Guidelines for developing business plans for water utilities in Jordan

Utilities Performance Monitoring Unit (UPMU)
Ministry of Water and Irrigation-Jordan

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

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Table of Contents

List of abbreviations

WAJ	Water Authority of Jordan
UPMU	Utilities Performance Monitoring Unit
GIZ	Deutsche Gesellschaft fur Internationale Zusammenarbeit
BP	Business Plan
KSI	Key Strategic Issue
KPI	Key Performance Indicator
MWI	Ministry of Water & Irrigation
AW	Aqaba Water
YWC	Yarmouk Water Company
PESTEL	Political, Economic, Social, Technological, Environment/Legal
SWOT	Strengths, Weaknesses, Opportunities, Threats
WD	Water Demand
NRW	Non-Revenue Water
O&M	Operation & Maintenance
LCM	Lifecycle Management
SMART	Specific, Measurable, Attainable, Realistic, Timebound
DMA	District Metered Area
JOD	Jordanian Dinar
M&E	Monitoring & Evaluation

Executive Summary

Business planning is recognized as an essential tool for management and planning in both private and public utilities. It gives an overview of the actual situation of the utility and its strength and weaknesses. It encourages the utility to specify objectives and define strategies and actions to achieve them. Management is guided in its decisions by the logical framework of the business plan. This helps management to focus on efficiency gains and monitor performance development.

The main objectives of this guide is to help Jordanian water utilities, and the business planning team members or task force created in each water utility; in preparing and submitting a standard format of business plans to comply with water sector regulatory functions, while in the same time provide and important document for the utility in bringing the following tools and benefits:

- Situational analysis
- Regulatory compliance
- Communication tool
- Management tool
- Tool to access financing
- Monitoring and evaluation tool

This guide is implemented in partnership with UPMU team members part of the consulting activities for Strengthening Regulatory functions at UPMU, within the overall program (Management of Water Resources II) implemented by the Deutsche Gesellschaft fur Internationale Zusammenarbeit (GIZ) GmbH on behalf of the Federal Ministry for Economic Cooperation and Development in cooperation and the Ministry of Water and Irrigation.

1. Introduction

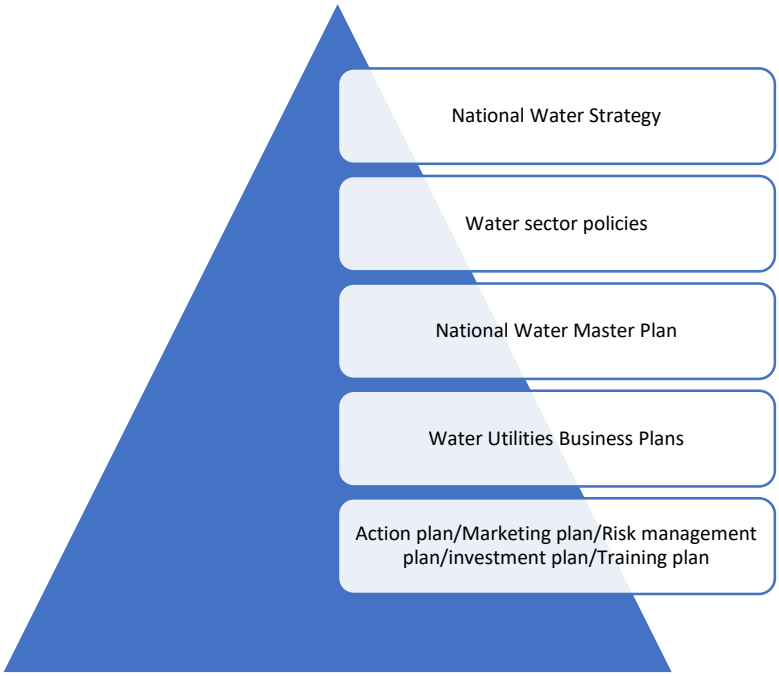
The Jordanian Water sector has embarked on a restructuring plan for its operations where the management of water and wastewater services is conducted on commercial basis. The operations have been assigned to public owned utilities to cover about 80% of the population in the three regions, North, Middle and South. The three utilities are public entities owned by Water Authority of Jordan (WAJ), except Aqaba WU owned 85% by WAJ and 15% by Aqaba Special Economic Zone Authority (ASEZA) and they operate in several governorates:

- Miyahuna, covering Amman, Zarqa and Madaba Governorates
- Aqaba Water utility (AW), covering Aqaba Governorate
- Yarmouk Water utility (YWC), covering the four northern governorates (Irbid, Mafraq, Ajloun and Jarash)

On behalf of the Federal Ministry for Economic Cooperation and Development, the Deutsche Gesellschaft fur Internationale Zusammenarbeit (GIZ) GmbH and in cooperation with the water sector public institutions is implementing the German Jordanian Program "Management of Water Resources II". The program activities include the strengthening of the regulatory functions of the Utilities Performance Monitoring Unit (UPMU), which has the mandate to monitor the performance of the three Water Utilities managing the water and wastewater service across Jordan via multiple tasks and activities. The current mandate of UPMU is outlined within the following:

- Monitor the performance of the utilities owned by WAJ (fully or partially) and to issue the performance reports.
- Set and develop the KPI baselines and the mechanisms for their calculation, and to compare and evaluate the performance of the utilities on their basis.
- Develop and review the needed documentation to establish the utilities and their task/ duties development (Development and assignment agreements and management contract, Establishment Contract and Internal Bylaw)
- Revise the basis and general evidence which outline the frameworks for the development of internal working guidelines and procedures, such as the staff guidelines, financial guidelines and others.
- Review and accredit (approve) utilities Business Plans (BP) and set the targets in cooperation with the utilities and in accordance with the water policies.

Strategic planning of the water sector comes at different levels resulting different documents and guiding tools, where strategy document maps out the future direction of the water sector linking to multiple policies focusing on different vital issues and features affecting the water sector (i.e., drought management policy, water demand management policy, water reuse policy, decentralized wastewater management policy, etc.). at the investment level of the water sector, the National Water Master Plan form the basis for investment planning in the water sector. Where MWI needs to take into consideration in the national water master plan how much water will be available during the future periods. At water utilities level; each utility should have its own business plan in order to meet overall sector strategy and ensure that the utility operates in the most efficient way, maximising its chances of success in delivering their strategic objectives.



This document is part of GIZ "Management of Water Resources II" program aiming at strengthening the role of UPMU. While, the objective of this document is to support UPMU in achieving the above-mentioned mandate of reviewing and include UPMU recommendations the business plans for Jordanian water utilities. The BPs will be reviewed by UPMU staff to monitor water utilities performance, review attained progress, while serve as an essential tool for the effective management for Jordanian water utilities. This document is also targeted for top and middle management staff of Jordanian water utilities to guide them through the business planning process and eventually; all utilities can submit a standard BP document to UPMU, which in return will review and approve for setting the targets for water utility.

The Business Plan document which shall be developed by Jordanian water utilities, will be an output of a strategic planning process that involves the identification and assessment of investment options as well as financial projections, which translate long-term strategies and plans into detailed estimates of costs and cash requirements to meet the investments and operation and maintenance needs. Moreover, the Business Plan can be used as a source of information/database for project identification, preparation and appraisal.

2. Elements of the Business Plan

In order to have a standard format for water utilities business plans, the UPMU suggest the following elements to be included as minimum requirement for business plans submitted by Jordanian water utilities. The following chapters will describe each section content in order to come up with a comprehensive business for the water utility. At the beginning, each BP shall start with an executive summary which shall set out the key aspects of the BP in a concise manner (one to two pages) and shall include an overview of the following:

1. Mission statement

2. Strategic objectives and targets;
3. Main activities (operations and investments) to be implemented;
4. Projected total annual costs
5. Sources of funds;
6. Impact of proposed/approved tariffs in terms of major achievements to be realized during the plan period or the subsidies needed to cover their Operation and Maintenance costs
7. Perceived major risks and the possible mitigation measures.

The introduction should describe briefly the objectives and layout of the BP and how it was prepared, emphasizing on the extent to which staff member within the utility and other stakeholders have been involved in the process and major assumptions made.

3. Description of the water utility

In this section, a description of the water utility should be included via providing brief statements on the following attributes:

1. The history and legal status, current organization structure, brief profiles of key personnel (management and board), their qualification and experience;
2. Description of water supply and sewerage facilities i.e., water resources (abstraction and capacity of the source), water production capacity, infrastructure (including water pumping stations, water treatment plants, main and distribution water pipelines, water storage tanks, sewerage pipes, waste water treatment plants and effluent disposal);
3. A description of demographics, service area, services provided distinguishing water supply and sanitation services, customers served, services to the poor and un-served areas;
4. Main stakeholders, customer service and communication;
5. Confirmed major contracts/agreements (including obligations of parties to the contracts/agreements); and
6. Changes in the business - which lists any significant changes which may have occurred since the last BP which could have an impact on the management philosophies. Examples of these could be:

    - Change in legal status;
    - Changes in ownership structure;
    - Major legal changes which impact the water utility;
    - Changes in the regulatory requirements;
    - Changes in board of directors or organizational structure; and
    - Change in major organizational policies.

4. Vision and Mission

This is one of the main sections to start any business plan. It provides a substantial support to the document by providing the foundation for strategic business planning process.

Vision Statement: An inspirational description of what the water utility would like to achieve or accomplish in the mid-term or long-term future. It is intended to serve as a clear guide for choosing current and future courses of action.

Mission Statement: A concise statement of the purpose of existence of the water utility and its scope of work, which should fit within the policy and legal framework for the sector. In developing a mission statement, the water utility should ask itself the following questions:

- What do they do as a utility?
- What is the ultimate goal of their work?
- What are the priorities and values?
- What are their standards of performance?

