# Water Wise Women Initiative

## Our Water - Our Future

## Training of Trainers Manual
## Highlights

giz
Development Cooperation
Hashemite Kingdom of Jordan
Federal Republic of Germany
BMZ
Federal Ministry for Economic Cooperation and Development
BGR
الإنسان أغلى ما نملك
الصندوق الأردني الهاشمي للتنمية البشرية
The Jordanian Hashemite Fund for Human Development
Hanns Seidel Stiftung
Ministry of Water & Irrigation
سلطة وادي الأردن
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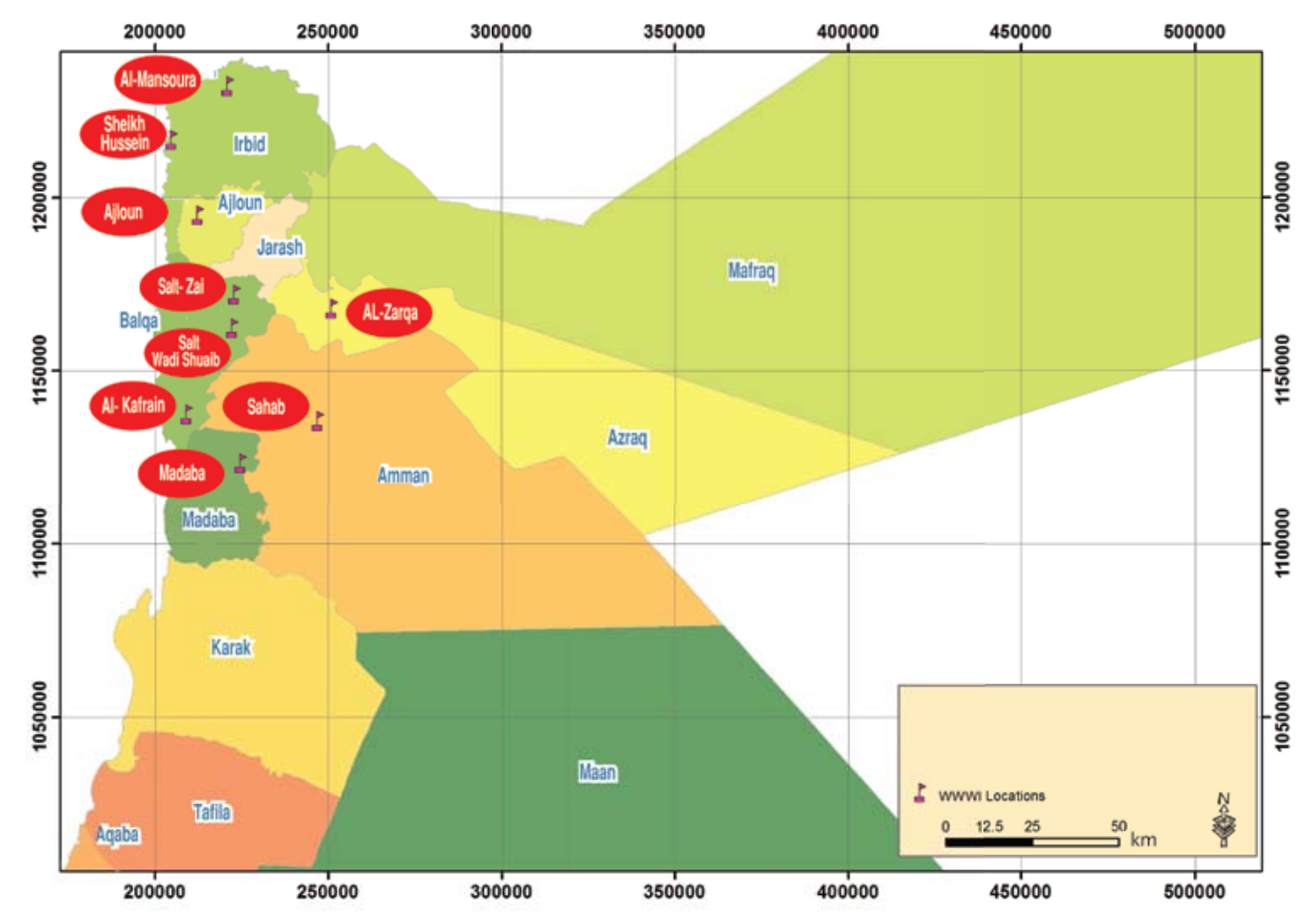
# Locations of Water Wise Women Initiative




# Introduction

Practically, the teaching methodology in this manual is unified and steady, where the trainer plays the role of facilitator of information and skills rather than a lecturer or a resident. Primarily, it focuses on the process itself rather than on scientific content. It uses tools and different means of training such as, case studies and role-playing, simulations and models of work, as well as self-analysis and hands on exercises. A monitoring and evaluation system is an integral part of the methodology and ensures that all needs are met and that gaps are filled.



## Training Manual Structure:

The manual consists of eight modules, each module is divided into sessions and each session takes place within a maximum 90 minute time frame. The modules handle technical, introductory, communicational and awareness raising issues that are organized and planned in a very practical target group oriented manner.

