

Palestinian Water Sector Capacity Building

By

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1. Introduction

- Capacity Building can be defined as a process of increasing the organization capability to perform adequately. This includes:
 1. **Human resources development**
 2. **Acquiring the necessary Tools and facilities to operate and maintain the systems.**

1. Introduction- Continue

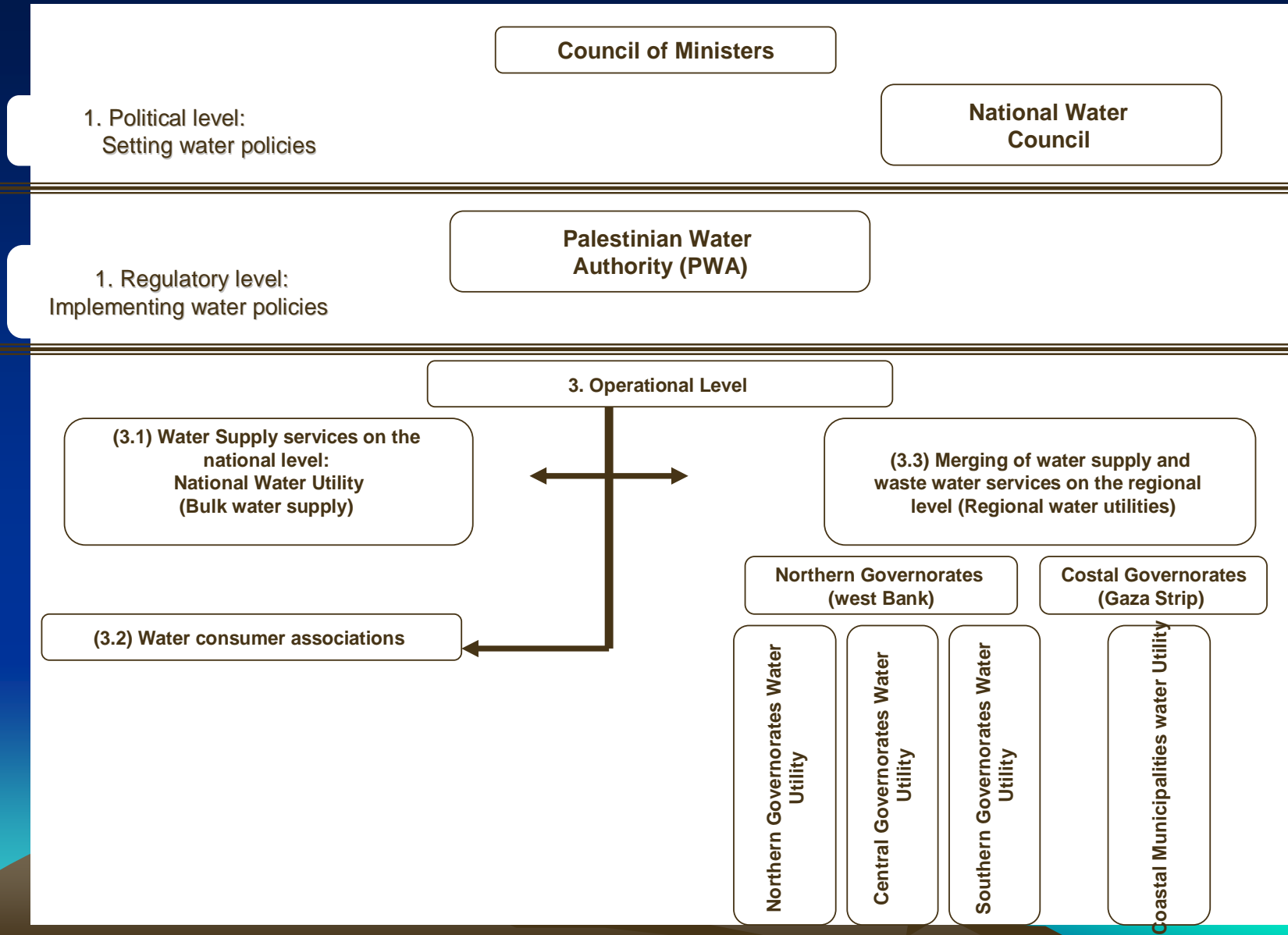
- Capacity Building programs will be influenced by:
 1. **The nature of the industry (Water, Energy, Transportation, ... etc.)**
 2. **Current status of the sector organizations (staffing adequacy, available tools and equipments and level of performance)**
 3. **The industry objectives and targets**
 4. **The dynamics of the industry in terms of resources availability and changes**
 5. **Evolution of new processes and technological advancements.**
 6. **Institutional evolutions and restructuring**
 7. **Policy formulation and regulatory arrangements.**
 8. **Supply and Demand sectors.**
 9. **Financial Resources**
 10. **10. Feasibility of the industry.**

