Prime Ministry

The Hashemite Kingdom of Jordan

Household Infrastructure and Knowledge Improvement Intervention

DESIGN REPORT

SUBMITTED TO:

MILLENNIUM CHALLENGE ACCOUNT

JORDAN

BY

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JULY, 2010

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1 Introduction and Background

1.1 MCC Program in Jordan

The limited water and financial resources are major challenges facing Jordan's water sector. Getting the basic need of the water and wastewater services might be costly on the poor household or sometimes beyond their ability. Although, Jordan has made significant achievements and large steps in providing the water and wastewater services to around 98% and 65% respectively of its people, there is a continuous need to maintain the existing water and wastewater systems as well as improving the service level.

In November 2008 the GoJ developed an innovative Concept Paper, integrating projects in water delivery, wastewater collection and treatment, and wastewater reuse with a focus on Zarqa, one of Jordan's largest and poorest governorates and a center for industrial activities.

The core project of the program is the water network rehabilitation and restructuring in Zarqa Governorate that aims to reduce technical losses through transition from pressurized to gravity-fed transmission and replacement of tertiary (household) distribution, and improve service level through more reliable water network system. The Management Contract for Zarqa Governorate Water Administration project will reduce the administrative losses through improved management of the Zarqa Water Administration. These projects will increase water availability and consumption and thereby increase the generated wastewater.

Additionally, more wastewater will be collected by expanding the wastewater networks (a component of the wastewater network project) to improve the sanitation conditions and to reduce the cost of sewerage disposal on households. Therefore, the existing wastewater networks and facilities will require upgrading and reinforcement through implementing the wastewater network project and As Samra wastewater treatment plant expansion project. By treating more wastewater quantities with improve water quality, more treated wastewater can be used for irrigation to substitute treated wastewater for freshwater resources, wherever possible.

MCC investment appraisal and decision

MCC is conducting in-depth reviews and studies of the Jordan's proposal and the process used to develop in order to ensure that the proposed investment will achieve the minimum requirements for funding. MCC provided a grant of USD 13.4 million to fund the feasibility studies, environmental and social assessments, detailed design studies and technical assistance related to the projects. After several months of executing these studies and the initial results, MCC decided to not fund the groundwater wells rehabilitation project due to its high cost and low economic return, this leaves three main infrastructure projects that are currently under further investigation by MCC. These are:

- P1-B – Zarqa Governorate Water System Restructuring and Rehabilitation
- P2 – Zarqa Governorate Wastewater System Reinforcement and Expansion
- P3 – Expansion of the As-Samara Wastewater Treatment Plant

One of the major results of water and wastewater networks studies is developing a comprehensive master plan, identifying priority investments zones and appraisal of the feasible investment through conducting a full economic analysis.

1.2 The Study of the Benefits to the Poor of MCC Financed Projects in the Water Sector

In Sept 2009, ECO Consult was contracted by the GoJ and MCA-Jordan to carry out "the Study of the Benefits to the Poor of MCC financed water sector projects in Zarqa Governorate". The study focus themes were: 1. Analysis of key factors affecting under-consumption for the poor and non-poor consumers, 2. Estimating the economic benefits of addressing the under-consumption key factors, 3. Prioritizing investment areas for water and wastewater services, 4. identifying and examining a set of policy, institutional, and household interventions and recommend an intervention for project preparation.

A set of policy, management and operation, infrastructure investments, and household infrastructure interventions were examined throughout the study. These interventions were analyzed according to a set of criteria to develop the interventions short-list. The screening criteria included: a. addressing a key factor of under-consumption, intervention cost reflecting the technical and management complexity of the intervention, the ability of intervention to improve the operation and service level of the utility, the political and social constraints that will affect implementation, and whether the intervention is being considered by the government, donors and other groups.

The set of examined interventions included:

- **Improved water utility operational systems** - including improved information system and modeling for rationing schedule and setting pumping pressure, implementation of assets management system, capacity building and certification program for utility operators, and meters replacements.
- **Splitting the households that are connected to one shared meter** to reduce water payments, and consequently increase public system use.
- **Household Infrastructure and Knowledge Improvement** to improve household water situation through improving household infrastructure and improve water availability through strategic communication knowledge improvement to address water leakage from the public system and illegal water use.
- **Restructuring water tariff** to achieve O&M cost recovery and keep cross-subsidy to benefit the poor.
- **Geographically targeting the network rehabilitation and zoning** in poor areas.

In the Diagnostic Report, the above intervention were analyzed to evaluate the benefits to the poor and cost effectiveness of implementation, examine the overlap and complementarities of other programs, and assess the overall impacts to the consumers and the utility.

- Intervention 1 – utility operational system – will be incorporated into the management contract.
- Intervention 2 – splitting the house meter – is being studies by the World Bank OBA program.
- Intervention 3 – household infrastructure and knowledge improvement - was selected for project preparation phase.
- Intervention 4 – water tariff restructuring - is already under consideration by the Government of Jordan, and
- Intervention 5 – targeting water supply networking and rehabilitation in the poor areas – is a key criteria for prioritizing investment zones under the P1-B – Zarqa Governorate Water System Restructuring and Rehabilitation project.

1.3 Overall Intervention Description

The "Household Infrastructure and Knowledge Improvement Intervention" targeting household water practices to improve water potability and increase water efficiency at the household level. The Intervention will achieve its objectives through education and awareness program, and providing grants to the poor, in particular to families receiving grant from the National Aid Fund (NAF), to replace the household infrastructure, where appropriate.

The knowledge improvement component will target the water utility consumers in Zarqa Governorate and will focus on the behaviors related to water use practices within households including cleaning and replacement of water tanks, replacing of water pipes, replacing water faucets, and installing and maintaining water saving devices. The knowledge improvement program will also address perceptions of water quality from the public system through demonstrations and water quality testing.

The Infrastructure replacement component is addressing the financial barrier **of the very poor segment of the society who are registered with NAF**, and do not have other venues for government grants or can afford the existing and planned commercial instruments including revolving funds and micro finance mechanisms.

The Intervention will be implemented over five years, and the implementation group will establish offices in Zarqa and Russaifeh Cities to work with the beneficiaries.

1.4 Report Content and Layout

The report is divided into 8 chapters, as follows:

Chapter 1 – Introduction and Background

Chapter 2 – Project Context and Demand Analysis

Chapter 3 – Logical Framework Design

Chapter 4 – Project Description and Work Plan

Chapter 5 – Implementation Budgets

Chapter 6 – Options for Program Implementation

Chapter 7 – Project Team Structure and Responsibilities

Chapter 8 – Benefits and Assessment

Chapter 9 – Social and Environmental Impacts

2 Household Intervention - Context and Demand Analysis

2.1 Under Consumption Factors and Implications on the Poor

Water potability is a key factor for under-consumption from the public system. People choose other sources of water for drinking and cooking purposes. The survey conducted by DOS for this study "DOS Socio-economic Baseline Sample Survey", revealed that about 34% of the population in project area are using shop water and less than 5% are using bottled water. The use of shop water in poor households is also high at about 30%. On average, Zarqa residents who are connected to the system pay about 10-15 JD per month for shop water. The average pay for poor households on shop water is about the same. According to the survey, about 4% of the population has a daily income of less than $2. The average family size is 7.4 members and spends about 14 JOD/month on treated shop water. The annual shop water expenditure is 168 JOD, which translates to about 7% of annual income. About 46% of the sample respondents who consume treated shop water were unsatisfied with the water quality from the public system. The DOS survey has revealed that Zarqa customers connected to the public system have a low perception of the quality (color, purity, and taste) from the system.

The KfW study "Socio Economic Baseline Survey in the Water Supply and Sanitation Sector" reports that 25% of the customers have witnessed water quality problems from the utility system. According to the same study, almost all key informants and participants of focus group discussions confirmed that the water quality provided by WAJ is not satisfactory. Assessment criteria for quality were: level of sedimentation, level of salinity, taste, smell, color, and notable presence of chlorine, presence of particles like rust and worms or larvae. According to the same report, the perception that water provided by WAJ is not sufficiently clean to serve as drinking water leads to the justification of unsanitary habits, such as not to clean water tanks, locate cesspits close to water storage tanks and not to clean the tank environment. According to another survey done by WAJ - the Customer Satisfaction Survey - it came out clear that the population of the Middle Governorates is generally not aware of WAJ's water quality monitoring procedures. The percentage of customers who do not know of WAJ's water quality monitoring procedures reached in Zarqa 97% and in Russaifeh 92.7%.

Water contamination incidents have made the news for more than a decade. In 1997, the government resigned a few months after the contamination of the water supply in Amman. Water contamination in ***Manshiet Bani Hasan in Mafraq*** Governorate made the news for more than a month in 2008, and the Minister of Water and the Sec Gen of WAJ resigned from their posts. These incidents have led to more and more people using other water sources for drinking, cooking, and even washing fruits and vegetables. The eroded perception of quality is recognized by the Ministry and WAJ, but there are no active plans to address this issue.

In discussing the household storage systems and impacts on water quality from the taps, the WAJ Director of Water Quality and Laboratories Mercy Corps staff, and the former Director of Zarqa Water Administration have all told stories about the below standards household

systems particularly related to water storage, and insufficient awareness of practices for simple clean up or quality inspection.

In summary:

1. Water quality is a key factor for under-consumption from the public system and use of other alternative expensive water sources.
2. Household that consume treated shop water are not satisfied with the water quality from the public system
3. The shift from the public system to other sources that are perceived of higher quality is noted through different surveys.
4. Overall, about 34% of Zarqa population use treated shop water, and 28% of the poor use treated shop water.
5. About 60% of the poor are not satisfied with the public system water quality.
6. The incidents of water contamination in the past years have contributed to loss of confidence from the public system.
7. WAJ realize that people's perceptions of water quality, but have not built programs to address these perceptions
8. WAJ responds to water quality complaints, and carries out inspections of public systems and household storage. WAJ believes that most of the complaints are associated with household storage conditions and people not cleaning their water tanks.
9. The Mercy Corps project is carrying out household infrastructure rehabilitation program through revolving funds. As a pre-requisite for funding, the program inspects the water infrastructure. The findings of the mercy Corps program confirm that household water systems are not maintained, regularly cleaned, and are not kept up to standards.

2.2 Description of Existing Household Infrastructure Programs and their Beneficiaries

The Ministry of Water and Irrigation, WAJ, and donors realize the need to improve household use practices and increase use efficiency. Supporting the water sector, USAID has taken the lead in designing and implementing programs to address the household water issues. In 1995, USAID implemented a five program on Water Efficiency and Public Information for Action (WEPIA) to spread awareness on water demand management among water users, including residential users. The program focused on building capacities of the NGO's, provided community grants, conducted water audits, and carried out media campaigns on use efficiency.

In 2006, USAID launched the "Community-Based Initiatives for Water Demand Management Project with Mercy Corps. The main objectives of the project are to:

- Build the capacity of 135 Community Based Organizations (CBOs) to implement lending programs that improve community water demand management.
- Establish and oversee an effective and sustainable lending system for community water management activities by providing funding and know-how.
- Increase the scale of project impact by raising awareness of lessons learned.
- Implement pilot projects in Integrated Water and Energy Resource Management at the community level.

The Mercy Corps program has been working in different governorates and provided loans to implement projects related to water harvesting, grey water, household infrastructure rehabilitation, water saving devices, and supporting income generating activities that use little water.

With a grant from IDARA USAID program, the Mercy Corps program distributed seven grants for CBO's to initiate revolving funds for household infrastructure rehabilitation. Loans were given to household who have shown evidence of ability to pay back the loan amount over installments. According to Program Chief of Party, the demand could reach up to several thousand households. A second phase of the program is being considered.