## Training Modules:

1. Household Hygiene and Health (prepared by GIZ)
2. Water Saving and Efficient Use at Household Level (prepared by GIZ)
3. Relations of Water Users with Governmental, Non - Governemntal, and Private Sector Providers (prepared by GIZ)
4. Grey-water Re-use and Rain Water Harvesting (prepared by GIZ)
5. Water for House-gardening and Agriculture (prepared by JOHUD)
6. Water Protection (prepared by BGR)
7. Plumbing and Water Storage (prepared by HSSt)
8. Marketing and Communication (prepared by JOHUD)

The following pages will provide a brief summary of the contents and the modules of the TOT manual. The complete manual is available in Arabic. If you are interested, please contact

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# Introduction

We are proud to offer you this summary of the training of trainers (TOT) manual of the Water Wise Women Initiative which aims at improving awareness raising mechanisms toward more efficient water use at the households level by women groups and local communities. This summary is the result of a joint effort and contributions of the following parties:

- Jordanian Hashemite Fund for Human Resources Development (JOHUD)
- Ministry of Water and Irrigation (MWI)
- Water Authority of Jordan (WAJ)
- Hanns Seidel Stiftung (HSSt)

and on behalf of German Federal Ministry for Economic Cooperation and Develpment (BMZ):

- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
- Federal Institute for Geosciences and Natural Resources (BGR)


## Water Wise Women Initiative "WWWI":

The initiative seeks to build a sustainable methodology to boost awareness on efficient water use among targeted women groups/networks within local communities, which in turn should lead to significant change in behavior and daily practices regarding the use of water. The initiative concentrates on women, especially housewives, due to the fact that they are the main water-dealers and the most influential persons in the households. The initiative also intends to build and strengthen the knowledge of local woman appropriate water management measures and water saving techniques. Therefore, WWWI considers training and building capacity issues a very important component that deserves special attention and the dedication of all parties. The JOHUD core-team has been qualified through TOT courses and intensive on-job field training that communicate and work with local women to lead to behavioral changes with regard to efficient water saving measurements.


## Water Wise Women Groups:

Are groups of culturally educated women that have been selected and qualified (65 WWW were trained in the first phase, 25 in the second phase) to be able to communicate and convey messages to other women (neighbors, relatives, friends, etc.) in their communities. They also build active networking mechanisms and are guided to formulate active connections between local women and water providers form private and public sectors.

## Training Methodology:

The training manual for TOT has been designed based on the theory of adult education "Andragogy" that invest in adults' self-directed capacity and their ability to make decisions based on the following assumptions:

- Adults learners need to know why they have to learn.
- Adults learners need to learn through experience.
- Adults view education as a means of problem solving.
- Adults acquire knowledge best when topics are of direct importance to them, their families and their peers.
- Adults learn better when applying skills they have acquired immediately at work or during their daily lives.

**2. Reasons for the importance of washing hands and ways to maintain hygiene before, during and after preparing food.**

### Washing hands:

| Step | Purpose |
|---|---|
| Wetting hands with water | Essential before using soap |
| Using the soap | Removing the bacteria and germs, those that are hard to be removed with water only |
| Rubbing hands, fingers and between fingers | Reaching hidden spots where the bacteria accumulates |
| Rinse the hands | Getting rid of the soap and the bacteria that was collected |
| Close the tap with a towel | Maintaining the cleanliness of hands |
| Drying the hands | Getting rid of water and avoid skin dryness |

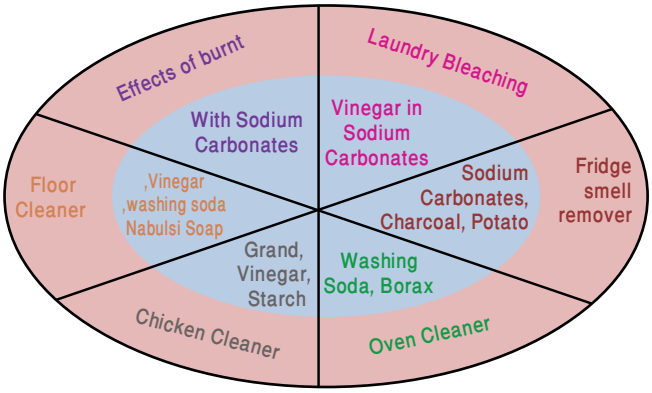
### Food Preparation:

| Step | Notes |
|---|---|
| Washing hands | Before, during , after |
| Washing fruits and vegetables | Only before eating |
| Wash cutting equipments | Before preparing and eating |
| Not leaving meat outside the fridge before cooking | Before cooking |

**4. In order to use water efficiently, at the house level:**

- Use the shower instead of the bath tub when showering
- When you brush you're teeth, open the tap only when you are rinsing or use a cup
- When you wash hands, open the tap wateronly when you rinse
- Put a bottle filled with inside the toilet flush box to reduce the water flushed
- Remind men of the family to open the tap water only when they want to rinse their faces after shaving
- When you wash the fruits and vegetables spend one minute in doing that or use a 10 liter container

**3. Alternatives to the use of chemicals, which require a lot of water to be rinsed off:**




**5. Bad habits, which cause certain damages:**

| Bad Habits: | Consequences: |
|---|---|
| ▪ Excessive usage of chemicals. | ▪ Burns, cracks and allergies in the skin and eyes. Gas inhalation as well. |
| ▪ The use of Kerosene. | ▪ Ingestion of it by adults and children unintentionally. |
| ▪ The use of various chemical detergents. | ▪ Chemical reactions from mixing these materials. |
| ▪ Not following the guidelines. | ▪ Environmental damages. |
| ▪ The extravagant in the purchase and use of these materials. | ▪ Erosions and irritation in the digestive systems due to excessive use in dish washing with these chemicals. |

## Introduction:

Personal habits in most situations contribute to the spread of diseases and transmission of bacteria such as nail biting, finger suckin and putting fingers in the mouth or eyes. These habits cause diseases, injuries, and health hazards. However, there is also a popular belief among local women especially in rural areas that using plenty of water and rinsing the objects and materials for many times is the most important means to eliminate germs and improve hygiene. There are also misperceptions regarding the necessary steps to maintain hygiene before, during and after preparing food.