2. Merits of the Palestinian Water Sector

2.1 Institutional Setup

- The Palestinian water sector is managed by:
 1. **The National Water Council: recognized as the policy making body and comprises of number of concerned Ministers and representatives from the civil society and the academia and is chaired by the Prime Minister.**
 2. **The Palestinian Water Authority (PWA): The Regulator of the Water Industry.**
 3. **Other Monitoring Agencies: Ministry of Health (MoH), Environment Quality Authority (EQA)**
 4. **Service Providers: Utilities, Municipalities, Joint Service Councils, Village Councils, Users' Associations and Private Sector (Vendors, operators, private wells).**

Water Sector Institutional Framework



2. Merits of the Palestinian Water Sector

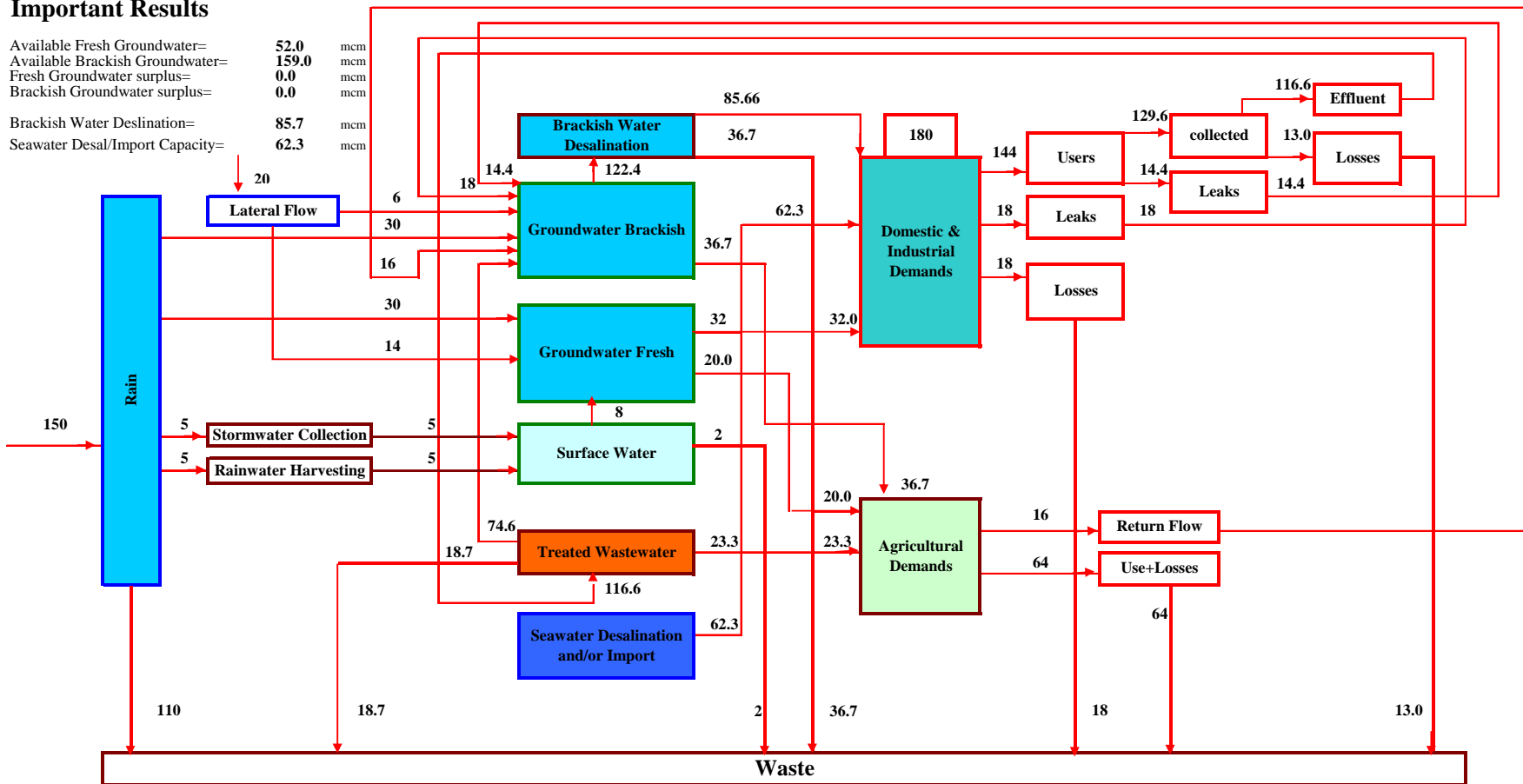
2.2 Water Resources

- **The Palestinian water resources are scarce and includes:**
 - 1. Groundwater: This is the dominant water resource and includes all four aquifers;**
 - 2. Storm water and Rainwater;**
 - 3. Desalinated Seawater;**
 - 4. Treated wastewater effluent; and**
 - 5. Imported water from Israel (surface, groundwater, desalinated seawater).**

Water supply and demand, Gaza Case 2020.

Important Results

Available Fresh Groundwater=	52.0	mcm
Available Brackish Groundwater=	159.0	mcm
Fresh Groundwater surplus=	0.0	mcm
Brackish Groundwater surplus=	0.0	mcm
Brackish Water Desalination=	85.7	mcm
Seawater Desal/Import Capacity=	62.3	mcm



Resource Data

1 Rain Fall =	150	mcm
2 Rain Infiltration efficiency =	40%	
3 Stormwater =	5	mcm
4 Rainwater Harvesting =	5	mcm
5 Surface Infiltration Efficiency =	80%	
6 Lateral Inflow Balance =	20	mcm
7 Brackish as Groundwater from Rain =	50%	
8 Brackish Water Recovery =	70%	
9 Lateral Inflow Fresh =	70%	

Wastewater Data

Collection Efficiency =	90%
Treatment Efficiency =	90%
Infiltration Efficiency =	80%
Surface Treated Effluent Losses =	20%
Surface Treated Effluent Use =	20%

Demand Data

Domestic & Industrial Demand =	180	mcm
Return Flows from leak =	10%	
Losses outside the Water Balance =	10%	
Agricultural Demand Fresh =	20	mcm
Agricultural Demand Brackish =	60	mcm
Agricultural return Flow % =	20%	

2. Merits of the Palestinian Water Sector

2.3 Water Services

- **The water services are still inadequate in terms of quantity, quality and management:**