The revolving funds mechanism is the only financial mechanisms available now for household water systems rehabilitation. The micro finance institutions are considering expanding their solar energy program to include household improvements. However, the experience from the solar energy program is being evaluated, due to limited number of clients for the program. **The available and planned fund mechanisms do not target the poor who are not capable of paying back the loans**.

2.3 Beneficiaries Mapping and Demand Analysis

Knowledge Improvement

As illustrated in section 2.1 above, the Zarqa utility customers, irrespective of their social and economic status, perceive the quality from the public water system as low, have insufficient knowledge on WAJ quality monitoring programs, and are not aware of how water quality changes within the household systems. The focus groups analysis conducted by KfW show poor perception of WAJ public system water quality. This leads to the justification of unsanitary habits, such as not to clean water tanks, locate cesspits close to water storage tanks and not to clean the tank environment. According to the DOS 2009 socio-economic survey, about 60% of the people including poor households are not satisfied of the water quality of the public system.

The previous studies and recent surveys show demand for a targeted education and awareness program focusing on household water practices to improve water potability and increase water use efficiency. The Water Quality Director at WAJ noted that the Water Authority of Jordan carries out comprehensive monitoring program of the water network quality and confirms that water quality from the network meets the drinking water standards. However, according to the Director of the Water Laboratory, the water storage

conditions are very poor. "We find all sorts of things in water storage tanks, these tanks are not covered, and have not been cleaned for years", the director noted. Mercy Corps COP and staff made similar remarks on the poor storage conditions and insufficient knowledge of practices to maintain the household water systems.

The ongoing water education programs do not address the behaviors that have household water potability in Zarqa, and are generally focused on water use efficiency and general awareness of water scarcity. These programs are using media channels that target different geographies within Jordan.

The knowledge improvement component will address the water customers across Zarqa Governorate, and will target communities, neighborhoods, and individual households through demonstrations, training, and distribution of awareness materials.

Household Infrastructure Replacement

According to DOS 2008 published data, the income of poorest 6.2% of population is less than 200 JOD/month, which places them below the poverty line. The average family size for this group is about 6.4 people, with an average annual income of 375 JD/ person. DOS data indicate that 14.8% of Zarqa household have monthly income of less than 250 JOD, and 26% of families have a monthly income of less than 300 JOD. The 2010 data from NAF show that 10640 families are receiving NAF grants which range from 45 to 180 JOD, which constitute about 7% of Zarqa households.

The poverty line in 2006 is 552 JOD/person/year, and considering the inflation rates, the poverty line is estimated at 630 JOD/person/year in 2008, which corresponds to 320 JD/Family. According to the income levels of 2008, about 30% of Zarqa household fall below this number. The 2008 income data show that 25% of the families have income of more than 700 JOD/ month. The rest of the families about 45 % have monthly incomes from 320 JOD – 700 JOD.

The families who have less than 320 JOD/ month can not afford to pay for household water systems replacements, and will not consider the existing financial instruments for household replacement. These mechanisms including revolving funds set ability to pay back as a criterion for funding. The revolving funds mechanisms have only been targeting households that have an average household income of more than 300 JOD. The microfinance mechanisms for household improvement are limited to solar systems, and are targeting people to provide hot water for their household water use, which could be considered as a secondary need for poor families. The table below shows the percentage distribution of household of annual income.

The table below shows Zarqa household distributions according to income levels, and available financing mechanisms for household infrastructure replacement.

Income level	Percentage of Households	Available financing mechanisms
Up to 180 JOD (NAF Beneficiaries)	6.7%	Non
Up to 320 JOD	30%	Non
Up to 700 JOD	75%	Revolving funds and microfinance mechanisms
More than 700 JOD	25%	Self financing

Demand Analysis Household Infrastructure Replacement

The household infrastructure replacement will address the accessibility barriers to financing replacement works. To estimate the demand for household infrastructure grants, we collected data on the population, household numbers, poverty conditions, and National Aid Fund (NAF) numbers and their grant distributions in the project area. We also gathered data from the CBO's on applications for household maintenance.

- According to recent numbers from MOSD office in Zarqa Governorate, the NAF beneficiaries are mostly located in Zarqa City (4,586 households) and Russaifeh (4,391 households). Hashimiyeh is one of the poverty pocket in Jordan has about 850 NAF beneficiaries, and the other Zarqa districts including Birein, Duliel, and Azraq have about 1000 NAF households. The total amount in the area is about 10,843 households. These families constitute about 6.7% of Zarqa population and have income level of less than 180 JOD/month.
- The DOS survey show that 60% of the people are not satisfied with the water quality from the public system. This could be attributed to perceptions on water quality from the public system and/or the conditions of household water infrastructure. People perception of water quality is linked with pollution incidents and leaks from the system, which may have long-term effects on people perceptions. However, the continuous complaints of water quality including odor, taste, and turbidity are believed to be attributed to household infrastructure and the storage conditions. Assuming that 60% of the unsatisfied people require household infrastructure replacement, the total demand from NAF poor is estimated about 3900 beneficiaries (10,843*60%*60%).

3 Logical Framework Design

The MCA-J program is different from existing and planned projects or activities in the project area. The Household Infrastructure and Knowledge Improvement Intervention of MCA-J will provide focus on Zarqa Governorate, allocate the needed resources for wide participation and grants funding, and will address the financial barriers of participation by the poor segments of community by providing grants for household infrastructure replacement.

Purpose (Objectives)

The purpose of the intervention is to address the key factors of under-consumption from the public system, in specific:

1. Improving water potability from the public system through maintaining water quality within the households
2. Increasing household water availability through increasing water use efficiency.

Outcomes

The expected outcomes of the intervention are:

1. Reduced contamination from household networks
2. Improved efficiency of household water use

Behaviors Targeted and Barriers/Key Factors

Household Infrastructure Activity: *For maintenance of water supply systems within households to keep the water quality to appropriate standards and reduce household water losses, and for improving household water use efficiency, the following water supply subscribers' behaviors will be targeted:*

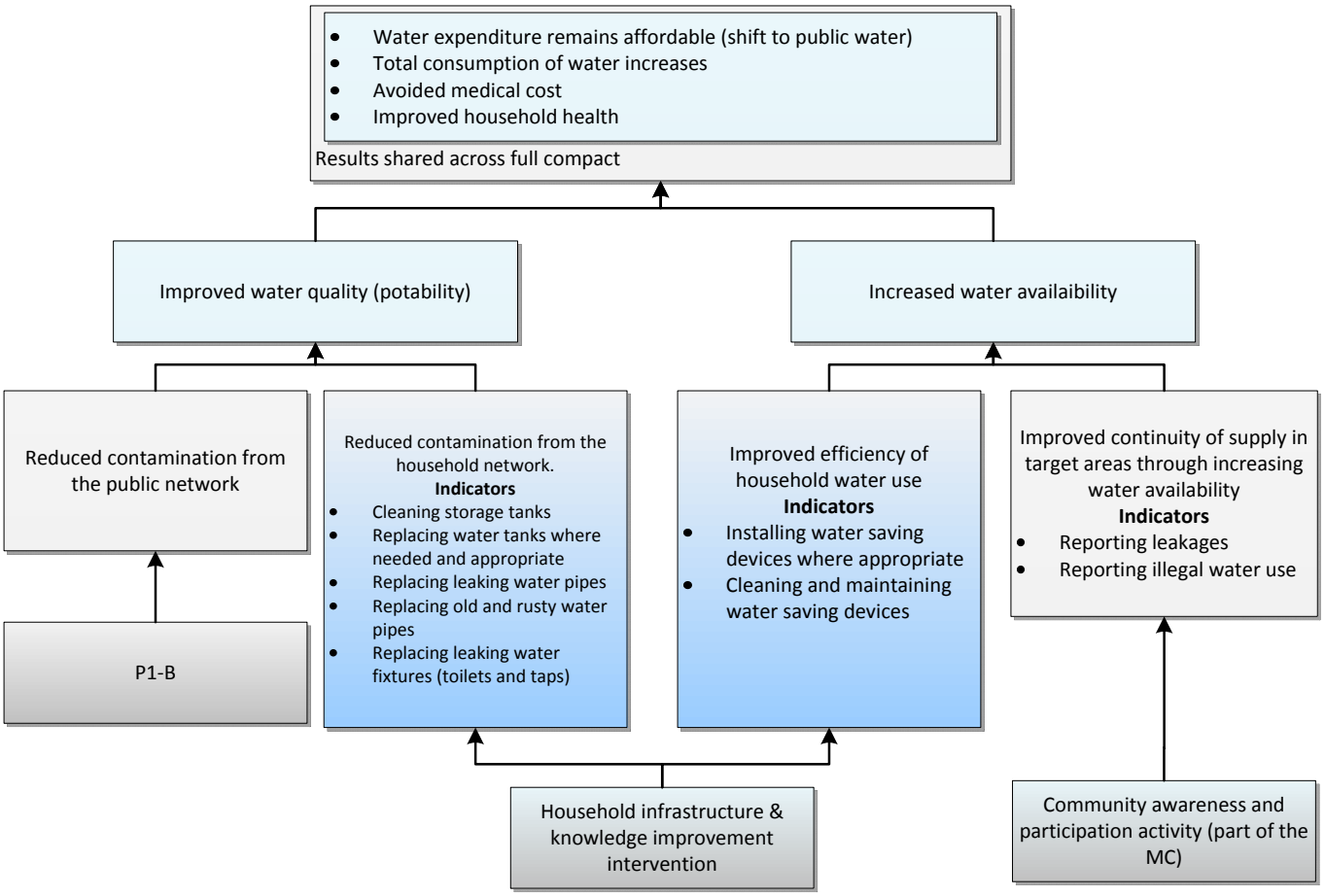
1. cleaning storage tanks
2. replacing water tanks where needed and appropriate
3. replacing leaking water pipes
4. replacing old and rusty water pipes
5. replacing leaking water fixtures (toilets and taps)
6. installing water saving devices where appropriate
7. cleaning and maintaining water saving devices

Barriers/Key Factors

1. Perceptions about the water quality from the public supply system
2. knowledge of the household water system and impacts on the water quality
3. Understanding of the upcoming programs for improving water and wastewater services in the project area

4. accessibility to grants and funds for rehabilitation and replacing household water systems
5. available information on appropriate water fixtures and systems
6. knowledge on certified plumbers

The schematic diagram below depicts the logical framework of the Household Infrastructure and Knowledge Improvement Intervention and the integration with the overall MCA program.



Framework Analysis

	Target Audience	Behavior	Determinants Benefits and Barriers	Activities/Through
Downstream	Poor and under-consuming households who are connected to the public system in Zarqa Governorate	1. cleaning storage tanks 2. replacing water tanks where needed and appropriate 3. replacing leaking water pipes 4. replacing old and rusty water pipes 5. replacing leaking water fixtures (toilets and taps) 6. installing water saving devices where appropriate 7. cleaning and maintaining water saving devices	**Benefits** • Health through better water quality • Cost savings from shifting away from use of shop and bottled water **Barriers** • Access to funds • Knowledge of key factors affecting water quality • Knowledge of water quality from other sources • Knowledge of WSD Applications	• Targeted Awareness programs on water quality aspects related to hh infrastructure • Increase accessibility to funds through grants program • Awareness program on the benefits of water saving devices • demonstration activities and training to address behaviors • joint activities among stakeholders, • Media channels particularly leaflets and guiding instructions, • Events with community involving the water utility and local government • Implementing tanks cleaning campaigns, offer free audit and inspection services, and provide free water saving devices (WSD)

Middle Steam	CBO's, Youth Clubs, School Students, and Cooperatives	1. Promoting water efficient use at the HH level through WSD 2. Promoting the Intervention Grants Program in the communities 3. Promoting water inspection of household systems 4. Providing water tanks cleaning services 5. Provide simple water audits	**Benefits** • Increase capacity of CBO's • recognition within the community • new sources for funding **Barriers** • knowledge of water constraints • Limited capacity	• Training and capacity building for NGO's and CBO's on water quality, tanks cleaning, education program and outreach • Demonstration sites and actviities • Agreements/ partnerships with suppliers and services providers • Design and implement a recognition program for CBO's
Upstream		1. Making water quality data accessible on website 2. Making water quality data accessible on neighborhood level to the CBO's	**Benefits** Increase participation of community in protection of public system **Barriers** Perception about water quality of the public system	• Develop an accessible database on water quality at different points of the supply system • Organize special awareness programs for the CBO's and community members on water quality from the public system

4 Project Description and Work Plan

The household infrastructure and knowledge improvement program includes two components:

1. A knowledge improvement component on public system water quality and how it may change through the household water infrastructure and household water use efficiency
2. A household infrastructure rehabilitation component targeting NAF poor households in Zarqa Governorate.

