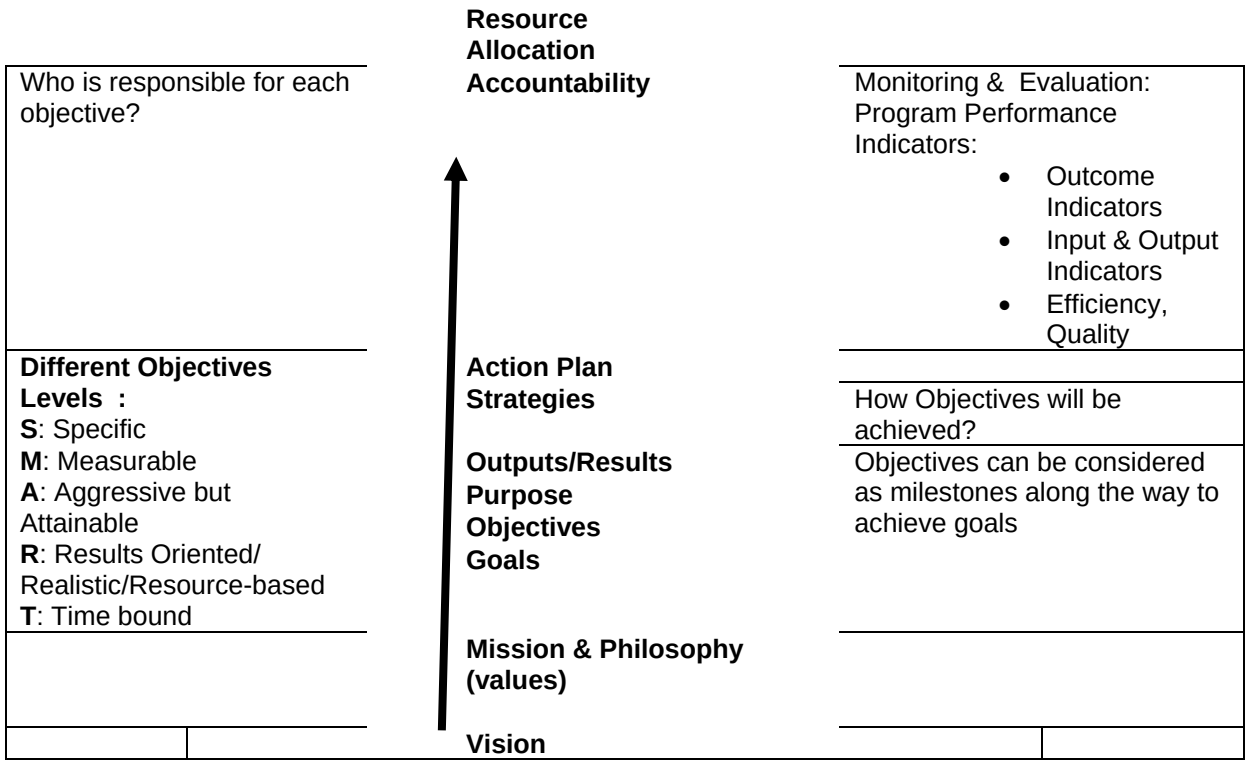
- Broad participation of all levels,
- Comprehensive coverage and due consideration of competing needs and interests,
- Accountability for specific, targeted results,
- Heightened awareness and consideration of conditions and trends external to the agency, and
- The process's ongoing, cyclical nature produces a sense of freshness by being bale to respond to changes.

Key Steps (questions) of the Strategic Planning Process:
The strategic planning process can be summarized as the answers to the following four questions:

1) Where are we now?
2) Where do we want to be?
3) How do we get there?
4) How do we measure our progress?

Illustration (A1/1) lists the key elements addressed under each question.

Working with the Outcomes of the Planning Process



Presenting the Strategy: Using the LogFrame as a Tool

A few introductory points should help clarify the key aspects of the LogFrame tool:

- LogFrame is a not a planning methodology, but rather a design guideline and presentation tool.
- It is a "Check" tool for:

⇒ Means-ends relations (that reflect the cause – effect relation in the problem analysis).

⇒ Completeness: all the defined issues are covered according to priorities, and any intervention level as defined is sufficient (given all other factors are realized) to achieve the higher level up.

- LogFrame is currently being used by many of the technical and financial cooperation agencies such as EU, GTZ, UNDP, JICA and others including the World Bank.
- The LogFrame can be used for the different levels: Government, Institution, Department, Section and even at the individual level.
- The LogFrame reflects logical relations between the different levels as illustrated in the diagram below.
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Diagram A/1: LogFrame

Descriptive Summary	Objectively Verifiable Indicators	Means of Verification	Important assumptions
Goals/Outcomes	Then		
Objectives	If		+
Outputs/Results	Then		+
Activities	If		+

Some practical qualification of the terminologies is necessary For purposes of removing ambiguity arising from translation into Arabic. This arises because Goals, Objectives and Targets have one Arabic world for all three:

Goals/Outcomes: Goals and outcomes express the intentions of the macro level (national, sectoral or corporate depending the level at which planning is taking place) at the policy, social and economic levels that the relevant institution/business unit (the one undertaking the planning exercise) intends to make a contribution to through its actions, i.e. through implementation of the strategic plan.

Objectives & Outputs: are the direct responsibilities of the institution/business unit and they reflect the desired status it is aspiring to achieve and for which it intends to use its resources. One can think of outputs as medium-term objectives / intermediate points up the road to achievement of the relatively longer-term objectives.

Targets: the desired achievement levels that are reflected as indicators

Assumptions reflect factors that are outside the direct control of the institution , but are important for the successful implementation of the strategy. They should be monitored so as to be able to appreciate if a certain risk is arising, the magnitude of that risk. Preemptive/ Corrective action should then be decided upon to ensure sustained efficiency and effectiveness of resources utilization.

Indicators: **Describe what is exactly meant by the project goals, objectives, outputs and assumptions, and how to recognize when they have been achieved. Good indicators should fulfill the following requirements:**

- **Verifiable: achievements can be assessed by an independent party**
- **Measurable: empirically assessable and economically reasonable and justifiable**
- **Backed up by high quality data/information**

Means of verification: **reflects the sources for the indicators. I.e. where can we find proof of the Indicators?**

- **Use independent sources as much as possible (such as International Good Practice)**
- **Facilitates M&E**
- **Increases transparency**
- **In case no source can be identified, think of other indicators**