## Main Objective:

is to enable women to identify the importance of hygiene practices, specifically those related to personal hygiene. The training stresses on hand washing techniques to prevent diseases and to maintain high levels of sanitation before and during food preparation.

## Module 1 "Household Hygiene and Health" consists of:

two main sessions executed within an hour and a half using various training tools and exercises. Training methodology relies intensively on exchanging experiences with local women. The methodology furthers encourages the principal of 'learning by doing'. At the end of the two sessions, participants are expected to be able to:

- Identify the importance of appropriate personal hygiene practices, especially washing hands to prevent diseases.
- Identify the steps to maintain hygiene before, during and after preparing food.

## Main Topics and Key Tools:

**1. When to wash our hands: Do you agree or disagree with the following comments (right answer is in red color):**

| | |
|---|---|
| ▪ It is not always necessary to wash hands in hot water, when they get dirty and before eating, | ▪ I do not agree, it is necessary to wash hands with hot water with a temperature that is higher than the body temperature, so as to kill the germs. |
| ▪ It is not necessary to use soap or sanitizers, when washing hands, | ▪ I do not agree, using soap is necessary to remove the dirt. It is also important to rub the hands with alcohol after coming out of the bathroom, visiting patients, and dealing with meat. |
| ▪ Bacteria live in meat and are rarely found in fruits and vegetables, | ▪ I do not agree, bacteria live on meat and on the surfaces of fruits and vegetables. |
| ▪ It is more important for adults than young persons to wash their hands in a systematic manner, | ▪ I do not agree, since washing hands is essential for all and all hands can transfer diseases. |
| ▪ It is important to use hands to cover the mouth and nose when coughing and sneezing, | ▪ I do not agree, because we should use tissues or our elbow, but not our hands. |
| ▪ It is preferred to use fingers to rub our eyes, our nose or our mouth. | ▪ I do not agree, because we should use tissues and not hands. |

**2. The natural water cycle:**

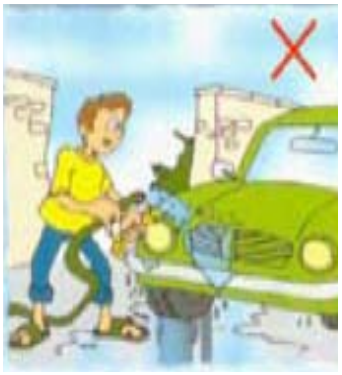

Water passes through an integrated cycle that starts by water evaporating from the surface of the earth. The condensed water then forms clouds. The clouds shed the water in the form of rainwater, through which it then flows back into the ground as it penetrates through the layers of the earth, feeding groundwater reservoirs. The illustration visualizes this process.

**3. Increasing water demand:**

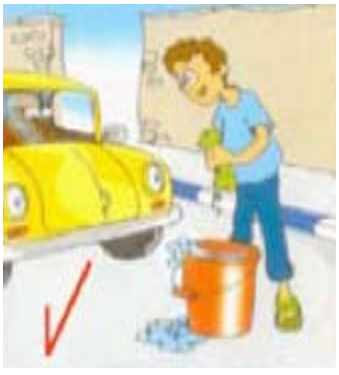
High temperatures and climate changes are reasons behind the increase in water demand in Jordan. In addition to this, the change in life patterns and economical development add more pressure and increase on water demand: "The use of bath tubes, washing cars with hoses, the increase in having swimming pools indoors…etc.". The sudden increase in population growth also causes higher demand for water.

**4. Promoting water demand management:**

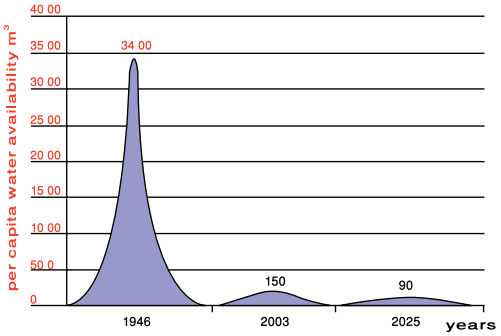
Changing water use behavior at the households level; using water saving devices, controlling water leaks, periodically maintaining water pipes, etc. are all very important issues that should be considered in the process of awareness raising and training of local women. There are popular examples and proverbs that urge people to refer to wisdom, experience and supports the best behavior in dealing with water resources that must be revived and learnt from such as: "Do not go overboard wasting water even if you're living on a running river", "A sane woman sweeping better than insane woman hosing", "Eat, drink and do not waste, for Allah does not love the transgressors", "if I do not fix my faucet, 900 JD will be my bill", "In a bucket fill your cold water that comes before the hot one to wash your house", " If your shower stays running you waste all water with no use". The most important areas of water loss in the house through wrong practices are described in the following pictures:








## Introduction:




It is well known that Jordan is a country that has limited water sources and depends totally on rainfall to secure its national drinking water needs and to cover other water needs of everyday life.

Rain fall feeds underground water sources, especially through springs and streams, which in turn are then exploited for drinking purposes and other public life water needs. Surface rainwater is collected through dams, cisterns and ponds to provide irrigation water for farmers and livestock breeders. The government works on purifying and refining used and brackishwater to provide farmers with irrigation water and other industrial expanding activities. The following table shows the per capita share of water per cubic meter sold during the years 1948 – 2025. In doing so, it is important to note the high population growth due to natural reasons and external causes such as migrations due to conflict in the region.

This obviously leads to an increase of the pressure on water resources and rising demands for water supply for different purposes and sectors.

This necessitates efficient water management especially demand management at all levels, including the household and family level. Here, housewives play an important role as the direct water valve users. In order to reduce water use at the household level, water consumption patterns need to change and water leaks need to be stopped.