It is envisioned that the program will be implemented over a period of 5 years, and will focus on household behaviors in Zarqa Governorate, which will be funded for restructuring and rehabilitation of the water network. This Intervention is divided into 2 phases, **the Inception phase and the Implementation phase**. The inception phase activities will include activities under the two components and prepare the ground for the implementation phase including developing the target list of NAF households for replacement works, preparing the manuals and operating procedures, and design the education and demonstration activities. The inception phase will extend over 6 months and include the preparation of the workplan, and the monitoring and evaluation plan.

In the implementation phase, the program will carry out awareness campaigns and demonstrations on cleaning water storage tanks, inspection of water quality, and installation of water saving devices. These activities will target Zarqa Governorate customers and will be carried out with the NGO's in their neighborhoods. In this phase, the program will implement the replacement works for the targeted NAF households, including inspection of the systems, design of replacement works, and ensuring the quality of execution. The Intervention activities are detailed further below.

Section 4.4 below shows the activities schedule over the inception and the implementation phases.

4.1 Features of Implementation Approach

- Targeting the Poor at Multi-levels – This Intervention is targeting the poor communities, neighborhoods, and individual households and families. The focus here is to reach the poor who have access limitations to knowledge and funds.
- Addressing the Barriers associated the existing funding mechanisms – the existing revolving funds and microfinance mechanisms present accessibility challenges to the poor, because of the payment terms and the high interest rate. The intervention will support the poor families with grants for household infrastructure rehabilitation.
- Utilizing NGO's including CBO's, Cooperatives, Youth Clubs, and Sports Clubs – the community NGO's have been working with community members, have developed linkages from their past projects and community services. These NGO's will be utilized to for implementing program activities as promotional channels for grants,

in the targeted awareness and education programs, and building confidence in the project.

- Building confidence in the message – the previous surveys have revealed low confidence in municipal services, solid waste management, water and wastewater services, and water quality from the public system. It is important to demonstrate integration among all MCC projects, and the comprehensive approach for addressing water and sanitation problems.
- Gaining a credibility mileage – As part of the focus groups, the project will document the main pressing municipal issues at the poor neighborhoods. The project will design actions for quick wins with the communities and implement them.
- Illustrating success to encourage participation – the envisioned improvements in the water potability from the public system by implementing the household intervention will reduce water use for expensive sources and provide savings to households in Zarqa. This intervention will demonstrate achievements to implement similar programs in Jordan.
- Providing balanced opportunities for both men and women to participate – throughout the implementation, the project activities are designed to provide balanced opportunities for both men and women in the communities. The focus groups, the demonstration and training activities, and the grants for household infrastructure will be accessible to men and women and be implemented in their communities.

4.2 Knowledge Improvement Activities

The implementation of this component will focus on the key targeted behaviors. The implementation will include demonstration activities, formal training sessions, joint activities among stakeholders, media channels particularly leaflets and guiding instructions, events with community involving the water utility and local government. The implementation will include executing tanks cleaning campaigns, offering free audit and inspection services, and providing free water saving devices (WSD).

1. Conduct 10 focus groups in the project area to inform the design of the awareness campaigns. These focus groups will be repeated on annual basis in the project neighborhoods to gather feedback on program, improvements, and address issues.

   The focus groups will have 10-15 people from the community. A discussion guide and focus groups participants will be prepared developed for MCA Jordan approval. The focus group discussions will be documented and reflected in the focus groups report. It is expected to have separate groups for men and women in the area. The discussion guide and the focus groups reports are to be prepared in Arabic and English. Moderation of the focus groups should consider group gender. The focus group will inform the quantitative survey that will be conducted by MCA-J for the

whole program. The focus groups will be conducted in the second quarter of each year.

The focus groups will be moderated by the communication officer on the project team and the social officer. The gender of the group should be considered for assigning the groups to the team members. Usually focus groups take two to three hours to allow interactive discussions among participants.

Deliverables: for each patch of focus groups, the following deliverables will be produced.

- ***Discussion guides***
- ***Focus groups reports***
- ***Participants lists***

2. Carry out an assessment of the NGO's including CBO's and Cooperatives in Zarqa Governorate – the CBO's and cooperatives will work on the program as promotional channels for the infrastructure grants component and will participate in the household knowledge program, and in inspection and maintenance of household systems.

   The assessment should identify the active and interested community organizations to take part on the program, identify their roles, and design a program for their involvement. Evaluation criteria will be designed and approved by the MCA-J. The criteria will include: ***past performance, CBO coverage, status with the MOSD, interests in water programs, sustainability in promoting program after its end, ability to raise funds, leadership, and available facilities***. The CBO's assessment will be updated on annual basis to increase participation of the community groups in program implementation. The assessment will be carried out in the first and second quarters of each year.

   The assessment will be done by the team members including the team leader, the social officers, and the communication officer. The team will also coordinate the work with the MOSD and obtain feedback from the active projects with the CBO's.

   Deliverable: Annual NGO's assessment reports

3. Consult with the existing similar projects in Zarqa and Russaifeh and identify areas of cooperation, coordination mechanisms, and share lessons learned.

   USAID will continue to implement its program with Mercy Corps to address urban water issues including household water use. The USAID public action program (PAP) will provide grants to NGO's to implement water, energy, and environment programs in Jordan including Zarqa. It is important to develop understanding of these programs, share lessons, and coordinate efforts. This will carried out throughout the Intervention implementation.

The consultation will be the responsibility of the project manager, and the communication officer.

Deliverables: A section on ongoing related programs in the quarterly progress report.

4. Produce an educational leaflet on water tanks cleaning, water systems inspection and available quality test.

   The leaflet design will provide visual illustrations and description of the steps to be undertaken for tanks cleaning, inspecting water systems, and conducting quality tests. The leaflets will be printed in color and produced in Arabic to be distributed to the NGO's, schools, and clubs. The project will produce 200,000 leaflets every year for the life of the project. This will cover Zarqa Governorates households 165000, and the businesses in the project area. The project team including team leader, communication office and supervisor engineer will provide the technical inputs for design of the leaflet by a designer house. The leaflet design requires approval by the MCA-J.

   Deliverables

   - ***Leaflets designs for approvals by MCA-J***
   - ***200,000 leaflet prints on folded A4 paper***

5. Implement awareness and education program with the CBO's, the neighborhood committees, youth clubs, schools, and community leaders on water potability from the public system and how its changes due to household practices and household infrastructure conditions.

   The education and awareness program to the individual households and the communities will be conducted by the NGO's, the community groups, and the schools. The program will conduct 50 training sessions to these groups. Each training session will include 4-5 NGO's or schools. The training session will run for half a day, and will be followed by site demonstrations including tanker cleaning and household infrastructure inspection. Training session will be implemented throughout the project implementation.

   The training sessions will be implemented by the project manager and the supervisor engineer, and the communication officer.

   Deliverables:

   - ***Training manual and updates***
   - ***Training evaluation report on annual basis***

6. Carry out demonstrations for water tanks cleaning - work with the CBO's and carry out a campaign on cleaning water tanks in the project area. It is expected to engage

about 50 NGO's, community groups, and schools in the campaign, and have each group implement at least 20 water tanks cleaning demonstrations every year.

The NGO's and the schools' students will be trained on water tanks cleaning as part of the training sessions and through the site demonstrations. Under the supervision of the program engineers, the NGO's, community groups, and students will implement the campaign. Throughout the campaigns, the groups will work with the community and distribute the educational materials on household water systems and practices of maintaining and inspection these systems. The campaigns schedules in neighborhoods need to consider the water schedule from the public system. Water tankers will be cleaned on the first day of the water schedule for a particular neighborhood. It is likely that water tanks will small have a small quantity of water when they are cleaned at the end of the storage period. The tanks will be cleaned, washed, and chlorinated before they are filled again with public system water. Cleaning of a water tank will take about 1 to 2 hours, depending on the tank conditions, access, and level of sediment. Filling water tanks with water tankers is expensive and should be avoided. The campaigns will be implemented throughout the project implementation.

The campaigns will be implemented by the trained NGO's and community groups, but will be supervised by the team leader, the supervisor engineer, the communication officer, and the social officers.

Deliverables:

- ***Annual campaigns reports describing: the activities, the demonstration sites, the level of participation, the performance of the community groups and NGO's, and evaluation of the immediate results.***

7. Conduct water quality testing on site by using kits and photocells. The quality tests to be covered include Ammonia, turbidity, and residual chlorine.

   The project will provide the CBO's with testing devices and kits to test the water. The devices and kits are not expensive and can will raise awareness on quality aspects and need to protect water quality with the households. The project will train the NGO's on simple water quality testing using kits and photocells The NGO's will implement the water quality tests under the supervision of the project team. The NGO's will collect information from the community about water quality complaints and will inventory these complaints to obtain project approvals for testing. The project team will supervise the water quality testing, which will be carried out by the NGO's.

   The tests will be conducted just after the water meter, from the tanks, and from the faucets. The changes in levels of chlorine, turbidity and Ammonia will be registered and reported. The project will implement 800 household tests annually, The project will report the results to Zarqa Water utility/Company. The water quality team in

Zarqa will be invited to the campaigns of water quality testing. The campaigns will be implemented throughout the project implementation.

The campaigns will be implemented by the trained NGO's and community groups, but will be supervised by the team leader, the supervisor engineer, the communication officer, and the social officers.

Deliverables:

- ***Annual campaigns reports describing: the activities, the demonstration sites, the level of participation, the performance of the community groups and NGO's, and evaluation of the immediate results.***

8. Provide training on simple water audits and household leaks inspection to schools, NGO's and clubs in the project area.

   The project will organize at least 50 annual training sessions and will conduct 500 water audits through the CBO's. The project will organize joint program for CBO's to train each other and spread the knowledge. The water audits campaigns will be conducted by the NGO's and the clubs and the schools under the team supervision. The program will conduct 50 training sessions to these groups. Each training session will include 4-5 NGO's or schools. The training session will run for half a day, and will be followed by site demonstrations. Training session will be implemented throughout the project implementation.

   The training sessions will be implemented by the project manager and the supervisor engineer, and the communication officer.

   Deliverables:

   - ***Training manual and updates***
   - ***Training evaluation report on annual basis***

9. Design and publish leaflets on measures for water saving in households, including available water saving devices (WSD), and their application.

   The leaflet design will provide visual illustrations and description of installation, maintenance, and cleaning of water saving devices. The leaflet will describe available saving devices in Jordan and their applications to household faucets and fixtures. The leaflets will be printed in color and produced in Arabic to be distributed to the NGO's, schools, and clubs. The project will produce 100,000 leaflets every year for the life of the project. The project team including team leader, communication office and supervisor engineer will provide the technical inputs for design of the leaflet by a designer house. The leaflet design requires approval by the MCA-J.