The mission statement should clarify on why the water utility was created in the past and why it presently exists.

An example for vision and mission of "X" water utility:

- **The vision of "X" water utility** is '*to be the best water and sanitation service provider in the Middle East*'
- **The mission of "X" water utility** is '*to develop and provide potable, adequate, affordable water supply and sanitation services in a sustainable and environmentally friendly manner*'.

5. Current and Future Performance of the water utility

In order to develop the course of future actions it is necessary to assess the current performance of the water utility against clearly defined criteria. This assessment should be conducted in the light of quality of service and water supply and sewerage performance targets. Assessment of current and future performance of the water utility shall be presented according to target settings agreed upon in consultation with UPMU.

The water utility is bounded in its Level of Service by two criteria:

- The level of service should not go below the minimum level of service requirements specified earlier
- The water supply and sewerage system cannot go above the maximum capacities of the assets (the maximum a system can provide).

Between these two boundaries, the water utility can set any Level of Service it deems appropriate, acceptable to the public, management, and is affordable.

6. Business Analysis

Business analysis serves seven essential purposes in the planning process, namely:

1. Identification of potential opportunities to improve the revenues to the water utility through expansion of the consumer base and customer care measures, or to reduce the expenditure of the water utility through efficiency improvements;
2. Determine the basic immediate changes in structure and policies necessary if long term objectives are to be achieved;
3. Increase immediate cost recovery and liquidity by more effective use of existing resources; thus, providing a more stable base for the development and achievement of long-term objectives;
4. Prepare mitigating strategies by which the risk to revenues and cash flows through the potential impact of external factors can be minimized;
5. Identify how better serve the low income and disadvantaged consumers;
6. Prepare the mitigation measures on the risk resulting from external financing; and
7. Assess the availability of key capabilities of management and staff, (human resources); which are necessary to achieve the required standards and performance targets, thus identifying capacity development needs over the plan period.

Business environment needs to be analyzed by assessing both internal and external business environment factors and variables that affect business operations positively and negatively. The aim is for the water utility to enhance its ability to deliver services in the best manner possible within its operating environment.

6.1 Internal Environment Analysis

Each water utility should carry out a self-assessment to identify those functional areas which are regarded as strong, and those that require improvement. Wherever improvement is required, a ranking of the needed improvement should be done in order of priority. The assessment is done based on the areas of the Performance Targets set earlier in consultation with UPMU. However, presentation of the assessment should be done as indicated in table (1) below.

Functional Activity		**Strength in this area and reasons for strength**	**Improvement needed in this area and reasons for improvement**	**Rank of the required improvement (Priority order)**
Maintain Water Quality	Service Target (1)			
	Service Target (n)			
Customer Service Satisfaction	Service Target (n)			
	Service Target (n)			
Resources Sustainability	Service Target (n)			
	Service Target (n)			

The key to success for any water utility is to concentrate on those areas in which it has proven competence, to build on its strengths and specialized experience, and wherever possible to eliminate its weaknesses and reduce its vulnerability.

6.2 External Environment (PESTEL) Analysis

Planning and strategizing is about adapting water utilities and its services to a changing world to create and maintain success. Every water utility will have various external factors over which it has little or no control that are of particular importance. Each water utility needs to consider the impact of various events and policies on its operations. Examples of issues to be considered may include:

- Political (changes in sector policy, legislation and regulations. Also, change in government terms, government organization and attitude);
- Economical (prices, availability and reliability of energy, prices and availability of chemicals for water treatment, customers economic situation, inflation, and interest rates);
- Social (population growth, customer attitudes and opinions);
- Technological (changes in information and communication technology and lifecycle and speed of technological advancement vs. outdated);
- Environmental (environmental issues including water and wastewater quality standards); and
- Legal (labor laws affecting employment and wages, and tax regulations).

Table (2) requires an assessment of the changes in critical external factors to which the water utility must respond. The table also attempts to determine the importance of these changes by applying measures of impact, probability, overall importance, and preparedness of the water utility to deal with these external factors. Guidance on how to analyze external factors is provided below as a key to Table (2).

In the comments section of Table (2), each water utility shall state briefly the basis/assumptions behind the information filled for each external factor. Also, it must be noted that action is required for external changes with preparedness score of less than or equal to 2 and overall importance of greater or equal to 6.