## Main Objective:

To activate women's role especially women pioneers such as the "Water Wise Women" in enhancing the awareness of households and communities towards water problems, drawing their attention to water scarcity issues and consequently causing pressure on water demand. To enhance the efficiency of their water practices and consumption behavior.

## Module 2 "Water Saving and Efficient Use at Household Level" consists of:

Two main training sessions that are implemented through various training aids, short illustrative and practical exercises, visual images and methodologies that address the experiences, beliefs and ideas of local communities and their daily water use behaviors enhancing them to think, analyze, and adopt new water messages that promote experience exchange and learning of new practices that would save water and reduce the losses. At the end of the two sessions, participants will:

- Understand water resources scarcity in Jordan and main reasons for the increase of water demand,
- Identify the importance of water demand management by housewives on households level,
- Understand the value of female interaction within communities/societies on the most efficient water consumption patterns at the household level.
- Identify their roles in promotion of community awareness and enhancing behavioral change for the most efficient use of water.

## Main Topics and Key Tools:

**1. Facts on water value:**

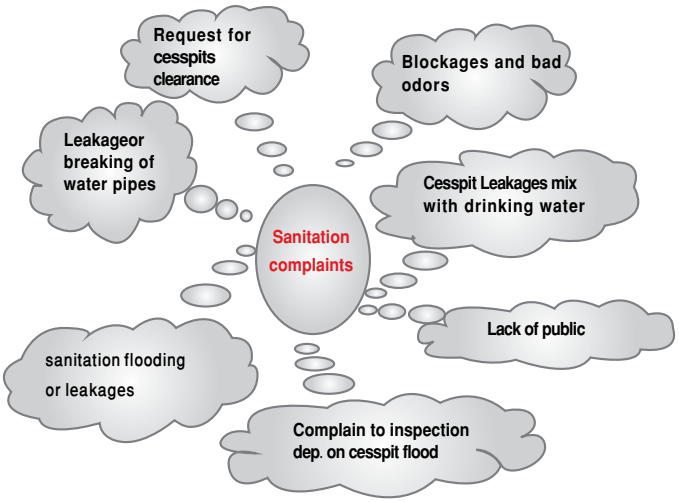
Do you know that water composes two third of the human body weight 12, 69% of the liver, and 22% of the bones). Do you also know that humans cannot live without water for more than two to three days. A person needs 2.4 liters of water a day. Water is very vital to wash the body of toxins and carcinogens, through the urine that contains harmful substances.

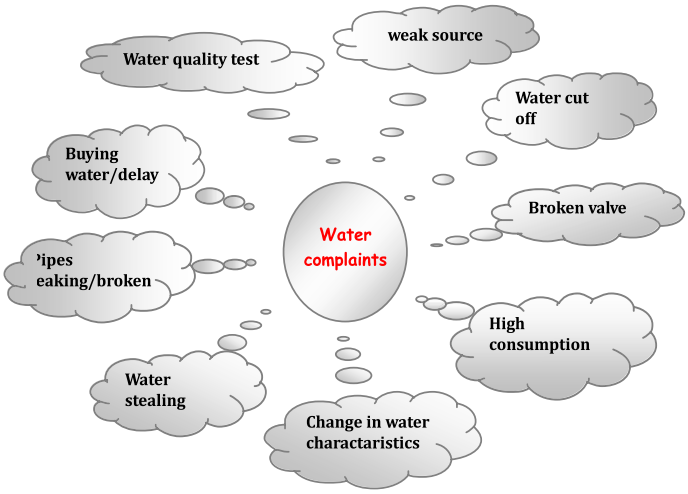
| | Private Sector | |
|---|---|---|
| **Aqaba Water Company** | **Yarmouk Water Company** | **Miyahuna Water Company** |
| Manage water issues and sanitation in Aqaba. | Manage water issues and sanitation in Irbid, Ajloun, Jerish and Mafraq. | Manage water issues and sanitation in the capital. |

| | Other Governmental Sector | |
|---|---|---|
| **Ministry of Health** | **Ministry of Environment** | **Ministry of Agriculture** |
| ▪ Observe drinking water<br>▪ Monitoring sanitation facilities<br>▪ Provide the citizen with the health requirements to sell drinking water - water tankers | ▪ Protect water resources<br>▪ Develop laws and legislations<br>▪ Work with the enviromental "Rangers"" | ▪ Construct and operate small dams for livestock |

The services provided by WAJ or its representatives in the field of water and sanitation to the public includes: water services, such as water distribution (temporary or new), water-meter (reconnect or disconnect or check meter), water networks (transport, shift, change the line, etc.). They also include, sanitation services linking or changing damage sewage lines, etc.

**2. Complaints related to water and sanitation: The following drawings describe the type of complaints:**




**3. Contact numbers of water institutions:**

Ministry of Water and Irrigation: 065679141
Water Authority of Jordan: 065679149 - 065679141
Ministry of Health: 065200230
Ministry of Agriculture: 065686151
Yarmouk Water Company: 065652261
Jordan Valley Authority: 065689517
Ministry of Environment: 065528563
Miyahuna water Company: 065666112 - 065666111
Aqaba Water Company: 032014390

# Relations of Water Users with Governmental, Non-Governmental and Private Sector Providers

## Introduction:

The water sector in Jordan is based on a number of major government institutions such as: Ministry of Water and Irrigation, Ministry of Agriculture, Ministry of Environment, and Ministry of Health. In light of the country's scarce water resources, Jordan has intensified its efforts to reach a better management of water resources in order to meet the needs of local communities and to build a rigid partnership between the population "water service recipient" and water institutions "water services providers". Within this scope and in order to achieve best posible demand management, the Jordanian government has been increasing its efforts since 1997 to involve the private sector in the process of planning and water management through the rehabilitation and involvement of local companies to improve the quality of services and the development of water supply as long as the resources remain the country's property.