 - 1. Most of the Palestinian are served through the existing distribution system which includes water wells, pumps, network, storage tanks;**
 - 2. Agriculture demand is satisfied through private wells and bulk supplies;**
 - 3. Customers are billed following block tariffs in most cases;**
 - 4. The service is intermittent;**
 - 5. Revenue collection is very low (below 30%);**

2. Merits of the Palestinian Water Sector

2.3 Water Services- Continue

- **The water services are still inadequate in terms of quantity, quality and management:**
 - 6. The system efficiency is less than 65%;**
 - 7. Commercial losses are still significant due to illegal connection and damaged water meters;**
 - 8. The Salinity and/or nitrates level of the drinking water in Gaza are generally way above the WHO guidelines;**
 - 9. Sewage collection coverage is still poor (< 50%); and**
 - 10. There is hardly any proper treatment and disposal or reuse.**

2. Merits of the Palestinian Water Sector

2.3 Water Services- Continue

- **The water services are still inadequate in terms of quantity, quality and management:**
 - 11. Partially treated sewage is disposed to the sea or nearby wadis;**
 - 12. Effluent reuse has been conducted at a very low profile but with a high degree of acceptability;**
 - 13. The reuse infrastructure need to be developed;**
 - 14. Public participation is marginal if exists.**

2. Merits of the Palestinian Water Sector

2.4 Planning

- **The PWA has developed its national strategic plan for the water sector:**
 - 1. The plans covers both water resources and water services;**
 - 2. The plans also proposed a timely investment plan; however**
 - 3. The plans are not updated;**
 - 4. Investment plan is behind schedule due to instability and lack of finance; and**
 - 5. Palestinian organizations capacity need to be strengthened to be able to develop and update their investment plan.**

3. Capacity Building Needs

- Aiming at the improvement of the level of services and the optimization of the water resources utilization capacity building should be addresses at the following tracks:
 - 1. Institutional reform and strengthening.**
 - 2. Planning**
 - 3. Management**
 - 4. Operation and Maintenance**
 - 5. Administration**