Changes in external factors to which X water utility must Respond to		**Possible Changes for the Water Utility**	**Impact**	**Probability**	**Overall Importance**	**Preparedness**	**Planned Actions**	**Comments**
Political			3	3	9	3	Describe the plan already in place	
			2	2	4	2	Suggest the plan	

Changes in external factors to which X water utility must Respond to		Possible Changes for the Water Utility	Impact	Probability	Overall Importance	Preparedness	Planned Actions	Comments
Economic			1	1	1	1	Set the plan	
			4	4	16	1	Set the plan	
Social			1	3	3	3		
			2	2	4	2	Set the plan	
Technological			3	1	3	1	Set the plan	
			4	2	8	3	Describe the plan already in place	
Environmental								
Legal								

Key to PESTEL analysis table:

What is real effect (impact) if the change occur	Probability/likelihood of the change to occur in three (3) years period	Overall Importance (Highlight scores that are greater than or equal to 6)	Preparedness: (Highlight scores that are less than or equal to 2))
3= High impact	3 = A certainty	Multiply Impact by Probability	3. Completely prepared - Well to developed plan
2 = Medium impact	2 = Very likely to occur		2.Not well prepared - Only general ideas
1 = Low impact	1 = Highly unlikely		1. Not at all prepared - vaguely mentioned and not thought about it
4 = Don't know	4 = Don't know		

6.3 SWOT Analysis

The SWOT analysis is a tool used for getting a quick overview of an organization's strategic position. The analysis consists of an evaluation of relevant factors in the organization environment (internal and external) in order to determine its strengths and weaknesses on the one hand and the availability of external opportunities and threats on the other hand. In doing this, the objective of the organization is to achieve a strategic fit between the organization's internal skills, capabilities and resources with the external opportunities so as to minimize the threats to the organizations. The SWOT Analysis can be carried out under each theme that encompasses the mandate of the utility. Areas of focus can be Institutional Capacity, Technical & Operational Efficiency, Service Delivery and Financial Sustainability.

The key SWOT questions that can guide the development of the overall analysis are shown under each component in the following chart.

SWOT Analysis	
Strengths	**Weaknesses**
- *What does the utility do exceptionally well?* - *What advantages does the utility have?* - *What valuable assets and resources does the utility have?* - *What do utility customers identify its strengths?*	- *What could the utility do better?* - *What is the utility criticized for or receive complaints about?* - *In which area is the utility vulnerable?*
Opportunities	**Threats/Challenges**
- *Which opportunities exist?* - *Are there emerging trends on which the utility can capitalize?*	- *What external roadblocks exists that inhibits utility's progress?* - *Is there significant change coming in the water sector?*

The SWOT Analysis will bring out the major challenges faced by the utility, both internally and externally, the internal strengths and external opportunities. Here a sort of analysis and comparison can be carried out. It can be asked that to what extent are the internal strengths of utility and the available opportunities will greatly enhance the feasibility of overcoming the challenges and ensuring that improves performance and service delivery.

6.4 Marketing Strategy

The focus of any water utility must be its customers and, therefore all efforts must be exerted to meet customer needs. Water utilities need to provide actionable strategic measures on how to meet customer needs which include water demand, increasing service coverage and enhancing customer and community relations. The marketing strategy will include analysis of water demand, service coverage and customer and community relations as described below:

6.4.1 Water Demand Projection

Water utilities should understand and forecast the current and future demand for its services to serve the population adequately. Water demand projection shall be derived from water supply projections

(after projecting the future population to be served). Water utilities will project future water demand by making a thorough study of their service area and referring the guidance from the National Water Master Plan unit at the Ministry of Water and Irrigation. Water utilities shall demonstrate in their BPs how they arrived at the projected demand. Water demand projection will be in the format of Table (3).

Table (3) Water Demand Projects (m^3/year)

Year	Domestic	Institutional	Industrial	Commercial	Others	Total Water Demand	Total Water Production

6.4.2 Service Coverage Projection

Water supply coverage is best expressed in terms of population served with water. Water utilities shall determine the population directly served with water and sewerage services compared to the total population in all its service area. The difference between the total population in the service area and the population directly served is the service gap. Water utilities shall present a strategy to bridge the gap such as extension of service to unserved areas taking into consideration the respective water demand. The strategies should be feasible during the business plan period. The analysis of areas to be served will be presented in the format of Table 4 and Table 5.

Table (4) Water Service Coverage

Governorate	Total population (Nr)	Current			Water Supply coverage projections %									
		Population served (Nr)	Service Gap (Nr)	Population Served %	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Total														

Table (5) Sewage Service Coverage

Governorate	Total population (Nr)	Current			Sewage service coverage projections %									
		Population served (Nr)	Service Gap (Nr)	Population Served %	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10

Total														

6.4.3 Customer Relations

Water utilities need to maintain good customer relations by, among other things, providing a quality service, keeping customers informed of their intentions and responding to customer needs. Water utilities shall review their customer relations; identify areas of improvement and suggest goals for improving and maintaining good customer relations. The means may include:

- Setting and meeting agreed quality of service targets
- Improving performance in dealing with customers such as handling of customer complaints and quick response time
- Meeting demand and extend services to un-served areas

6.4.4 Community Relations

Water utilities need to evaluate their relationships with the wider community in their service areas. This is because the provision of water supply and sanitation services may lead to conflict within the community due to implementation of projects or daily operations which have social and environmental impacts. The conflicts can often be due to lack of understanding, reaction to decisions made or negative publicity of water utilities activities. Water utilities need to review their community consultation processes so as improve and maintain community relations. Community relations can be enhanced by implementing measures to improve awareness of the community through, among other things, public meetings; newsletters; television and radio interviews; presentations to schools, and focus groups such as community representatives and journalists; newspaper advertisements; social media channels, exhibitions and undertaking corporate social responsibility.