## Main Objective:

To open channels of debate between women (WWW groups). To gain information on institutions and agencies that serve water from both public and private sector. Develop an insight on decision-making, listening to different opinions when it comes to services provided to the public and offering them problem-solving techniques to address water related obstacles.

## Module 3 "Relations of Water Users with Governmental, Non-Governmental and Private Sector Providers" consists of:

Two main sessions that are executed based on practical exercises, photos, live interviews, and methodologies that address experiences, beliefs, ideas of local women, their daily behavior in dealing with water, and how they can learn from new experiences in order to change behavior towards a better rationalization of the use of water. At the end of the training sessions, the trainees will be able to:

- Identify the institutions that are related to the water sector and sanitation services,
- Identify water services providers' main activities and functions,
- Identify and bring forward complaints, conflicts and frustrations voiced by the public vis-a-vis the water providers.

## Main Topics and Key Tools:

**1. Institutions responsible on water sector and their main responsibilities. The following schedule summarizes the information: Private and public institutions that serve water sector, and their main duties:**

| | Governmental Water Sector | |
|---|---|---|
| **Jordan Valley Authority** | **Water Authority of Jordan** | **Ministry of Water and Irrigation** |
| ▪ Development, use and protection of water resources in the Jordan Valley to serve irrigated agriculture, municipal uses, industrial and tourism. | ▪ Extraction and distribution of drinking water for citizens and quality control.<br>▪ Operation, maintenance, collection and subsequent acts.<br>▪ Develop water resources. | ▪ Develop strategies and water policies.<br>▪ Stop depletion of water resources. |

3.The importance of considering the following **alternative materials** for chemical detergents to reduce hazardous pollutants in grey-water:

| | | | | |
|---|---|---|---|---|
| **Uses** | Course sinks | Bathtub cleaning | Floor cleaners | Laundry bleaches |
| **Alternatives** | Sodium bicarbonate and vinegar | Vinegar, lemon, sodium bicarbonate | Vinegar, washing soda, soap | Vinegar, sodium bicarbonate |
| **Preparation** | Mix half a cup of sodium bicarbonate with a cup of vinegar in the boiling water and put in the sink. | Mix ¼ cup vinegar with 4.5 liters of water with lemon juice and sodium bicarbonate | A cup of vinegar with 4.5 liter of hot water for dirty floor add ¼ cup washing soda and a tablespoon soap | A half cup of white vinegar + half cup of sodium bicarbonate for each laundry |

4. Issues to be considered before, during and after executing **water harvesting** techniques:

| Before | During | After |
|---|---|---|
| Water quantity to be stored. | Make sure that there are no cracks in the walls by inspecting the cistern before the water usage. | Water cistern sterilization when needed, and check sample to determine amount of contamination. |
| Period of water conservation in the cistern. | When building the cistern and to facilitate the process of cleaning it is recommended to assure that the ground inclination about 2% and to find a hole of 40 × 40 cm dimensions in the corner of the tank to gather sediments and dust. | Do not allow first rain fall collected water to enter the cistern, since is polluted and full with dust and dirt. |
| Location to be at least 15 m away from sewer systems / cesspits, at least 10m away from animal pens, and at a distance from trees roots. | Use a multi-reservoir system in order to keep the system running in case of closure of one reservoir due to maintenance or cleaning purposes. | Periodic maintenance of the cistern (at least once per year). |
| The possibility of tank cleaning. | Specify one flow tube as an alternative water source. | Cleaning the water tank form sediments and dust. |
| The purpose of water collection | The cistern must be of high quality and solid from the outside, clean and smooth from the inside. | Rinse the roof before allowing rainwater to reach the well or reservoir. |

5. Due to the increase in demand and consumption of water especially in summer seasons, the water harvesting techniques such as collecting rain-water and storing it in wells and tanks inside the house" is considered as one of the solutions to manage water demand in an efficient manner.

Rain water can be collected in large ponds or earthen barriers to be used for agriculture or domestic purposes.

# Grey-Water Re-Use and Rain Water Harvesting

## Introduction:

In light of Jordan's water scarcity and increasing water demand caused by a rapid population growth, Jordan is obliged to maintain the available sources and to keep on searching for innovative methods within the framework of efficient water management limits. Women are focal water users at the household level. Their water usage may also include activities such as water harvesting.

## Main objective:

To promote the principle of adopting new water source techniques; water harvesting and gray water technologies by local women / households and the considerations that must be taken before, during and after adopting such techniques.

## Module 4 "Grey-Water Re-Use and Rain Water Harvesting" consists of:

Two main sessions that are executed based on various training tools such as illustrative and practical exercises, visual images, methodologies that address local women needs and experiences enhancing them to change their behaviors with regard to water daily use and to learn from new experiences and knowledge. At the end of the training sessions, participants will be able to:

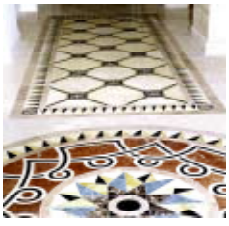
- Understand grey-water concepts and sources, water harvesting definition and why to harvest rainfall water,
- Recognize contaminants in grey water and to learn about water harvesting methods,
- Why to re-use grey-water and why and when to use water harvesting systems,
- How to treat grey-water and considerations taken into account before, while and after applicants of such techniques

## Main Topics and Key Tools:

1. Important clarifications on differences between black water that contain human liquid and solid excreta coming out of toilets and grey-water that is produced by humans from showering, dish washing, laundry, and vegetables or fruits washing. The importance of using grey water as an additional water source, is that it saves fresh clean water, decreases water bills at the household level, decreases environmental side effects, reduces fertilizers use and that it can be considered as a source for home garden irrigation.
2. Sources of **contaminants in the grey-water** as shown in the following illustrations:

Residues of Soap, shampoo, organic bacteria,hair and stuck material

Residues of Soap and food



Detergents and stuck materials

Lint cloth, detergents, stuck material, oils, foams sodium, nitrate and phosphate

**4. Identification of irrigation water quantities:**


- Excess irrigation causes temporary or permanent plants wilting. It reduces the amount of oxygen in the root zone and thereby hampers the breathing of the roots since air is replaced with water in the inter spaces of soil particles. The root is weakened as a result as its ability to absorb water is decreased. Excessive irrigation also slows down biological processes within the plant such as photosynthesis and respiration.
- Increasing irrigation will cause a disbursement of certain nutrients and will deprive the plants from absorbing them, consequentlying the roots, ability to absorb. Nutrient deficiency cause leaves to turn yellow.
- Reducing irrigation will negatively affect plants and cause temporary or permanent wilting, plant drought and death. It also slows down the biological processes within the plant and thus deteriorates plant growth.

**5. Sustainable water availability for home-gardens:**

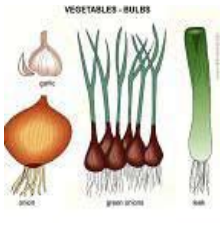
1. Choosing plants, which conserve water and have lower water requirements,
2. Collecting rain-water from the roof for home-garden purposes,
3. Reusing kitchen water for home-garden purposes,
4. Installing drip irrigation system whenever possible
5. Installing stopper in garden hose,
6. Irrigate gardens early mornings or late evening to avoid excess evaporation,
7. Cultivation of plants with similar water needs in the same basin to avoid over-irrigation

**6. Seedlings production and propagation (how to overcome difficulties during and after seedlings production):**

| **Methods of seedlings production and propagation:** | **Methods to test seeds germination ability:** |
|---|---|
| By Seeds | Scratching the seed |
| By Layering | Soaking the seed |
| By Cutting | Cutting or breaking the seed |
| By Off - shoots | Exposing the seed to heat |
| By Plant parts (such as rhizomes, cormes, bulbs, etc.) | Treating the seed with chemicals or acids |







# Water for House-Gardening and Agriculture

## Introduction:

The Jordanian government adapted a policy of "efficient water use" to counteract water scarce conditions at all levels. This policy includes agricultural practices, farms and home-gardens dimensions. The concept of raising people`s awareness and attention (farmers and/or housewives) towards some simple, water efficient, inexpensive, and applicable irrigation techniques is crucial. Adoption of modern irrigation techniques such as drip irrigation, grey water, using with low water requirements plants with low water requirements, and others are vital. However, how much, and by which means to irrigate the home gardens plants are essential elements that should be taken into account .

## Main Objective:

To educate women on how to understand and realize the concept and importance of best home gardening practices focusing on water irrigation aspects. To exchange experiences with local women on various procedures used for plant propagations and production.

## Module 5 "Water for House-Gardening and Agriculture" consists of:

Two main sessions of, one and half hour each, based on various participatory training tools such as active exercises, visual charts, active dialogues between women on their experiences and practices related to home gardens and irrigation. At the end of the training sessions, participants will be able to:

- Understand water irrigation concept in general and its importance,
- Understand irrigation methods and factors that would determine the dates and amount of irrigation water for plants,
- Identify irrigation methods used to achieve efficient water use for plants.

Drip irrigation

## Main Topics and Key Tools:

**1. Irrigation purposes:**

- Provide the soil with required humidity necessary for plant growth,
- To secure the plants against drought periods,
- Cooling the soil and the surrounding area to provide plants with more suitable growing environment,
- Soil leaching to remove extra salt amount,
- Reduce the risk of frost,
- Fragment of coherent clusters in the soil.

Leaking crack vase

**2. Recommended irrigation methods for home garden plants:**

- Simple irrigation methods such as leaking crack vases,
- Drip irrigation.

**3. The following factors should be considered while determining irrigation dates and quantities:**

- Plant type and growth rate (water requirements differ according to plant, the variety, and growth rates. Plants at seeding stage need different amounts of water than in their flowering stage (some people do not consider these issues during the irrigation period).
- Climate conditions (including temperature, light, wind, rain, and humidity), that would have direct or indirect effects.
- Soil characteristics (physical, chemical, and biological characters) have a great effect on the plant - water relationship. For instant soil type, depth, fertility, micro-organisms, and water table content, can affect relationship between plant and water
- Irrigation methods used.

**2. Sources of pollution:**

| Agricultural Activities | Commercial activities | Industrial activities | Cesspits and Septic Tanks | Urban activities | Other sources of contamination |
|---|---|---|---|---|---|
| Use of highly toxic pesticides, and fertilizers remain in soil and water for long period of time. | Car repair facilities, gas stations, construction sites. | Chemical manufacturing, machine or metal shops. | Lack of discharging cesspits lead to leakage into ground water . | Improper disposal or leaks of household hazardous wastes. | Include chemicals used for road de-icing and maintenance, landfills. |

**3. How does polluted ground water affect humans?**

**Microbiological Pollution**

Livestock areas (Cattle, Sheep, Chicken)

Poorly constructed and demolished septic tanks

Illegal dumpsites

Poorly constructed and demolished septic tanks

Immediate health effect on people –diarrhea, sickness, cramps

**Chemical Pollution**

Badly maintained generators

Damaged storage tanks for gasoline

Rain runoff from fertilised fields and industries

Household chemical waste

May lead to chronic health effect– cancer, birth defects, blue baby syndrome, damage of kidney, liver, eyes

**4. Open the door to dialogue about how to protect groundwater:** The Government of Jordan developed guidelines for groundwater protection to ensure safe and clean drinking water. The following points illustrate three main protection zones:


**Zone 1:** Immediate Protection Zone: Protects wells and springs by directly fencing and labelling them. This sign illustrates an immediate protection zone where the upper lines show the name and location of the protection zone. The lower lines show the rangers, contact information. The sign clearly indicates "No crossing beyond fence, no animal grazing or watering, no waste throwing"


**Zone 2:** Inner Protection Zone: Protects water from microbiological pollution such as bacteria, viruses and parasites. It represents the distance that drained water crosses through 50 days period. The upper lines represent the name and location of protection zones. The green sign shows that it is allowed to discharge cesspit wastes under formal and strict management procedures. The red signs show: Prohibited chemicals and pesticides, oils and petrol wastes and solid wastes.