   Deliverables

   - ***Leaflets designs for approvals by MCA-J***

- ***100,000 leaflet prints on folded A4 paper***

10. Provide free of charge WSD fixtures for participating houses and CBO and train on installation, maintenance, and cleaning.

    The training on installation and cleaning of water saving devices to schools, NGO's, and clubs in the project area. The project will organize 50 training sessions on annual basis, and will conduct 500 installations. The project will organize joint program for CBO's to train each other and spread the knowledge. Each training session will include 4-5 NGO's or schools. The training session will run for half a day, and will be followed by site demonstrations including tanker cleaning and household infrastructure inspection. Training session will be implemented throughout the project implementation.

    The campaigns will be implemented by the trained NGO's and community groups, but will be supervised by the team leader, the supervisor engineer, the communication officer, and the social officers.

    Deliverables

    - ***Annual campaigns reports describing: the activities, the demonstration sites, the level of participation, the performance of the community groups and NGO's, and evaluation of the immediate results.***
    - ***Distribution of the WSD on recipient NGO's, neighborhood committees, and individuals.***

11. Organize semiannual events through the life of the project to include the Governor of Zarqa the municipalities, the NGO's, and clubs that are part of the project. Discuss progress, achievements, and celebrate successes. Raise the project visibility and mobilize support of the stakeholders including Government, civil organizations, and community leaders – for the project to succeed, it is essential to provide extend out to stakeholders and build working relationship and confidence throughout the program. In the inception phase, a comprehensive list of stakeholders will be developed to carry out meetings with these groups and organize events. The events will be organized semiannually and will be organized by the project team.

    Deliverables

    - ***Event report including participants, discussions, agenda, and suggestions for improvement of implementation***

12. Work with Zarqa Water Company to obtain and distribute quality monitoring data in the targeted communities.

    The Water Authority of Jordan carries out a water quality monitoring program at different levels of the systems. Water results are available at the neighborhood levels,

but are not accessible to the community and the public. WAJ realizes the poor perceptions related to water quality, and the implications on the use of the public system for drinking and cooking purposes.

The project will work with the Zarqa Water utility/Company to obtain the water quality data at the neighborhood level and distribution to NGO's on regular basis. The implementation of this activity will be the responsibility of the project manager and the communication officer.

Deliverables

- ***Water quality monitoring are published at the neighborhood level and distributed to the NGOs in the neighborhoods.***

13. Implement an awareness programs on the MCC water sector investment and the utility management by ZWC.

    It is important to build confidence among water customers, community organization, and all stakeholders on the MCC investments in the sector and the objectives of these investments. Water customers have low perceptions of the water quality from the public system and generally of water services and availability. Illustrating the integration of the MCC projects and the expected benefits of these projects will increase participation of the household project.

    Deliverables

    - ***Leaflets designs for approvals by MCA-J***
    - ***100,000 leaflet prints on folded A4 pages***

4.3 Household Infrastructure Replacement Activities

The household infrastructure replacement will target the NAF poor population in Zarqa Governorate. According to the numbers that we obtained from NAF offices in Zarqa Governorate, the distribution of subsidies is shown in the tables below:

District	Number of Subsidies
Main Office - Zarqa	4,586
Birein	185
Duleil	516
Azraq	315
Russeifeh (the whole District) (*)	4,391
Hashimiyeh (including Sukhneh)	850
Total	**10,843**

(*) For details in Russeifeh see the table below.

Subsidies distributed in Russeifeh	Number of Subsidies
Hittein Camp	919
Iskan	920
Prince Talal	948
Various Russeifeh neighborhoods	966
Msheirfeh	871
Awajan	685
Total	**4,391**

As discussed in the demand analysis, the estimated demand for household water infrastructure replacement is estimated at 3900 households. This is based on percentage of people unsatisfied with the water quality (about 60%), and the percentage of attributable problems to the water household infrastructure, estimated at 60% according to water practitioners with experiences in household systems, list of applications to Mercy Corps by the CBO's in Zarqa Governorate, and observations of the water Quality Director at WAJ.

NAF Poor Household	**10843**
Unsatisfied with Potability	**60%**
% of Potability problems attributable at least in part to HH infrastructure	**60%**
# of NAF HH Beneficiaries	**3903**

The household infrastructure replacement component will be achieved through a set of activities that will be implemented by the project team, the NGO's and community groups, the household water contractors (plumbers), and suppliers of water systems materials.

The targeted number of household is broken down per year and per type of urban setting, and is shown in the table below.

Number / Year	No of HH replacement in Urban areas	No of HH replacement in Rural areas	Total Replacement in project area
6 months			
Year 1	300	25	325
Year 2	700	125	825
Year 3	900	125	1025
Year 4	900	125	1025
Year 5	700	50	750
Total HH	3500	450	3950

Developing a targeting plan including a list of targeted beneficiaries in different areas in Zarqa Governorate is essential to the success of this component. In the inception phase of the project, the team will develop a targeting plan, and a list of household to be targeted. This list will include neighborhood location, status, head of household, family size, etc.. On an annual basis, the project team will update the list of NAF potential beneficiaries, and send letters out to these beneficiaries. It is expected that applications will be received in batches and be processed on weekly basis.

The project team will be working with the Ministry of Social development offices in Zarqa Governorate to send applications out. The team will send out letters and application form in

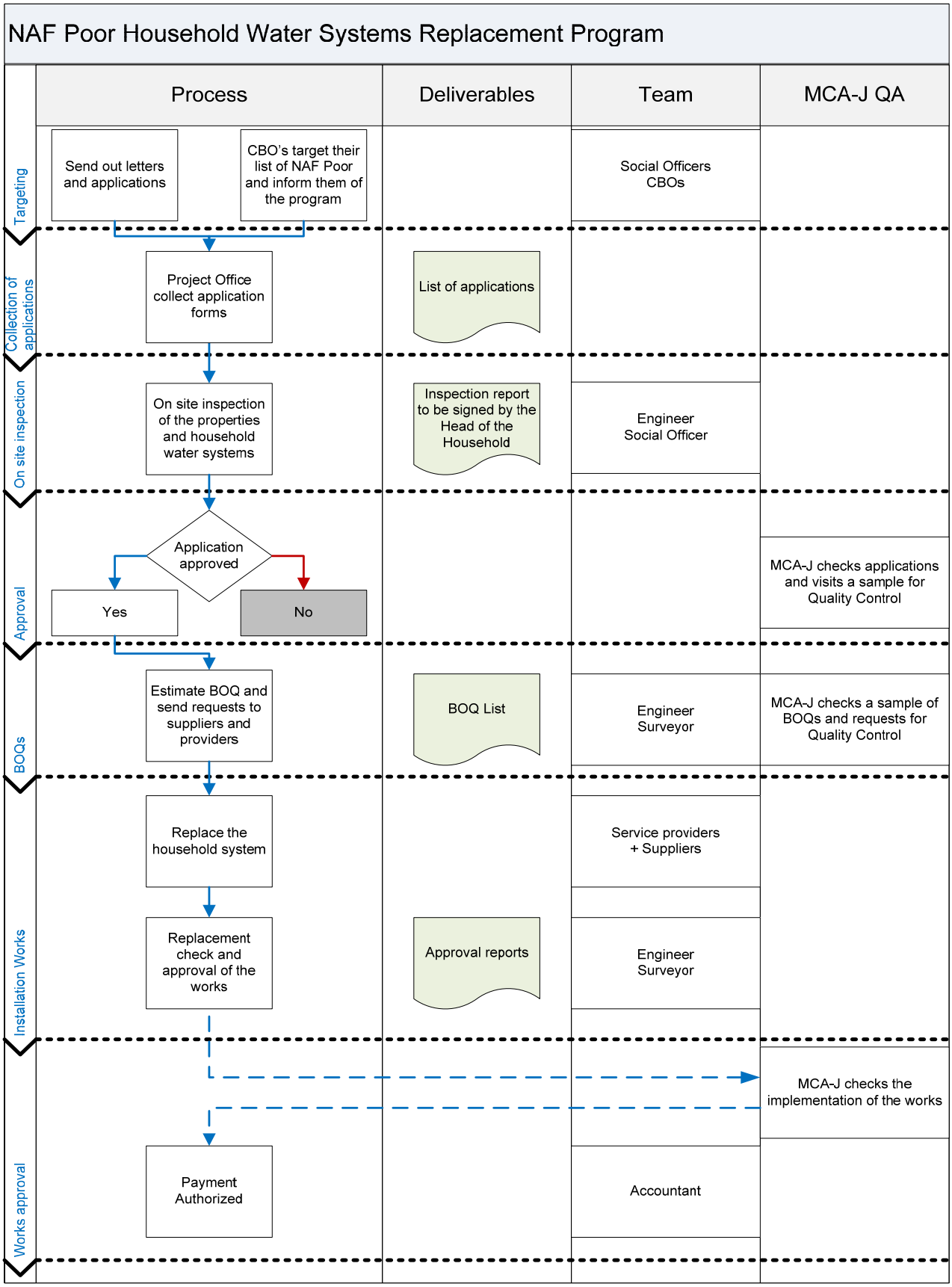
Arabic explaining the household infrastructure replacement component, and the needed information to be filled in the application form.

In parallel, the NGO's in the area will be provided with application forms and invitation letters to distribute to their NAF beneficiaries list. The application could be delivered either to project Office, MOSD offices in Zarqa Governorate, and or to the NGO's in the neighborhoods.

The project team will receive applications over the project life. When the applications are received, weekly batches will be prepared for review and inspection on site. All applications will be entered into project database. The project team including the social officer and the engineer will inspect the applied households and assess the need to replace the infrastructure.

The project team will develop a manual including application forms, processes, and approvals required for the replacement works. The replacement component will involve the NGO's as promotion channels and for outreach to the NAF beneficiaries. The Ministry of Social development offices in Zarqa and Russaifeh will be engaged to extend information, publicize the replacement work, and direct NAF to either the NGO's or the project office. The replacement supplies and works could be implemented through materials suppliers and services providers in the area. The project team will conduct a survey to identify qualified providers and suppliers, and negotiate master agreement for unit cost. The project team will assess the performance of the suppliers and providers and extend or terminate the agreement where appropriate.

The schematic below shows the process of implementation, the responsible parties, and the expected deliverables. Although target group update will happen annually by obtaining the records from MOSD, but targeting through NGO's and CBO's, and the collection of applications will happen all the time, and groups will batched on weekly basis for processing. The schematic below does not represent a time cycle, but a process of activities.



Schematic Diagram - Household Infrastructure Replacement Activities, Deliverables and associated Responsibilities

The replacement activities and deliverables are presented below:

1. Developing a targeting plan including a list of targeted beneficiaries in different areas in Zarqa Governorate is essential to the success of this component.

   The targeting plan will identify in detail the beneficiaries of the grants program, including neighborhoods locations, blocks numbers, and household numbers. The list will include tabulations of the beneficiaries, their contacts, addresses, gender of the household head, and NAF status.

   The team social officers and communication officer will develop the application form and the invitation letter. The social officers will work with NAF offices and the CBO's to spread the applications and collect them. It is expected that no replacement works will take place in the first 6 months of the program, and second half of year one will start the implementation activities.

   Deliverables

   - ***Application forms***
   - ***Invitation letters***
   - ***Targeting Plan to be updated annually***
   - ***List of targeted NAF beneficiaries including full addresses, contacts, social and economic conditions, gender of the household head***

2. Developing a household infrastructure replacement manual

   The household replacement component will include working with Ministry of Social Development, NAF offices in Zarqa Governorate, CBO's, suppliers, providers, and NAF beneficiaries. The project team will develop an operational manual including processes and procedures, forms and application, responsibility matrix for parties involved, and approvals requirements.