7. Asset Management Plan

All water and wastewater systems are made up of assets, some are buried assets and some are visible. These are the physical components of the water supply and sewerage system and can include: pipes, valves, tanks, pumps, wells, hydrants, treatment facilities and any other components that make up the system. The assets that make up a water or wastewater system generally lose value over time as the system ages and deteriorate. Along with this deterioration, it may become more difficult to deliver the type of service that utility customers want.

Therefore, it is important to showcase in the business plan list of assets relative information, conditions of performance, O&M costs. With summarized asset management plan listing all assets types; water supply, wastewater collection and treatment, buildings, vehicles etc.

7.1 Summarized Asset Register

Assets should be grouped consistent the most recent audited financial statements of a utility. All data of assets are compiled best in an Asset Register either as Excel table or Access database. An example

of a summarized asset register is as shown in Table (6) and should be included in the business plan. Each water utilities should state key assumptions and considerations taken in arriving at each register.

Table 6: Summarized Asset Register and Value of Assets

Group of Assets	**Location**	**Quantity**	**Condition/Age**	**Current Book Value (JOD)**	**Expected useful life (year)**	**Replacement Value (JOD)**	**Methods of Estimation of replacement value**
WATER SUPPLY PRODUCTION							
Intake Structures							
Shallow wells / Boreholes							
Water Treatment Plant							
Lab. / Monitoring Equipment's							
Reservoirs / Clear Water Tanks							
Transmission Mains							
Pumps and Other Peripherals							
DISTRIBUTION							
Distribution Mains							
Storage tanks							
Booster Pumps and other peripherals							
Valves							
Meters							
Chambers							
Hydrants							
SEWAGE CONVEYANCE AND TREATMENT							
Pumps and Other Peripherals							
Main sewer							
Lateral sewer							
Manholes							
Wastewater treatment plant							
Sewerage Maintenance Equipment							
MISCELLANEOUS							
Land							
Buildings							
Furniture							
Vehicles and Motorcycles							
Computers and accessories							
Intangible assets							
Electrical/office equipment's							
Workshop equipment's and tools							

7.2 Assessment of Risks and Consequences

Risk assessment includes the systematic application of management policies, procedures and practices to the tasks of identifying, evaluating, managing, mitigating and monitoring those risks that could prevent water utilities from achieving its strategic or operational objectives or plans or from complying with its regulatory and legal obligations including attaining its performance targets and quality of service levels.

As assets wear out or fail due to passage of time and usage, managing the consequences of failure is vital for the water utility. Not every asset presents the same failure risk, or is equally critical to water utility system and operations. Therefore, it is important to know which asset is required to sustain a given water system performance.

Critical assets are those that have a high risk of failing (old, poor condition, obsolete technologically etc.) and/or major consequences occur if they do fail (major expense, system failure, safety concerns, security failure etc.).

As a first step in determining the risk of failure, a utility needs to look at what it knows about the likelihood that a given asset is going to fail. The data available to assist in this determination is: asset age, condition assessment, obsolete technology and failure history. An asset may be highly likely to fail if it is old, has a long history of failure, has a known failure record in other locations, and has a poor condition rating. An asset may be much less likely to fail if it is newer, is highly reliable, has little to no history of failure and has a good to excellent condition rating. For ease of handling, risk of failure may be summarized as low, medium or high based on age, condition, technology, and failure history.

In terms of the consequence of failure, it is important to consider all the possible costs of failure. The costs include: cost of repair, cost associated with the loss of the asset, repair/replacement costs related to collateral damage caused by the failure, legal costs related to additional damage caused by the failure, environmental costs created by the failure, and any other associated costs or asset losses. The consequence of failure can be high if any of these costs are significant or if there are several of these costs that will occur with a failure.

A classification of risk of failure and related consequences as either medium/high or high/high may then oblige the management to look further into a possible need for rehabilitation or even replacement of the respective asset even if other criteria as age, Remaining Useful Life or condition may not yet require doing so.

In the analysis of risks and consequences, each water utility shall:

- identify and highlight those assets that could cause a major system breakdown;
- list major technical data such as age and condition of the assets;
- list the history of failure of these assets;
- evaluate their risk of failure either as high, medium or low;
- evaluate the consequences of failure as either high, medium or low;
- determine for which assets risk of failure and consequences require action;
- outline strategies and measures to prevent failure and/or to minimize consequences if the asset fails (including insurance).