3. Capacity Building Needs

3.1 Institutional Reform and strengthening

- **Aiming at the improvement of the level of services, the empowerment of good governance, community participation and the optimization of the water resources utilization capacity building should be addressed at the following tracks:**
 - 1. Empowering the National Water Council which is still inactive;**
 - 2. The Water Law need to be completed and clearly identify the role of PWA as the water sector regulator without mixing the implementation functions. Moreover there is a need to explicitly define the role of other stakeholders like EQA and Ministry of Health;**
 - 3. The mechanics and procedure to enable the economic and quality regulations between PWA and the service providers need to be enabled;**
 - 4. Advocacy to eliminate the role of the Ministry of Agriculture which is currently partner to PWA in the issuance of water well license; and**
 - 5. Enabling the environment to achieve better representation of the Water Sector priorities at the higher political level.**

3. Capacity Building Needs

3.2 Planning

- **Despite the early attempts and studies in developing the proper plans in the water sector there is still great demand to develop the capacity in the three levels of planning:**
 1. **Organizational planning: This is very weak. This is needed at the regulatory level as well as the service providers level. Organizations are dynamic and need to be restructured in accordance with the needs;**
 2. **Physical Planning: This should cover infrastructure planning for water resources protection, development and enhancement as well as the infrastructure needed to provide the water services to satisfy all demand needs; and**
 3. **Financial Planning: There is a need to commercialize the water industry and increase its feasibility so that it appears attractive to the private sector. Capacity building in fund raising and PPP is needed. The training should include the introduction of modes of PPP and the ability to embed incentives through proper regulation of the water industry**

3. Capacity Building Needs

3.3 Management

1. Water Resources Management:

- i. Integrated Water Resources Management (Assessment, Monitoring and archiving, Protection, Modeling, recovery, recharge, optimal resource allocation, shared management); and**
- ii. Negotiation and water rights determination;**
- iii. Seawater desalination (Design, operation and management)**
- iv. Treated effluent reuse (pros, cons and concerns)**

3. Capacity Building Needs

3.3 Management

2. Supply Management:

- 1. Proper spatial distribution of the production water wells and storage reservoirs;**
- 2. Drinking water treatment (disinfection, brackish water desalination, Nitrates removal,**
- 3. Optimal determination of supply sources combination**
- 4. Distribution and collection systems design, mapping and modeling in conjunction with operation, efficiency and feasibility.**
- 5. Distribution system monitoring (leak control, pressure monitoring, network swabbing, District metering)**

3. Capacity Building Needs

3.3 Management

3. Demand Management:

- 1. Development of utility Comprehensive Management Information Systems including GIS, customer service, billing, ...etc;**
- 2. Customer services and customer participation;**
- 3. Billing and collection;**
- 4. Tariff and price review;**
- 5. Costing of the water services; and**
- 6. Development of proper accounting and financial systems.**

3. Capacity Building Needs

3.3 Management

4. Project Management:

- 1. Project cycle**
- 2. Procurement**
- 3. Legal covenants**
- 4. Environmental Impact Assessment and Management plans**
- 5. Contract management and disputes resolution**
- 6. Project budgeting, accounting and financial management.**

3. Capacity Building Needs

3.4 Operation and Maintenance

- 1. Water Wells (design, drilling, protection, maintenance, repair, rehabilitation);**
- 2. Desalination plants (process, operation, maintenance and repair);**
- 3. Pumps stations (design and construction management; repair, replacement and rehabilitation; and electric boards and control);**
- 4. Distribution system monitoring and control (telemetry and district metering operation; control valves operation);**
- 5. Pipes operations (design, construction, protection, Leak detection, repair, replacement and rehabilitation);**
- 6. Sampling and testing (water and wastewater);**
- 7. Laboratory management;**

3. Capacity Building Needs

3.4 Operation and Maintenance

- 8. Chlorine handling, storage, and dosing;**
- 9. Wastewater treatments plants (processes, operations, maintenance, safety);**
- 10. Sewage collection system (design, construction, operation, cleaning, maintenance);**
- 11. Sludge management (processing, reuse, disposal, marketing);**
- 12. Infiltration basins design, construction and operation;**
- 13. Metering (selection, installation, repair and calibration);**
- 14. Standby generators (selection, installation, maintenance and repair);**
- 15. Tools and equipment; and**
- 16. Stores Management.**

3. Capacity Building Needs

3.5 Administration

- 1. Personnel management (systems, bylaws, entitlements, benefits);**
- 2. Development of incentive based payroll schemes;**
- 3. Information dissemination, publications, Outreach**
- 4. Archiving**