   The replacement component will use the NGO's as promotion channels and extend information to NAF beneficiaries. The Ministry of Social development offices in Zarqa Governorate will provide information on NAF beneficiaries and their status. They will also publicize the replacement work, and direct beneficiaries to submit applications. The suppliers will provide material for the replacement works, and will need to be informed in advance of the monthly quantities requirements. The services providers will carry out the works, and need to schedule their replacement programs.

   The household infrastructure replacement manual needs to take into consideration the distribution of the annual works, the inspection process, the approvals requirements, quality assurance, and acceptance of the works. The manual will elaborate the roles and responsibilities of the parties involved household infrastructure rehabilitation works. The manual will include the work mechanisms with different groups.

Deliverables

- ***Household Infrastructure Replacement Manual including processes, procedures, forms, application forms and work mechanisms***

3. Assessment of material suppliers and services providers and development of master agreements

The replacement supplies and works could be implemented through materials suppliers and services providers in the area. The project team will conduct a survey to identify qualified providers and suppliers, and negotiate master agreement for unit cost. It is expected that the replacement works at peak years (years 3 and 4 of project) will target about 1000 households. This will require about 15 to 20 services providers be part of the program. The replacement works will only install external water systems – not within walls – and therefore the works for each household will take about 1- 2 days, but will depend on the replacement items and the estimated bill of quantities for the household. The project team will assess the performance of the suppliers and providers and extend or terminate the agreement where appropriate.

Deliverables

- ***Survey reports and performance assessments of suppliers and services providers. The report should include the evaluation criteria, evaluation reports, and performance evaluation criteria.***

4. Promote household infrastructure grants within the communities

The NGO's and other community organizations have been approached by households for household rehabilitation. These CBO's extend services to the communities, have records on social and economic status, and already provide grants and food subsidies to the poor families in Zarqa. These NGO's and community groups will receive training on cleaning practices, water quality inspection, and water audits. Promoting the household infrastructure grants will come as a natural extension to the education and knowledge improvement program. The project will conduct training sessions on household infrastructure rehabilitation grants, its structure, components, parties involved, approval processes, and mechanisms of working with different parties and stakeholders.

Deliverables

- ***Training sessions for the NGO's and Community organizations***
- ***Promotional campaigns for the household replacement grants***

5. Implementation of repair works for the approved list of beneficiaries

The household replacement program will target the NAF beneficiaries in Zarqa Governorate. As described in the demand analysis sections, about 3900 beneficiaries will receive infrastructure replacement (materials and workmanships) grants. However, it is estimated that about 70% of the NAF beneficiaries will apply for the replacement grants. The table below shows the number of grants of NAF beneficiaries in urban and rural areas in Zarqa Governorate.

Estimated Applications, Inspections and Approvals

District	Number of NAF Subsidies	Applications (70% of NAF Beneficiaries	Inspection and Reporting	Expected Approvals
Urban Areas	9,615	6,730	6,730	3,461
Rural Areas	1,229	860	860	442
TOTAL	10843	7590.1	7590.1	3903.48
			Percentage	51%

Bill of Quantity of Replacement Materials per Year and for urban and rural areas

HH Infrastructure Grant Units Urban & Rural	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Water tanks (Unit # of tanks)	98	248	308	308	225	1,185
Water pipes from meter to roof (LM including fittings)	1,365	3,465	4,305	4,305	3,150	16,590
water pipe from tank to Flat (LM including fittings)	3,380	8,580	10,660	10,660	7,800	41,080
Water pipes from tank to kitchen (LM including fittings)	3,803	9,653	11,993	11,993	8,775	46,215
Water pipes from tank to bathrooms (LM including fittings)	4,225	10,725	13,325	13,325	9,750	51,350
HH Infrastructure Grant Units- Urban	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Total**
Water tanks (Unit # of tanks)	90	210	270	270	210	1,050
Water pipes from meter to roof (LM including fittings)	1,260	2,940	3,780	3,780	2,940	14,700
water pipe from tank to Flat (LM including fittings)	3,120	7,280	9,360	9,360	7,280	36,400
Water pipes from tank to kitchen (LM including fittings)	3,510	8,190	10,530	10,530	8,190	40,950
Water pipes from tank to bathrooms (LM including fittings)	3,900	9,100	11,700	11,700	9,100	45,500
HH Infrastructure Grant Units Rural	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Total**
Water tanks (Unit # of tanks)	8	38	38	38	15	135
Water pipes from meter to roof (LM including fittings)	105	525	525	525	210	1,890
water pipe from tank to Flat (LM including fittings)	260	1,300	1,300	1,300	520	4,680
Water pipes from tank to kitchen (LM including fittings)	293	1,463	1,463	1,463	585	5,265
Water pipes from tank to bathrooms (LM including fittings)	325	1,625	1,625	1,625	650	5,850
Water taps for kitchen and bathrooms	16	78	78	78	31	281

4.4 Intervention Work Plan Schedule

It is envisioned that the program will be implemented over a period of 5 years, and will focus on the Zarqa and Russaifeh areas that will undergo a water network rehabilitation program. The project will be divided into 2 phases, **the Inception phase and the Implementation phase**. The inception phase activities will include activities under the two components and build the ground for implementation including developing the target list of households, the manual for grants disbursements, and the systems for monitoring and evaluation. The detailed activities in each phase are discussed below.

Work Plan Schedule

Tasks	Subtasks	YEAR 1				YEAR 2				YEAR 3				YEAR 4				YEAR 5			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1. Project Mobilization																					
1.1	Setup a Project Office in Zarqa																				
1.2	Carry out meetings and discussions with the Government Offices in Project Area																				
1.3	Develop draft work plan																				
1.4	Submit final work plan																				
2. Knowledge Improvement																					
2.1	Conduct Focus Groups																				
2.2	Carry out an assessment of the CBO's and Cooperatives in Zarqa Governorate																				
2.3	Consult with similar projects for cooperation																				
2.4	Produce educational leaflets on water tanks cleaning, systems inspection and quality test																				
2.5	Implement Awareness program with the key stakeholders																				
2.6	Carry out demonstrations & a campaign for water tanks cleaning																				
2.7	Conduct water quality testing on site with the CBO's																				
2.8	Provide training on installation and cleaning of water saving devices																				
2.9	Design and publish leaflets on measures for water saving in households																				
2.10	Provide WSD fixtures and train on installation, maintenance, and cleaning																				
2.11	Organize semiannual events through the life of the project																				
2.12	Work with ZWC to obtain and distribute quality monitoring data																				
2.13	Implement awareness programs on the MCC water investments																				
3. Infrastructure Replacement																					
3.1	Develop and update a targeting plan																				
3.2	Developing a household infrastructure replacement manual																				
3.3	Assessment of material suppliers & services providers and development of master agreements																				
3.4	Promote household infrastructure grants within the communities																				
3.5	Implementation of replacement works for the approved list of beneficiaries																				

5 Implementation Budgets and Rationale

The overall program summary budget is presented in the tables below. The budgets details for staffing, other direct costs, and office establishment and support for implementing the intervention components are as a whole, and the two components individually are discussed in the following sections.

The overall program budget is about 4.177 million JOD including labor, expenses and office contingency. The household infrastructure budget us estimated at 2.941 million, and the knowledge improvement budget is 1.235 million

Item	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL Year 1 - 5
Staffing Cost	279,713	292,772	330,777	348,857	349,667	1,601,786
Component Other Direct Expenses	184,876	367,332	489,339	511,542	420,151	1,973,241
Office Establishment & Support *	119,450	44,496	45,831	51,030	48,622	309,429
Contingency on Labor 5%	13,986	14,639	16,539	17,443	17,483	80,089
Contingency on ODCs 10%	18,488	36,733	48,934	51,154	42,015	197,324
Contingency on Office Establishment & Support 5%	5,973	2,225	2,292	2,552	2,431	15,471
TOTALS	**622,485**	**758,197**	**933,712**	**982,578**	**880,370**	**4,177,341**

HH Infrastructure	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL Year 1 - 5
Staffing Cost	178,552	187,987	221,767	230,456	225,252	1,044,014
Component Other Direct Expenses						
Workmanship Cost	52,301	139,401	181,855	190,948	146,704	711,209
Materials Costs	55,876	148,930	194,286	204,000	156,732	759,824
Office Establishment & Support *	83,615	31,147	32,082	35,721	34,035	216,600
Contingency on Labor 5%	8,928	9,399	11,088	11,523	11,263	52,201
Contingency on ODCs 10%	10,818	28,833	37,614	39,495	30,344	147,103
Contingency on Office Establishment & Support 5%	4,181	1,557	1,604	1,786	1,702	10,830
TOTALS	**394,270**	**547,255**	**680,296**	**713,929**	**606,031**	**2,941,781**

Knowledge Improvement Component	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL Year 1 - 5
Staffing Cost	101,161	104,785	109,010	118,401	124,415	557,772
Component Other Direct Expenses	76,700	79,001	113,198	116,594	116,715	502,208
Office Establishment & Support *	35,835	13,349	13,749	15,309	14,587	92,829
Contingency on Labor 5%	5,058	5,239	5,451	5,920	6,221	27,889
Contingency on ODCs 10%	7,670	7,900	11,320	11,659	11,672	50,221
Contingency on Office Establishment & Support 5%	1,792	667	687	765	729	4,641
TOTALS	**228,215**	**210,942**	**253,415**	**268,649**	**274,339**	**1,235,560**

5.1 General Assumptions

1. Inflation rate is applied at 5% annually. This applied to other direct costs (ODC's), salaries, office expenses and cost of material and workman ship.
2. The ODC's for office establishment and support are spilt into the two components according to 30% for Knowledge Improvement and 70% for household infrastructure replacement.
3. The project will have two offices – one in Zarqa and one in Russaifeh. The rent for each office is estimated at 500 JOD/month.
4. Fringe benefits are applied on labor costs according to the Jordanian Labor Law and practice. According to the law, the employer will pay 11% social security and will pay medical insurance. Medical insurance will cover the family, and is estimated at 4% of the total salaries. A bonus of 10% is applied on the total salaries.
5. Similar community programs in Jordan are staffed with Jordanians including Mercy Corps and IUCN. Contractors will be able to staff the project with Jordanians including engineers and communication people.
6. An overhead rate for the prospective contractors is about 35%. The OH will cover main office expenses and support for implementation. The OH for the KI component is about 113,000 JOD and for the HH Infrastructure is about 205,500. The total is estimated at 318,400 JOD.
7. About 100,000 JOD is added as contingency of labor costs including OH.
8. Monthly Salaries for staff are estimated at 4500 JOD for a project Director, 2500 JOD for project manager, 1500 JOD for supervisor engineer, and 1000 JOD for an engineer. Social officers at 900 JOD per month, and communication officer monthly salary at 1500 JOD. The project will require financial controller, who will review invoices and payments, and will sign on payments for subcontractors along with the project manager. The salary of the controller is estimated at 1200 JOD. The project will require also accountant at 800 JOD.
9. According to the level of effort distribution, it is expected that team will be hired as a full time employees on the project. Surveyor 2 will be hired in year 3 on the project when the household infrastructure targets got up.

5.2 Knowledge Improvement Component

The contractor will implement the activities of the knowledge management component and all the activities of the replacement works. The contractor will hire the team of social officers, engineers, communication expert, and surveyors. The budget for knowledge improvement includes the working days for the team plus the expenses of the third party contractors, and the other direct costs of running the component. The LOE for each activity is in the budget spreadsheet. The labor costs for the knowledge improvement component is about half a million JOD. The other direct costs (ODC's) items and values for

the KI component are found in the ODC's sheet. The total estimated ODC's costs for KI is estimated at half a million JOD. With the office support and the allowed budget contingency, the budget for KI is about 1.177 million JOD. The days assigned for the project team to carry the activities and the ODC's are based the following rationale:

1. Conducting focus groups – this will be carried by the project team. Each focus group will run for few hours and will require time for preparation of discussion guide, and documentation. On yearly basis, 10 focus groups are envisioned with about 12- 15 participants each. The total number of participants is expected to be 120-150 persons. The estimated level of effort **(LOE) for the focus groups is expected to be 90 days**. This will cover preparation works, scripts development, and reporting. The focus groups will be a venue to orient the team members of the issues. All team members will participate at different levels in these groups. The scoping session will cost about 200 JOD in ODC's including venues within CBO's and serving people. The participants usually get gifts and we budget 10 JOD for each participant. The total ODC's cost each is 3200 in year one, an inflation rate of 5% is applied.