Each water utility shall assess risks for its assets using the guidance in Table (7)

Table 7: Assessment of Risks and Consequences

Asset Description	Risk Assessment							Maintenance & Repair Strategy (to prevent failure)	Rehabilitation/Replacement Strategy (Mitigate Failure)
	Condition	Asset Age	Obsolescence	Failure History	Risk of Failure	Consequence	Risk Management Strategy		
	A	B	C	D	E	F	G		
	1-5	1-3	1-3	1-3	1-3	1-3			
Pump (x)	2	2	1	1	**1**	3	Rehabilitate		
Pump (y)	3	3	1	1	**2**	1	Repair		
Pump (z)	4	2	2	3	**11**	1	Replace		

Key to Risk Assessment Table

Condition	1= very good; 2=good; 3=fair; 4=poor; and 5=very poor
Asset Age	1=less than 1/3 of useful life; 2 = Between 1/3 and 2/3 of useful life; and 3 = Greater than 2/3 of useful life
Obsolescence	1=No; 2 =uncertain; and 3=Yes
Failure History	1=No; 2 =uncertain; and 3=Yes
Risk of Failure	If (A+B+C+D) is >1 but < 6 then E=1; If (A+B+C+D) is >7 but < 9 then E=2; else E=3
Consequence	Low=1; Medium= 2; and High = 3
Risk Management Strategy	If (E+F) < 4 then G= maintain/repair; If (E+F) = 4 then G= rehabilitate; else G=replace

7.3 Lifecycle Management

Life Cycle Management (LCM) is the management of assets through the cycle from planning and acquisition through O&M and repair to replacement and disposal which may take between 5 and 50 years of the useful life of an asset. During this process assets pass through phases which are best described by their condition and related costs which are necessary to make them continue to deliver the expected service level. The Key stages in the asset life cycle are:

- **Asset Planning**: This is when the new asset is conceived. Decisions made at this time influence the sustainability of the asset, the cost of operating the asset and the lifespan of the asset. Alternative, non-asset solutions must also be considered;
- **Asset creation or acquisition**: This is when the asset is purchased and constructed. Sustainability, capital cost, designs and construction standards, commissioning the asset, and guarantees by suppliers influence the cost of operating the asset and the lifespan of the asset;
- **Asset operations and maintenance**: This is when the asset is operated and maintained. Operation relates to sustainability, efficiency, power costs, output etc., and is usually more applicable to mechanical plant rather than static assets such as pipes. Maintenance relates to preventative maintenance where minor work is carried out to prevent more expensive work in the future and reactive maintenance where a break is fixed;

- **Asset condition and performance monitoring**: This is when the asset is examined and checked to ascertain when and how an asset will fail, what corrective action is required and when (i.e., maintenance, rehabilitation or renewal);
- **Asset rehabilitation and renewal**: This is when the asset is restored to ensure that the required level of service including sustainability can be delivered; and
- **Asset disposal and rationalization**: This is when a failed or redundant asset is sold off, put to another use, or abandoned.

Each water utility should estimate the life cycle costs and summarize them as shown in Table (8) and present it in the BP. The water utility shall discuss the key assumptions and consideration in estimating maintenance, repair, rehabilitation and replacement costs of its assets.

Table 8: Life Cycle Costs in the Asset Management Plan

Asset Group	Detail Description of Maintenance and Repair activities	O&M Costs (Maintenance and Repairs)										Detail Description of Maintenance and Repair activities	Investment Costs (Rehabilitation and/or replacement)									
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 10	Year 15	Year 20	Year 25	Year 30		Year 1	Year 2	Year 3	Year 4	Year 5	Year 10	Year 15	Year 20	Year 25	Year 30

8. Capacity Development Analysis

Each water utility shall analyze capacity development requirements by undertaking a review of its organizational structure, staffing levels and skills as well as training needs as described below.

8.1 Organization Structure

An organization structure gives a description of functions, tasks and authorities of the departments, sections and individual employees. It defines:

- how decisions are made;
- flow of information in the entire organization;
- the roles and responsibilities of each position in the organization.

The organization structure is usually summarized in an organizational chart. Moreover, the organization structure of the water utility will impact the way it executes its mission and progress towards attaining its vision. Hence, it is vital for each water utility to review its current organization structure in line with the review of its BP. The review will assist the utility to identify whether the current organization structure responds well to current needs and challenges faced by the utility which include responding to the needs of the customers and effective and efficient performance of the utility. Organization structures of water utilities may vary based on, among other things, size of the utility (customer base), technical complexity of the systems and size and nature of its operational area.

8.2 Staff Numbers and Skills

Water utilities need to ensure that they have **appropriate staff numbers** with the **necessary skills** to meet current and future requirements in order that the projected levels of service and performance targets can be met. Appropriate staff numbers and skills are also required for efficient operation and maintenance of water utility assets. In this regard, each water utility will therefore undertake the following: -

- Position Analysis: Identifying the staff positions required to meet the projected levels of service and performance targets as well as efficiently managing the assets;
- Work Force Auditing: Evaluating the numbers, skills, qualifications, experience and performance of the available work force to identify the necessary actions for ensuring availability of adequate staff. The audit will give an indication of the necessary variations in the available work force.

A summary of staff numbers shall be presented as shown in Table (9).