4. World Bank Involvement in Capacity Building

- **The World Bank is a main actor in the field of capacity building in WB&G**
 - 1. Development of the Water Sector Strategic Planning Study, 1999.**
 - 2. Training programs in water and wastewater management and operations under the Gaza Water and Sanitation Services Improvement Project (1996-2001)**
 - 3. Training programs in water and wastewater management and operations under the Gaza Emergency Water II Project (since 2005)**
 - 4. Training programs in water and wastewater management and operations under the Southern Area Water and Sanitation Improvement Project (1998-2005).**
 - 5. North Gaza Emergency Sewage Treatment project. (since 2004)**
 - 6. Water Resource Management Capacity Building (ongoing TA)**
 - 7. Water Sector Review Study (ongoing TA)**

5. Main Donors Involvement in Capacity Building

- **Many Donors contributed to the capacity building programs in the water sector in WB&G**
 - 1. Norway: Initiated the institutional development of the water sector and the structure of the PWA.**
 - 2. Germany: Training programs, Management, design and operations and water works**
 - 3. USA: Heavily involved in the development of the master-plans and the investment program in addition to financing water works.**
 - 4. Finland, Netherlands and Austria: Master-planning, institutional support and project management.**
 - 5. France: Creation of the Bulk Utility and funding of water works.**
 - 6. Japan: Training programs at the operation level, tools, equipment and water works**
 - 7. Sweden: water works and training programs.**
 - 8. UK: Water resources management, support to the negotiation team.**

6. Web Page for World Bank Learning Programs

The screenshot shows a Microsoft Internet Explorer browser window displaying the World Bank Learning Programs website. The browser's address bar shows the URL: <http://web.worldbank.org/WBSITE/EXTERNAL/WBI/WBIPROGRAMS/0,,contentMDK:20223717~menuPK:461836~pagePK:64156158~piPK:64152884~theSitePK:443977,00.html>. The website header includes the World Bank logo and navigation links: Home, Site Map, Index, FAQs, and Contact Us. Below the header is a search bar with a dropdown menu set to "All Programs" and a "GO" button. The main content area is titled "WBI Learning Programs" and features a breadcrumb trail: Home > Learning > WBI Learning Programs > All Learning Programs. A left sidebar contains a menu with options: About, Learning Events, Learning Materials, E-Learning, More Resources, All Learning Programs (selected), and Site Tools (Home, Contact Us). The main content area displays the heading "All Learning Programs" followed by the text "Below is a list of all WBI learning programs:" and a bulleted list of program categories: Business, Competitiveness and Development; Community Empowerment and Social Inclusion; Education; Environment and Natural Resources Management; Financial Sector; Governance and Anti-Corruption; Health and AIDS; Investment Climate; Knowledge for Development; Poverty and Growth; Public-Private Partnership in Infrastructure; Rural Poverty and Development; Social Protection and Risk Management; Trade; Urban and Local Government; and Water. At the bottom of the page, a permanent URL is provided: <http://go.worldbank.org/4UI66Q7710>. The browser's taskbar at the bottom shows the Start button, several open applications, and the system tray with the date and time: 4:20 AM Monday 07/30/2007.

WBI Learning Programs - All Learning Programs - Microsoft Internet Explorer

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Address <http://web.worldbank.org/WBSITE/EXTERNAL/WBI/WBIPROGRAMS/0,,contentMDK:20223717~menuPK:461836~pagePK:64156158~piPK:64152884~theSitePK:443977,00.html> Go