2. Assessment of CBO's and their capacity and past performance – the design and implementation of the targeted communication and awareness programs is built around NGO's and their capacity for implementation. This activity will be implemented by the project director, project manager, social officers, and communication officers. The social officers will gather information from the Ministry of Social Development, and will be also developing list of NGO's who work with NAF beneficiaries. A total of 60 days LOE is assigned in year 1, which will go down in the following years. The ODC's here are part of the component ODC's which are found in office establishment and support expenses.

3. Consultations with similar projects – this will be done by the project team. The level of effort of the team is estimated for labor budgeting.

4. Development of educational materials on water tanks cleaning, systems inspection, and quality testing – the material content will be developed by the project team. The cost of production and design are estimated for 200,000 leaflets is estimated at 40,000 annually. Inflation rates are applied for the following years.

5. Implementation of an awareness program with the stakeholders – the project team will carry out training sessions and demonstrations with the stakeholders. The training expenses and material printing costs are in the ODC's sheet for KI. It is estimated that each session will cost about 100 JOD. The total training ODC's cost per year is 5000 JOD. Inflation rates are applied for the life of the project.

6. Carry out demonstrations & a campaign for water tanks cleaning – these demonstration activities will be implemented by the NGO's that are being trained by the project team. The labor costs for the project team are included to supervise the NGO's and provide technical support. The ODC's costs are estimated at 5

JOD's per household which will cover the cost of machines to empty the tanks (such the water and clean/hover the bottom), washing it and chlorinating it.

The cost of machines for tanks cleaning is about 500 JOD. It is recommended to buy 20 machines for 10,000 JOD in year 1, distribute to the selected CBO's. The CBO's will be trained on the machines and they will use them in the demonstration sites, and make them available for people requesting tanks cleaning.

If the tanks have plug, and are high enough to unscrew the plug, it is easy to clean the tanks and wash them without machines. CBO's will be provided with tools to unscrew the plugs. These tools are cheap and available. The cost for tools is estimated at 2000 JOD.

A budget of about 26,000 JOD is provided in the budget based on a unit cost of 5 JOD. The budget will cover machines, tools, and any additional costs by the CBO's.

7. Conduct water quality testing on site with the CBO's – water quality testing will be carried out by the CBO's and other community groups. The cost of project labor is estimated based on the needed LOE for support and training. The other direct costs are estimated based on the number of water quality test per year (about 800 tests), and the cost of test which is estimated 10JOD. The budget for water quality testing is about 39,000 JOD over the program period.

8. Provide training on simple water audits and household leaks inspection – these are simple household water audits to inspect leakages from faucets, toilet, and main networks with households. The program will conduct 50 training sessions and demonstrations to targeted CBO's and community groups each year. These groups will conduct the water audits within neighborhoods. The training will be conducted by the project team, and level of effort is allowed for it. The other expenses are about 100 JOD per training session.

9. Design and publish leaflets on measures for water saving in households – education programs on WSD will happen year 3 to year 5 on the project. Education within the first two years of the intervention will focus on quality aspects and water tanks cleaning. Water saving devices will reduce household losses and make more water available for other uses. The project will coordinate with other water demand management and produce leaflets or adapt leaflets on water saving devices. It is estimated that 100,000 leaflets will be produced each year at a cost of 65,500 JOD for 3 years. The labor costs for developing content and material is included in the labor costs.

10. Provide WSD fixtures and train on installation, maintenance, and cleaning – these are simple fixtures for faucets, showers, etc.. The program will provide 500 free of charge every year for 3 years at a cost of 16,000 JOD

11. Organize semiannual events through the life of the project – it is important to raise the profile of the intervention, demonstrate achievements, and rally support from different stakeholders. The other direct cost associated with this activity is 16000 JOD for 2 events every year throughout project duration. The project team wil organize these events, and budget is already built in labor budget.

12. Work with ZWC to obtain and distribute quality monitoring data – this will require team coordination with the water utility/company.

13. Organize working sessions to share experiences with different groups – These sessions will happen throughout the project, and will be carried by project team. The expenses for these sessions are estimated at 40,000 JOD.

The tables below show the labor and other direct costs calculations for the Knowledge improvement component

LOE distribution for Knowledge Improvement Component

Summary for Year 1- 5 of LOE- Days for Management and Technical Staff

#	**Knowledge Improvement Component Total Year 1 - 5**	Project Director	Project Manager	Eng 1	Eng 2	Eng 3	Eng 4	Social and Community Officer 1	Social and Community Officer 2	Communication Expert
1	Conduct Focus Groups	25	25	25	25	25	25	70	70	100
2	Carry out an assessment of the CBO's and Cooperatives in Zarqa Governorate	13	25	0	0	0	0	40	40	60
3	Consult with similar projects for cooperation	15	50	25	0	0	0	15	15	50
4	Produce educational leaflets on water tanks cleaning, systems inspection and quality test	30	25	30	0	0	0	15	15	95
5	Implement Awareness program with the key stakeholders	10	25	40	50	50	50	17	17	95
6	Carry out demonstrations & a campaign for water tanks cleaning	15	15	25	25	25	25	25	25	75
7	Conduct water quality testing on site with the CBO's	0	15	25	25	25	25	25	25	50
8	Provide training on simple water audits and household leaks inspection	10	15	75	50	50	50	10	10	60
9	Design and publish leaflets on measures for water saving in households	9	9	12	0	0	0	0	0	45
10	Provide WSD fixtures and train on installation, maintenance, and cleaning	4	9	15	20	20	20	0	0	45
11	Organize semiannual events through the life of the project	20	40	40	0	0	0	44	44	75
12	Work with ZWC to obtain and distribute quality monitoring data	10	25	25	0	0	0	0	0	50
13	Organize working sessions to share experiences with different groups	15	25	25	0	0	0	38	38	110
	TOTALS	176	303	362	195	195	195	299	299	910

#	**Knowledge Improvement Component Year 1**	Project Director	Project Manager	Eng 1	Eng 2	Eng 3	Eng 4	Social and Community Officer 1	Social and Community Officer 2	Communication Expert
1	Conduct Focus Groups	5	5	5	5	5	5	20	20	20
2	Carry out an assessment of the CBO's and Cooperatives in Zarqa Governorate	5	5					15	15	20
3	Consult with similar projects for cooperation	3	10	5				3	3	10
4	Produce educational leaflets on water tanks cleaning, systems inspection and quality test	6	5	6				3	3	25
5	Implement Awareness program with the key stakeholders/cleaning and testing	2	5	8	10	10	10	3	3	25
6	Carry out demonstrations & campaign for water tanks cleaning	3	3	5	5	5	5	5	5	15
7	Conduct water quality testing on site with the CBO's		3	5	5	5	5	5	5	10
8	Provide training on simple water audits and household leaks inspection	2	3	15	10	10	10	5	5	15
9	Design and publish leaflets on measures for water saving in households (No activity in Y1)									
10	Provide WSD fixtures and train on installation, maintenance, and cleaning (No activity in Y1)									
11	Organize semiannual events through the life of the project	4	8	8				10	10	15
12	Work with ZWC to obtain and distribute quality monitoring data	2	5	5						10
13	Organize working sessions to share experiences with different groups	3	5	5				10	10	20
	TOTALS	35	57	67	35	35	35	79	79	185

#	**Knowledge Improvement Component Year 2**	Project Director	Project Manager	Eng 1	Eng 2	Eng 3	Eng 4	Social and Community Officer 1	Social and Community Officer 2	Communication Expert
1	Conduct Focus Groups	5	5	5	5	5	5	20	20	20
2	Carry out an assessment of the CBO's and Cooperatives in Zarqa Governorate	2	5					10	10	10
3	Consult with similar projects for cooperation	3	10	5				3	3	10
4	Produce educational leaflets on water tanks cleaning, systems inspection and quality test	6	5	6				3	3	25
5	Implement Awareness program with the key stakeholders/cleaning and testing	2	5	8	10	10	10	5	5	25
6	Carry out demonstrations & a campaign for water tanks cleaning	3	3	5	5	5	5	5	5	15
7	Conduct water quality testing on site with the CBO's		3	5	5	5	5	5	5	10
8	Provide training on simple water audits and household leaks inspection	2	3	15	10	10	10	5	5	15
9	Design and publish leaflets on measures for water saving in households									
10	Provide WSD fixtures and train on installation, maintenance, and cleaning									
11	Organize semiannual events through the life of the project	4	8	8				10	10	15
12	Work with ZWC to obtain and distribute quality monitoring data	2	5	5						10
13	Organize working sessions to share experiences with different groups	3	5	5				10	10	30
	TOTALS	32	57	67	35	35	35	76	76	185

#	**Knowledge Improvement Component Year 3**	Project Director	Project Manager	Eng 1	Eng 2	Eng 3	Eng 4	Social and Community Officer 1	Social and Community Officer 2	Communication Expert
1	Conduct Focus Groups	5	5	5	5	5	5	10	10	20
2	Carry out an assessment of the CBO's and Cooperatives in Zarqa Governorate	2	5					5	5	10
3	Consult with similar projects for cooperation	3	10	5				3	3	10
4	Produce educational leaflets on water tanks cleaning, systems inspection and quality test	6	5	6				3	3	15
5	Implement Awareness program with the key stakeholders	2	5	8	10	10	10	3	3	15
6	Carry out demonstrations & a campaign for water tanks cleaning	3	3	5	5	5	5	5	5	15
7	Conduct water quality testing on site with the CBO's		3	5	5	5	5	5	5	10
8	Provide training on simple water audits and household leaks inspection	2	3	15	10	10	10			10
9	Design and publish leaflets on measures for water saving in households	3	3	4						15
10	Provide WSD fixtures and train on installation, maintenance, and cleaning		3	5						15
11	Organize semiannual events through the life of the project	4	8	8				8	8	15
12	Work with ZWC to obtain and distribute quality monitoring data	2	5	5						10
13	Organize working sessions to share experiences with different groups	3	5	5				6	6	20
	TOTALS	35	63	76	35	35	35	48	48	180

#	**Knowledge Improvement Component Year 4**	Project Director	Project Manager	Eng 1	Eng 2	Eng 3	Eng 4	Social and Community Officer 1	Social and Community Officer 2	Communication Expert
1	Conduct Focus Groups	5	5	5	5	5	5	10	10	20
2	Carry out an assessment of the CBO's and Cooperatives in Zarqa Governorate	2	5					5	5	10
3	Consult with similar projects for cooperation	3	10	5				3	3	10
4	Produce educational leaflets on water tanks cleaning, systems inspection and quality test	6	5	6				3	3	15
5	Implement Awareness program with the key stakeholders	2	5	8	10	10	10	3	3	15
6	Carry out demonstrations & a campaign for water tanks cleaning	3	3	5	5	5	5	5	5	15
7	Conduct water quality testing on site with the CBO's		3	5	5	5	5	5	5	10
8	Provide training on simple water audits and household leaks inspection	2	3	15	10	10	10			10
9	Design and publish leaflets on measures for water saving in households	3	3	4						15
10	Provide WSD fixtures and train on installation, maintenance, and cleaning	2	3	5	10	10	10			15
11	Organize semiannual events through the life of the project	4	8	8				8	8	15
12	Work with ZWC to obtain and distribute quality monitoring data	2	5	5						10
13	Organize working sessions to share experiences with different groups	3	5	5				6	6	20
	TOTALS	37	63	76	45	45	45	48	48	180