Table 9: Summary of Staff Requirements and Efficiency

Target level in X utility	**Current staffing level (No)**	**Required total staffing levels (No)**			**Clarification on Changes in staffing levels**
		Year 1	**Year 2**	**Year 3**	
Management					
Supervisors					
Support Staff					
Other levels					
Total number of staff					
Total number of water and sewage connections					
Staff per 1000 water and sewage connections					

8.3 Training Needs

Each water utility shall identify the training needs for their staff and design a training programme which will enable the water utility to implement its BP. Generally, each water utility is expected to conduct training needs by conducting:

- Organizational Analysis: Examining the entire water utility as an organization and identify areas where training is needed. This includes identification of future knowledge, skills and abilities that the water utility requires.
- Task Analysis: Examining job requirements and compare employee knowledge and skills. The difference between the actual performance of the staff and job requirements gives an indication of the need for task training.

The training needs will enable water utility to prepare a training programme which includes indication of their timing and costs. While deciding on the timing and costs, consideration should be given on prioritizing the training requirements based on:

- How urgent are the training needs;
- The benefit of the identified training; and
- How important are the skills for the success of the utility

The training programme can be summarized as shown in Table 10:

Table 10: Training Need Assessment:

Target Level in the utility	**Training Content Description**	**Project Costs (JOD)**		
		Year 1	**Year 2**	**Year 3**
Board				
Management				
Supervisors				
Support Staff				
Other levels				
Total Costs				

9. Key Strategic Issues & Objectives

The Key Strategic Issues (KSI) form an inventory of the major areas of intervention for which water utilities need to focus on in order to realize the set targets as agreed with UPMU. It must be noted that the Key Strategic Issues mentioned here should be derived from the analysis done from previous sections mentioned earlier.

As a general guidance, strategic issues that may be addressed by water utilities in Jordan may include:

- High Non-Revenue Water
- High Energy costs
- Insufficient water production/sources

- Inefficient operations (such as treatment, transmission, storage, distribution, billing, community relationships and customer service and relations);
- Low water supply coverage;
- Low sewerage coverage;
- Unavailability of sewerage services (disposal and treatment);
- Non-compliance to water quality standards
- Non-compliance to wastewater quality standards;
- Inadequate institutional capacity (such as board, staff, working tools and equipment, offices, transport, computers and software)
- Unsatisfactory billing collection ratio

Water utilities should ensure that the identified KSIs can be realistically addressed during the three years period of the BP. It is suggested that within the period of the BP, at most five to eight KSIs could be practically addressed.

The KSIs presented in Table 11, set the basis for the objectives, major next steps and the actions to be taken by the water utility. For each KSI, each water utility shall derive SMART (Specific, Measurable, Attainable, Realistic and Time bound) objectives and the major next steps and the corresponding actions to be taken towards attaining projected performance targets.

The next steps are the milestones that water utility sets in addressing the key strategic issues while the actions to be taken are the key activities that the water utility will implement in order to achieve the next steps/milestones. In other words, actions to be taken are detailed activities which can be costed and be assigned responsible persons. Take note that objectives and targets should not contradict projected performance targets set before in consultation with UPMU. Presentation of Objectives, Next Steps and Actions for Addressing Key Strategic Issues is shown in Table 11 as an example.

Table 11: Objectives, Next Steps and Actions for Addressing Key Strategic Issues

Key Strategic Issue	Objectives	Next Steps (Milestones/Targets)	Actions to be taken
Example: High Non-Revenue Water	Reduce NRW from 45% to 40% by December 2024	Establish 5 District Metering Areas (DMAs) by June 2023	• Procure 100, 200mm valves and 30, 200mm Bulk Water Meters • Install valves to create 5 zones • Install 30 bulk water meters
Energy reduction	Reduce the cost of energy		

10. Action Plan

The action plan sets out the water utility actions to address each of the identified objectives (section 9). For each objective, the plan should describe:

1. The activities to be undertaken which are the same as actions to be taken indicated in Table 11
2. Who is responsible for ensuring that the activity is carried out?
3. Starting and completion dates
4. The costs involved and whether this will be covered by capital or operational expenditure funds
5. Source of funding
6. Any additional relevant information.

The action plan shall be presented as shown in Table 12 and will be in the main document of the BP.