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All Learning Programs

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- [Education](#)
- [Environment and Natural Resources Management](#)
- [Financial Sector](#)
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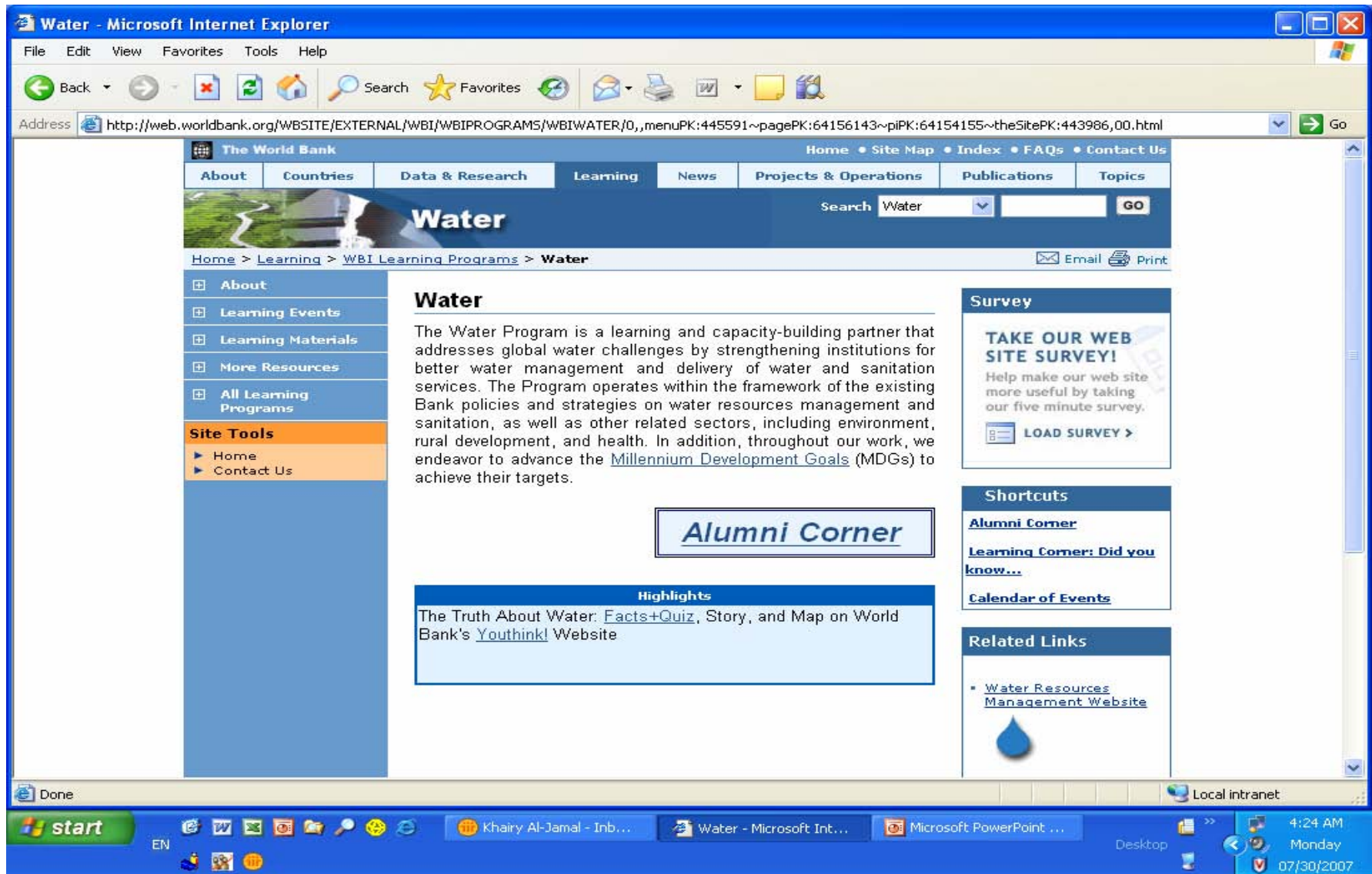
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Local intranet

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6. Web Page for World Bank Learning Programs- Cont.



6. Web Page for World Bank Learning Programs- Cont.

The screenshot shows a Microsoft Internet Explorer browser window titled "Water - Learning Materials - Microsoft Internet Explorer". The address bar shows the URL: <http://web.worldbank.org/WBSITE/EXTERNAL/WBI/WBIPROGRAMS/WBIWATER/0,,menuPK:445574~pagePK:64157846~piPK:64156226~theSitePK:443986,00.html>. The page content includes a navigation menu with options like "About", "Countries", "Data & Research", "Learning", "News", "Projects & Operations", "Publications", and "Topics". A search bar contains the word "Water". The main heading is "Learning Materials", followed by a paragraph: "Our program's learning materials can be found below. You can also search these materials by [Topic](#), [Target Region & Country](#) and/or [Keyword](#). [Click here for Advanced Search](#)." Below this is a table of learning materials with checkboxes and descriptions.

Items	Description
<input type="checkbox"/>	Central America Regional Workshop: Strengthening Capacity Building Institutions in Integrated Water Resources Management PDF File: 734 K Final Report on Training of Trainers in IWRM - Toluca, Mexico March 1-5, 2004 Within the regional framework of LA-WETnet - Latin ... more
<input type="checkbox"/>	China Rural Water Supply & Sanitation: Scaling Up Service for the Poor PDF File: Presentation for China Case Study on Rural Water Supply & Sanitation: Scaling Up Service for the Poor more
<input type="checkbox"/>	Designing Policies and Institutions PDF File: 6 K

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Listening**