**Zone 3:** Outer Protection Zone: Protects water against contamination by chemicals, which are almost non-degradable and which can travel long distances. The outer protaction zone increases the area from where water flows to a well or a spring.

# Water Protection

## Introduction:

Groundwater is the most important drinking source in Jordan and has to be protected from pollution. This necessitates the need for community interaction and contribution in water resources protection on constant basis. However, due to the fact that women are the central water users in the family and the society, their role in raising awareness and behavioral change is essential and must be exploited for the protection and conservation of water resources.

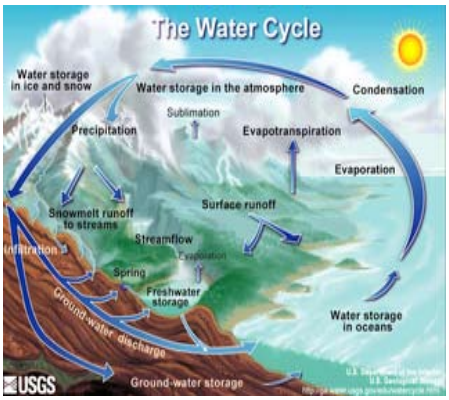
## Main Objectives:

- To define the concept of groundwater and surface water protection, and to present methods of achieving this objective.
- To raise awareness of principles of groundwater flow and sources of possible contamination.
- To educate women and enhance their role in educating their communities on how important and essential their contribution is in preserving protected zones.

## Module 6 "Water Protection" consists of:

Seven sessions covering over two hours, where various training means and methods are used based on practical exercises, pictures, and images. Slides are presented that which will guide trainers through the training module. The presentation is supported by educational methods such as groups and panel discussions using graphics, pictures and exercises formulated through a simplified groundwater flow model. At the end of the training sessions trainees will be able to:

- Understand the water cycle and the stages of the groundwater cycle.
- Recognize the importance of groundwater protection.
- Learn about water protection zones.
- Get acquainted with their role in the protection of water resources




## Main Topics and Key Tools:

1. **The definition of groundwater:** Groundwater originates from rainfall and snow, which infiltrates into the soil and rock.
   It continues flowing through pores and cracks in the ground and sometimes it becomes visible again in lakes or springs.
   - What are the springs and wells?

     **Springs:** are the areas where groundwater becomes visible on the earth`s surface as a result of the flow of water through cracks between rocks.

     **Wells:** are means for the extraction of groundwater from deep in the ground by drilling holes and pumping water using electricity generators or diesel engines and then distributing the resource to various sectors, including water, for drinking water systems.
   - How does groundwater get polluted?

     Pollutants soak into the ground the same way as rainwater. Groundwater can be polluted heavily affecting nearby springs and wells. Human practices at various levels; at home, on the street or around surface water sources can affect groundwater and cause pollution.

**3. Ways and methods of dealing with various water tanks:**

| Iron water tanks | Plastic and fiberglass tanks | Concrete water tanks | Stainless steel water tanks |
|---|---|---|---|
| ▪ Made of galvanized iron and stainless steel, usually riding on the roofs of buildings and homes.<br>▪ Connected to public water from a municipal source.<br>▪ Installed with water float that runs automatically when the tank is filled and closes when water is cut off,<br>▪ Installed on the water pipe valve to control the passage of water during maintenance work.<br>▪ There is a slot floor to clean the tank. | ▪ Their function are the same as those of iron tanks in terms of place of installation and connections | ▪ Built from concrete and placed below ground level. Its size depends on its design and the place prepared for it.<br>▪ Attached to the main pipe.<br>▪ Has a float to control water.<br>▪ Has a 50 cm × 50 cm cover for maintenance.<br>▪ Is equipped with submersible pipe, which is attached to a pump. It works automatically or when necessary.<br>▪ Treated with special strong Arab plastering to prevent water filtering. | ▪ Found mainly in hospitals,laboratories, pharmaceutical and food factories. It can be used for houses but it expensive. |

**4. Key tools necessary to do basic plumbing applications on the site:**

| Threading and plumbing tools | Tools needed for drilling and pipe installations | Tools used in plumbing |
|---|---|---|
| ▪ Threading manually | ▪ Hammers with diff. weights | ▪ Tools used for plumbing |
| ▪ Chisel, Trowels, level, flat screwdriver | ▪ Pointed chisel | ▪ Marking pen |
| ▪ Pipe wrench 10,8,12 | ▪ Chisel | ▪ Level |
| ▪ Insulated pliers, pipe cutter, hacksaw, hammer | ▪ Power hammer tool, if found | ▪ Measuring Meter small |
| ▪ philips screwdriver, electrial test screwdriver, threading oiler, | ▪ Trowel | ▪ Clear water hose |
| ▪ power extension cord, pipe chain vice, pointed chisel | ▪ Shovel | ▪ Straight-edge |

**5. Important rules that should be respected when plumbing:**

- Wearing work boots,
- Wearing a protection suit,
- Wearing gloves,
- Wearing protective glasses when necessary.