Table 12: Action Plan

Objectives	Milestones	Activities/Actions to be taken	By whom	Start Date (month/year)	Completion Date (month/year)	Costs (JOD)			Nature of Expenditure) O&M or Investment	Source of funding	Comments
						Year 1	Year 2	Year 3			
Total Cost											

11. Investment Plan

The Investment Plan should be derived and be consistent with the Action Plan and include additional details from the Asset Management Plan. The Investment Plan will be in the format as detailed in Table 13 and will be presented in the main document of the BP, while it demonstrates the following information:

- purpose or target to be achieved by investment
- summary of physical works to be carried out
- design and construction period
- capital expenditure year by year
- potential or agreed sources of funding

Purpose of Target to be achieved by the investment	Asset	Asset Group	Summary of works to be carried out	Design period	Implementation period (months)	Capex in year 1 (JOD)		Capex in year 2 (JOD)		Capex in year 3 (JOD)		Source of funding
						New investment	Rehabilitation & Replacement	New investment	Rehabilitation & Replacement	New investment	Rehabilitation & Replacement	
Example: Increase water production from 2,000m^3/day to 3,000m^3/day	Borehole B2	Bore holes	Rehabilitation of BH2	2	2		1000					Donor X
	Submersible Pump at borehole B2	Pumps	Replacement of pump at BH2	2	3				1500			Own
	Borehole B3	Bore holes	Drill new BH3	3	4	2000						Own
	Submersible Pump at borehole B3	Pumps	Installation of pump at BH3	2	3			1000				Donor Y
Subtotal						2000	1000	1000	1500			
Grand Total						3000		2500				

12. Financial Projections

A business plan needs to include information about the future financial performance of the water utility. Financial projections translate long-term strategies and plans into detailed estimates of operating revenues and costs, asset investment and cash requirements.

The financial projections during the business planning process helps in many aspects mentioned below:

- Allows the utility manager to review priorities for investment and expenditure in an iterative and consultative way. (can work to achieve an agreed balance between the costs for the plan and the financing available)
- Defines the utility's future financial position and sustainability
- Can help as a source of information for potential investors and lenders

The financial information for a business plan can comprise the following interlinked statements:

- Balance Sheet (provide financial position at the end of the reporting period)
- Income Statement (provide financial performance during the reporting period)
- Cashflow Statement (provide Cash receipts and payments during the reporting period)

The following basics needs to be included in the balance sheet for water utilities within BP document:

- Current Assets: Generally, resources available to pay obligations coming due in the next year
- Current Liabilities: Generally, obligations due within the next year
- Long-term Assets and Liabilities: Resources available to be utilized or obligations due, beyond one year
- Net Assets/ Equity: Owner contributions, retained earnings/(losses), valuation adjustments

The following basics needs to be included in the income statement for water utilities with BP document:

- Should separate operating activities from others – Matching operating revenues with operating expenses
- Key operating expenses usually include:
    - Costs of water supplied to the system (e.g., purchased water, energy, chemicals)
    - Labor
    - Repairs and maintenance
- Depreciation is an allocation of Property, Plant & Equipment cost: Usually using a straight-line depreciation method over the asset's useful life

Nonetheless, there are Two Cash Flow Statement methods used which can be included in the BP document for water utilities:

- Indirect method: cash flow is determined partly by the change in current non-cash assets and liabilities - used because it is easier to prepare
- Direct method: cash flow is shown for specific activities generating or using cash (e.g. cash received customers, cash paid to suppliers - much more useful

It worth mentioning that indirect method operating cash flow starts from net income, which lumps everything on the income statement together. Including government subsidies and grant revenues

The following are key areas for which sound assumptions are needed to do financial projection:

- Period: the plan period for which projections should be made should be specified. Three years period looks a reasonable span of life for projection. This period should also coincide with the financial year of the utility.
- Population: A base year population figure is needed. This should be an official figure derived from the population census. If possible disaggregated population data by type of population served through different types services is important. An official population growth rate should be applied to project the population throughout the planning period.
- Population served: take the ratio of population served to that of the total population and establish the rate of coverage throughout the planning period.
- Water Consumption: estimate the current per capita consumption rate by type of population served. Assume the change in the consumption rates during the planning period due to change in the living standard of the population
- Water Supply Coverage: assume the expansion of private connection and public water points to reach the un-served portion of the population.
- Non-revenue water: establish the base data and develop on improvement of NRW during the plan period depending of the NRW management strategy of the utility

- Development of Scenarios: carry out the projection under different (high, medium and low) scenarios depending on some of critical parameters like population growth.
- Tariff: establish assumptions on the tariff adjustment periods during the planning period
- Investment fund: establish assumptions on the possible sources of fund (loan, grant etc...) to meet the investment requirements of the utility.
- Repair & Maintenance: develop assumptions on the increase of repair & maintenance costs in relation to the plants age and size.
- Inflation: Apply an annual inflation rate on the cost projection but not revenue projection
- Uncollectible fees & Write-offs: assume a certain percentage per annum
- Consider Employee related assumptions such as:
    - The cost of training and capacity building program
    - The availability of training
    - The stability and staff turnover
    - Availability of key personnel on the market to hire

13. Monitoring and Reporting

Each water utility shall indicate the process of implementation of their business plan by having in place internal control mechanisms of monitoring, evaluation and reporting its performance over a period. Each water utility shall commit itself to undertake an annual review and assessment of implementation of their business plan in line with preparation of their annual budget and update.

14. References

- Guidelines for preparing a business plan for urban water utility, UN-Habitat, Nairobi, Kenya
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- WRc: Business Planning for Water Utilities Worldwide