#	**Knowledge Improvement Component Year 5**	Project Director	Project Manager	Eng 1	Eng 2	Eng 3	Eng 4	Social and Community Officer 1	Social and Community Officer 2	Communication Expert
1	Conduct Focus Groups	5	5	5	5	5	5	10	10	20
2	Carry out an assessment of the CBO's and Cooperatives in Zarqa Governorate	2	5					5	5	10
3	Consult with similar projects for cooperation	3	10	5				3	3	10
4	Produce educational leaflets on water tanks cleaning, systems inspection and quality test	6	5	6				3	3	15
5	Implement Awareness program with the key stakeholders	2	5	8	10	10	10	3	3	15
6	Carry out demonstrations & a campaign for water tanks cleaning	3	3	5	5	5	5	5	5	15
7	Conduct water quality testing on site with the CBO's		3	5	5	5	5	5	5	10
8	Provide training on simple water audits and household leaks inspection	2	3	15	10	10	10			10
9	Design and publish leaflets on measures for water saving in households	3	3	4						15
10	Provide WSD fixtures and train on installation, maintenance, and cleaning	2	3	5	10	10	10			15
11	Organize semiannual events through the life of the project	4	8	8				8	8	15
12	Work with ZWC to obtain and distribute quality monitoring data	2	5	5						10
13	Organize working sessions to share experiences with different groups	3	5	5				6	6	20
	TOTALS	37	63	76	45	45	45	48	48	180

Labor Cost Knowledge Improvement Component

		Year 1		Year 2		Year 3		Year 4		Year 5		Year 1- 5	
Staffing Cost	Salary	LOE Months	Basic Salaries	LOE Months	Basic Salaries	LOE Months	Basic Salaries	LOE Months	Basic Salaries	LOE Months	Basic Salaries	LOE Months	Basic Salaries
Project Director	4500	1.9	8,591	1.7	8,247	1.9	9,471	2.0	10,513	2.0	11,039	9.6	47,862
Project Manager	2500	4.9	12,214	4.9	12,962	5.4	14,808	5.4	15,548	5.4	16,325	25.9	71,857
Eng 1	1500	4.2	6,338	4.3	6,705	4.8	7,879	4.8	8,273	4.8	8,745	22.8	37,940
Eng 2	1000	1.9	1,909	1.9	2,005	1.9	2,105	2.5	2,841	2.5	2,984	10.6	11,843
Eng 3	1000	1.9	1,909	1.9	2,005	1.9	2,105	2.5	2,841	2.5	2,984	10.6	11,843
Eng 4	1000	1.9	1,909	1.9	2,005	1.9	2,105	2.5	2,841	2.5	2,984	10.6	11,843
Eng 5	1000	-	-	-	-	-	-	-	-	-	-	-	-
Social and Community Officer 1	900	4.3	3,878	4.1	3,917	2.6	2,598	2.6	2,728	2.6	2,864	16.3	15,985
Social and Community Officer 2	900	4.3	3,878	4.1	3,917	2.6	2,598	2.6	2,728	2.6	2,864	16.3	15,985
Communication Expert	1500	10.1	15,136	10.1	15,893	9.8	16,237	9.8	17,049	9.8	17,901	49.6	82,216
Controller	1200	2.4	2,880	2.4	3,024	2.4	3,175	2.4	3,334	2.4	3,501	12.0	15,914
Accountant	800	3.8	3,055	3.8	3,207	3.8	3,368	3.8	3,536	3.8	3,713	19.1	16,878
Surveyor 1	800	-	-	-	-	-	-	-	-	-	-	-	-
Surveyor 2	800	-	-	-	-	-	-	-	-	-	-	-	-
Admin Assistant	400	3.8	1,527	3.8	1,604	3.8	1,684	3.8	1,768	3.8	1,856	19.1	8,439
Total Basic Salary		45	63,225	45	65,491	43	68,131	45	74,000	45	77,760	223	348,608
Fringe Benefits 25%			15,806	-	16,373	-	17,033	-	18,500	-	19,440	-	87,152
Overhead 35%			22,129	-	22,922	-	23,846	-	25,900	-	27,216	-	122,013
Annual Cost 12			101,161		104,785		109,010		118,401		124,415		557,772

Knowledge Improvement Component ODCs

#	Knowledge Improvement Component	Unit Measurement	Rate per Unit	Units					Costs Year 1 thru 5					
				Units/ Yr 1	Units/ Yr 2	Units/ Yr 3	Units/ Yr 4	Units/ Yr 5	Cost/ Yr 1	Cost/ Yr 2	Cost/ Yr 3	Cost/ Yr 4	Cost/ Yr 5	Total
1	Conduct Focus Groups	Meeting	200	10	10	10	10	10	2,000	2,060	2,122	2,185	2,251	10,618
		Focus Group Gifts	10	120	120	120	120	120	1,200	1,236	1,273	1,311	1,351	6,371
2	Carry out an assessment of the CBO's and Cooperatives in Zarqa Governorate								-	-	-	-	-	-
3	Consult with similar projects for cooperation								-	-	-	-	-	-
4	Produce educational leaflets on water tanks cleaning, systems inspection and quality test	Leaflet Production	0.20	200,000	200,000	200,000	200,000	200,000	40,000	41,200	42,436	43,709	45,020	212,365
5	Implement Awareness program with the key stakeholders/cleaning and testing	Training Session	100	50	50	50	50	50	5,000	5,150	5,305	5,464	5,628	26,546
6	Carry out demonstrations & a campaign for water tanks cleaning	Demonstration No's	5	1,000	1,000	1,000	1,000	1,000	5,000	5,150	5,305	5,464	5,628	26,546
7	Conduct water quality testing on site with the CBO's	Equipment & Kits	10	800	800	800	800	500	8,000	8,240	8,487	8,742	5,628	39,097
8	Provide training on simple water audits and household leaks inspection	Training Session	100	50	50	50	50	50	5,000	5,150	5,305	5,464	5,628	26,546
9	Design and publish leaflets on measures for water saving in households	Leaflet Production	0.20			100,000	100,000	100,000	-	-	21,218	21,855	22,510	65,583
		Training Session	100			50	50	50	-	-	5,305	5,464	5,628	16,396
10	Provide WSD fixtures and train on installation, maintenance, and cleaning	WSD	10			500	500	500	-	-	5,305	5,464	5,628	16,396
11	Organize semiannual events through the life of the project	Events	1,500	2	2	2	2	2	3,000	3,090	3,183	3,278	3,377	15,927
12	Work with ZWC to obtain and distribute quality monitoring data								-	-	-	-	-	-
13	Organize working sessions to share experiences with different groups	Meeting	150	50	50	50	50	50	7,500	7,725	7,957	8,195	8,441	39,819
	TOTALS								76,700	79,001	113,198	116,594	116,715	502,208

5.3 Household Infrastructure Component

Review of Applications and Site Inspection of Households Systems

The NAF beneficiaries in the project area are estimated at 10843 households. It is expected that 7590 households will submit applications for HH replacements.

Estimated Applications, Inspections and Approvals

District	Number of NAF Subsidies	Applications (70% of NAF Beneficiaries	Inspection and Reporting	Expected Approvals
Urban Areas	9,615	6,730	6,730	3,461
Rural Areas	1,229	860	860	442
TOTAL	10843	7590.1	7590.1	3903.48
			Percentage	51%

These applications will be reviewed by the engineer and the social officer. The engineer will check the water systems conditions, and the social officer will go through the paper work for eligibility, and go through the application with the head of the household. The applied household will be inspected to decide if works are needed and define the nature of this work. The CBO's in the project area will facilitate access and maybe there with the inspection team. The work will be scheduled and coordinated with the CBO's to have a cluster of applications in the same neighborhood. The CBO's will be informed of the inspection schedule and will be invited to facilitate the process. The areas of Zarqa and Russaifeh are high density and it is expected that there not be much travel time. It is estimated that in one day, the inspection team will be able to cover at least 8 households. The team will spend an hour on inspection and going through the paper works. The engineer will take measurements, decide the needed works, and have the household head sign the form for required works. The detailed BOQ and household requirements will be designed in the project office.

In rural areas, the houses are not clustered and travel time to these sites has been incorporated into the LOE estimation. The estimated time for an engineer and social officers is 2 hours for each household.

Preparation of the BOQ and Design Drawings

The engineer will work with the BOQ surveyor to estimate the BOQ, and prepare a drawing to show the works that need to be carried out. The project team will develop specifications for each item of works that will be attached to the drawings and the BOQ

list. The specifications will include materials specifications and some simple instructions for installation (i.e. specify the distance/height of water tanks above the roof to enable easy maintenance). These specifications will be developed to be approved by MCA-Jordan. The estimated LOE for BOQ and drawing preparation is 1.25 hour for the Surveyor and .75 hour for the engineer. This will apply for urban and rural areas.

The supervisor engineer is responsible for review of the design work and the bill of quantities, and approval of works by the project to be submitted to MCA – Jordan review, inspection, and approval.

Approval by MCA – Jordan

The total number of approved applications is estimated at 15-20 application per week, taking into consideration the working days per year and the number of household targeting. The sheet "Sub- Staffing Urban" and the sheet "Sub- Staffing Rural" show working days, and the number of processed household application per each year. The MAC – Jordan project team will take a sample of 10 – 20 % and visit the houses and review the applications and design.

The MCA – Jordan will provide approvals to initiate the implementation works or, or ask for modifications and adjustments if needed.

Implementation of the works

The supervisor engineer will develop a list of approved household replacement works on weekly basis and distribute the work to list of approved plumbers and suppliers. These suppliers and plumbers will be identified early on, and the contractor will develop master agreements with them that include payments terms, quality control, acceptance of works procedures, quality control on material, warranties on materials and workmanship. The material to be used for this project are galvanized steel pipers and fittings for pipes, and galvanized steel water tanks, and faucets.

The implementation process:

1. Plumbers and engineers will visit suppliers and check the material on weekly basis for the intended works of the following week
2. The team will sign on material acceptance to be delivered to the implementation sites
3. Materials are usually transported by plumbers. Transportation costs are included in the workmanship costs in the spreadsheet
4. The engineer and the surveyor will inspect the implementation works when completed
5. The household head will sign on the inspection form and provide initial acceptance

In Jordan, there are two factories for galvanized pipes, fittings, and sheets. These factories have systems and operational procedures that they implement before materials are delivered to suppliers. Talking to few plumbers in Jordan, they confirmed that they have not encountered material defects or problems. Default risks from material are very minimal and could be mitigated through warranties from suppliers, which will be part of the master agreements.

Warranties will be applied to the plumbers through agreements with them. These agreements will be reviewed on annual basis. The selected

The estimated time for acceptance of works and quality control, and estimating the actual BOQ in urban areas is about 1.5 hours for an engineer, and 1 hour for BOQ surveyor. In rural areas, the allowed LOE for engineer and surveyor are 2.5 and 2 hours respectively.

Estimated BOQ for Household Infrastructure replacement

Assumption on Characteristics of the Household

- Most of the households are apartments with an average of about 6 apartments per building,
- Households are built on small lots with an average set back of 4 meters from the water meter
- Households are apartments with an average height of 10 meters
- The roof area is small with an average roof area of 200 meters for 2 flats
- The households have one kitchen and on average 1.5 bathrooms
- The households have 2 water tanks with a total capacity of 2 m3.