# Plumbing and Water Storage

## Introduction:

Water management at the household level is not limited to efficient water use, it also considers the issue of water loss management and costs reduction. However, since women are the first line dealers with water in the household, the training manual paid special attention on empowering women and building their skills of basic plumbing services, including fixing emergency cases, doing periodic maintenance activities, and identifying sources of problems. This kind of skills enable women to work with their own hands and not to waste time or water while waiting for a male professional plumber to find time and cultural acceptance (presence of a male plumber in the house during the absence of the male family members) to fix the problem.

## Main Objective:

To enable women to identify water defects in the house and to apply some basic necessary repairements in order to prevent water losses, save water costs, apply periodic maintenance work, and try new business opportunities.

## Module 7 "Plumbing and Water Storage" consists of:

Five practical training days including some theoretical introductory explanations. The direct application to female trainees (who rarely dealt with such concepts and information) enriches their experience and encourage them to apply the principle of ' learning by doing ' by using several water instruments and equipments. At the end of this training unit, participants will be able to:

- Identify basic water and sanitation related parts, tools, equipments, etc. and their respective functions.
- Apply periodical maintenance services at the household level, assess defects and estimate their impact.
- Fix basic water – sanitation defects and save water.

## Main topics and key Tools:

**1.Sanitary main sections:**

- Hot - cold water networks, which consist of pipes (iron, plastic, copper), water tanks, accessories and different spare links.
- Sanitary appliances and their additives,
- Internal and external sewage drainage networks.

**2. Important observations on threading related matters:**

- Is it important to remove sharp edges using reaming tool (Reamer) during the threading process after pipe cutting. It is also necessary to retain the inside diameter clean of any debris in order to prevent accumulation of dust and sediments present in water, wich causes narrowing and closure in pipes especially the ones with small diameters.
- What is the advantage of using oil in the process of threading? Friction between metals produce heat which will be cooled by oil. Due to the fact that oil is a sticky substance, it enters the metal and molecules and, facilitates the process of threading and preserve the pipe from breaking and maintain the tool in good condtion.

**4. Effective message characteristics and some necessary tips on how to deal with criticism:**

| Characteristics of an effective message | Essential tips on how to deal with criticism |
|---|---|
| ▪ Explicit and tells the truth without ambiguosity, | ▪ Try not to get angry, |
| ▪ Speak correctly and use complete and substantive messages, | ▪ Listen to the criticism in an open minded manner, |
| ▪ Use clear language and terms, | ▪ Absorb the criticism even when the analysis is not constructive, |
| ▪ brief and effective " the best brevity makes sense", | ▪ Ask the critic to provide examples on defects, |
| ▪ Stay nice and , polite and show appreciation and respect, | ▪ Never to regard the critic as unjust, |
| ▪ Address the senses and use pictures, drawings, and models in order to visualize the meaning to the public, | ▪ Express your feelings, |
| ▪ Speak the language of the public and assuras common understanding between the sender and receiver. | ▪ Be committed and apply the points of the agreement. |

**5. Marketing definitions and concept:** in an open discussion atmosphere participants could conclude that marketing is an integrated system of interacting business activities aimed at planning, pricing, distribution and, promotion of goods or services that satisfy the needs of existing customers.

**6. Successful marketing elements that will assure best profits,** is best adapted to costumers needs and, develop purchasing process:

- Produced services or products fit with costumers needs,
- Products' price suit costumers financial status,
- Marketing place is accessible by the costumers,
- Adopting active promotion procedures; to inform the costumers of your products or services in an attractive way.

**7.** Points that should be carefully considered while concluding the **best prices of the products:**

- Products effective costs,
- Prices that are affordable by costumers,
- The competitors` prices.

# Marketing and Communication

## Introduction:

Raising awareness and increasing the knowledge of locals in order to change their behavior and practices regarding water usage requires an open dialogue, listening and understanding skills among all parties. Communication should be performed on various dimensions: within community groups; among men and women, between local communities and water providers, and between local groups/NGO. However, marketing and negotiating – communication skills are closely related and essential to enable women to promote water saving techniques and financial investment in this field.

## Main Objectives:

To build communication skills of local women and help them identifying adequate communication measures. This can be achieved when women are able to recognize their target groups and convey appropriate messages in a successful manner. This module enables women to apply dynamic approach, while executing marketing studies and identifying costumers.

## Module 8 "Marketing and Communication" consists of:

Three sessions; of each an hour and a half. A variety of training measures and methods are used such as practical exercises, pictures and, imaging. A number of slides are presented that will guide trainers throughout the training module. At the end of the training sessions trainees will be able to:

- Understand the communication concepts and main elements.
- Learn indicators to measure active communication and listening skills.
- Gain knowledge on the importance of marketing.
- Get acquainted with marketing tools and measures.

## Main Topics and key Tools:

**1. Communication concept and its elements of success:** Communication is a continuous process that transfers ideas and information into oral or written messages. Communication process includes the following important elements:

- Sender: the source of the message or the point at which the communication process starts.
- Receiver: The party or person that is targeted to receive the message by one or more of different senses (hear, see, smell, taste, and touch) and interpret its symbols, to understand the message.
- Message: the subject or content (which the sender wants to transfer to the receiver) which is usually expressed by verbal or non-verbal codes.
- Communication channels: the processes or channels by which messages are sent.

**2. Target group background and competence to assure successful communication procedure:**

- Spoken language
- Social status
- Sex
- Costumes and traditions
- Educational level
- Age
- Religion
- Time availability to receive and reflect on the message

**3. Communication main procedures:** Reading, listening, speeches, watching and writing.