Assumption on Needed Replacements

- 30% of the potential households will require tank replacement
- 15% will require replacement of water pipe from the meter to the roof
- 65% will require replacement of water pipe from tank to Flat
- 65% will require changing the pipes to the kitchen
- 65% will require changing the water pipes to the bathrooms
- 25% will need to replace the water faucets in the kitchen and bathrooms

Assumption on Quantities of Replacement Works

- Water tanks – only one water tank will be replaced for each household
- Water pipes from meter to roof storage tank – the lengths are calculated as 4 meter setback, 6 meters from the front wall to the riser, and 10 meters for the riser, and 8 meters on the roof and the riser to the tank.

- Water pipes from tanks to flats - the lengths are calculated as 8 meter from tanks to edge of the roof, and 5 meters to on average to flat, 3 meters to enter into the flat.
- Water pipes to kitchen – 18 meters
- Water pipes to the bathrooms – 20 meters

The estimated quantities, given the above assumptions and the annual targeted household are shown the tables below for urban areas and rural areas:

BOQ for Materials and Supplies

The unit costs for workmanship and materials are estimated as follows:

Item	Unit	Material Unit Cost (JOD)	Workmanship Unit Cost (JOD)	comments
Water Tank	No	70	30	
Water pipe from meter to roof tank	Linear meter including fittings	2.5	2	Long pipes and limited fittings
Water pipe from tank to flat wall (external works)	Linear meter including fittings	2.5	4	Long pipes and limited fittings for material, but higher costs for installation due to nature of works and time for installation
Water pipe within	Linear	4	4	More fittings and

flats to the kitchen	meter including fittings			higher costs, and higher costs for installation
Water pipe within flats to the bathrooms	Linear meter including fittings	4	4	More fittings and higher costs, and higher costs for installation
Water faucets in kitchens and bathrooms		25	5	

Applying the BOQ and the unit Costs, the table below shows the total costs in urban areas per material items over the five years and the annual distribution costs of both.

Item Year 1 - 5 **3500 HH**	Total Material Cost	Total Workmanship cost	Material & Workmanship Costs /Item
Water tanks (Unit # of tanks)	82,319	35,280	117,599
Water pipes from meter to roof (LM including fittings)	41,160	32,928	74,087
water pipe from tank to Flat (LM including fittings)	101,919	163,071	264,990
Water pipes from tank to kitchen (LM including fittings)	183,454	183,454	366,909
Water pipes from tank to bathrooms (LM including fittings)	203,838	203,838	407,677
Water taps for kitchen and bathrooms	61,249	12,250	73,499
TOTAL GRANTS BUDGET	673,940	630,821	1,304,761

HH Infrastructure Grant **Urban** **Item Year 1 - 5** **3500 HH**	**Total Material Cost**	**Total Workmanship cost**	**Material & Workmanship Costs /Item**
Year 1	51,578	48,278	99,855
Year 2	126,365	118,280	244,645
Year 3	170,593	159,678	330,270
Year 4	179,122	167,662	346,784
Year 5	146,283	136,924	283,207
TOTAL GRANTS BUDGET- Urban	673,940	630,821	1,304,761

In Rural Areas

Item Year 1 - 5 **450 HH**	Total	Total	Material &
Water tanks (Unit # of tanks)	10,490	4,496	14,986
Water pipes from meter to roof (LM including fittings)	5,245	4,196	9,441
water pipe from tank to Flat (LM including fittings)	12,988	20,781	33,769
Water pipes from tank to kitchen (LM including fittings)	23,379	23,379	46,757
Water pipes from tank to bathrooms (LM including fittings)	25,976	25,976	51,952
Water taps for kitchen and bathrooms	7,805	1,561	9,366
TOTAL GRANTS BUDGET	85,884	80,389	166,272

HH Infrastructure Grant- Rural **Item Year 1 - 5** **450 HH**	**Total Material Cost**	**Total Workmanship cost**	**Material & Workmanship Costs /Item**
Year 1	4,298	4,023	8,321
Year 2	22,565	21,121	43,687
Year 3	23,693	22,177	45,871
Year 4	24,878	23,286	48,164
Year 5	10,449	9,780	20,229
TOTAL GRANTS BUDGET- Rural	85,884	80,389	166,272

The detailed costs of all items are shown in the tables below:

BOQ Details in Urban Areas/Year

Item Year 1	A %	B Unit	C Units Replaced	D Cost of Material/Unit	E Workmanship/ Unit	F Total Material Cost	G Total Workmanship cost	H Material & Workmanship Costs /Item	I Max Grant/HH	J Average Grant/HH
300 HH			A * B * HH			C * D	C * E	F + G	H / C	H / HH
Water tanks (Unit # of tanks)	30%	1.0	90	70	30	6,300	2,700	9,000	100.0	30.00
Water pipes from meter to roof (LM including fittings)	15%	28.0	1,260	2.5	2	3,150	2,520	5,670	126.0	18.90
water pipe from tank to Flat (LM including fittings)	65%	16.0	3,120	2.5	4	7,800	12,480	20,280	104.0	67.60
Water pipes from tank to kitchen (LM including fittings)	65%	18.0	3,510	4	4	14,040	14,040	28,080	144.0	93.60
Water pipes from tank to bathrooms (LM including fittings)	65%	20.0	3,900	4	4	15,600	15,600	31,200	160.0	104.00
Water taps for kitchen and bathrooms	25%	2.5	188	25	5	4,688	938	5,625	75.0	18.75
TOTAL- YEAR 1						51,578	48,278	**99,855**		

Item Year 2	A %	B Unit	C Units Replaced	D Cost of Material/Unit	E Workmanship/ Unit	F Total Material Cost	G Total Workmanship cost	H Material & Workmanship Costs /Item	I Max Grant/HH	J Average Grant/HH
700 HH			A * B * HH			C * D	C * E	F + G	H / C	H / HH
Water tanks (Unit # of tanks)	30%	1.0	210	70	30	15,435	6,615	22,050	105.0	73.50
Water pipes from meter to roof (LM including fittings)	15%	28.0	2,940	2.5	2	7,718	6,174	13,892	132.3	46.31
water pipe from tank to Flat (LM including fittings)	65%	16.0	7,280	2.5	4	19,110	30,576	49,686	109.2	165.62
Water pipes from tank to kitchen (LM including fittings)	65%	18.0	8,190	4	4	34,398	34,398	68,796	151.2	229.32
Water pipes from tank to bathrooms (LM including fittings)	65%	20.0	9,100	4	4	38,220	38,220	76,440	168.0	254.80
Water taps for kitchen and bathrooms	25%	2.5	438	25	5	11,484	2,297	13,781	78.8	45.94
TOTAL- YEAR 2						126,365	118,280	**244,645**		

Item Year 3	A %	B Unit	C Units Replaced	D Cost of Material/Unit	E Workmanship/ Unit	F Total Material Cost	G Total Workmanship cost	H Material & Workmanship Costs /Item	I Max Grant/HH	J Average Grant/HH
900 HH			A * B * HH			C * D	C * E	F + G	H / C	H / HH
Water tanks (Unit # of tanks)	30%	1.0	270	70	30	20,837	8,930	29,768	110.3	99.23
Water pipes from meter to roof (LM including fittings)	15%	28.0	3,780	2.5	2	10,419	8,335	18,754	138.9	62.51
water pipe from tank to Flat (LM including fittings)	65%	16.0	9,360	2.5	4	25,799	41,278	67,076	114.7	223.59
Water pipes from tank to kitchen (LM including fittings)	65%	18.0	10,530	4	4	46,437	46,437	92,875	158.8	309.58
Water pipes from tank to bathrooms (LM including fittings)	65%	20.0	11,700	4	4	51,597	51,597	103,194	176.4	343.98
Water taps for kitchen and bathrooms	25%	2.5	563	25	5	15,504	3,101	18,605	82.7	62.02
TOTAL- YEAR 3						170,593	159,678	**330,270**		

Item Year 4 900 HH	A % 	B Unit 	C Units Replaced A * B * HH	D Cost of Material/Unit 	E Workmanship/ Unit 	F Total Material Cost C * D	G Total Workmanship cost C * E	H Material & Workmanship Costs /Item F + G	I Max Grant/HH H / C	J Average Grant/HH H / HH
Water tanks (Unit # of tanks)	30%	1.0	270	70	30	21,879	9,377	31,256	115.8	104.19
Water pipes from meter to roof (LM including fittings)	15%	28.0	3,780	2.5	2	10,940	8,752	19,691	145.9	65.64
water pipe from tank to Flat (LM including fittings)	65%	16.0	9,360	2.5	4	27,088	43,341	70,430	120.4	234.77
Water pipes from tank to kitchen (LM including fittings)	65%	18.0	10,530	4	4	48,759	48,759	97,518	166.7	325.06
Water pipes from tank to bathrooms (LM including fittings)	65%	20.0	11,700	4	4	54,177	54,177	108,354	185.2	361.18
Water taps for kitchen and bathrooms	25%	2.5	563	25	5	16,279	3,256	19,535	86.8	65.12
TOTAL- YEAR 4						179,122	167,662	**346,784**		

Item Year 5 700 HH	A % 	B Unit 	C Units Replaced A * B * HH	D Cost of Material/Unit 	E Workmanship/ Unit 	F Total Material Cost C * D	G Total Workmanship cost C * E	H Material & Workmanship Costs /Item F + G	I Max Grant/HH H / C	J Average Grant/HH H / HH
Water tanks (Unit # of tanks)	30%	1.0	210	70	30	17,868	7,658	25,526	121.6	85.09
Water pipes from meter to roof (LM including fittings)	15%	28.0	2,940	2.5	2	8,934	7,147	16,081	153.2	53.60
water pipe from tank to Flat (LM including fittings)	65%	16.0	7,280	2.5	4	22,122	35,396	57,518	126.4	191.73
Water pipes from tank to kitchen (LM including fittings)	65%	18.0	8,190	4	4	39,820	39,820	79,640	175.0	265.47
Water pipes from tank to bathrooms (LM including fittings)	65%	20.0	9,100	4	4	44,244	44,244	88,489	194.5	294.96
Water taps for kitchen and bathrooms	25%	2.5	438	25	5	13,295	2,659	15,954	91.2	53.18
TOTAL- YEAR 5						146,283	136,924	**283,207**		

BOQ Details in Rural Areas/Year

Item Year 1 25 HH	A %	B Unit	C Units Replaced A * B * HH	D Cost of Material/Unit	E Workmanship	F Total Material Cost C * D	G Total Workmanship C * E	H Material & Workmanship F + G	I Max Grant/HH H / C	J Average Grant/HH H / HH
Water tanks (Unit # of tanks)	30%	1.0	8	70	30	525	225	750	100.0	30.00
Water pipes from meter to roof (LM including fittings)	15%	28.0	105	2.5	2	263	210	473	126.0	18.90
water pipe from tank to Flat (LM including fittings)	65%	16.0	260	2.5	4	650	1,040	1,690	104.0	67.60
Water pipes from tank to kitchen (LM including fittings)	65%	18.0	293	4	4	1,170	1,170	2,340	144.0	93.60
Water pipes from tank to bathrooms (LM including fittings)	65%	20.0	325	4	4	1,300	1,300	2,600	160.0	104.00
Water taps for kitchen and bathrooms	25%	2.5	16	25	5	391	78	469	75.0	18.75
TOTAL- YEAR 1						4,298	4,023	**8,321**		

Item Year 2 125 HH	A %	B Unit	C Units Replaced A * B * HH	D Cost of Material/Unit	E Workmanship	F Total Material Cost C * D	G Total Workmanship C * E	H Material & Workmanship F + G	I Max Grant/HH H / C	J Average Grant/HH H / HH
Water tanks (Unit # of tanks)	30%	1.0	38	70	30	2,756	1,181	3,938	105.0	157.50
Water pipes from meter to roof (LM including fittings)	15%	28.0	525	2.5	2	1,378	1,103	2,481	132.3	99.23
water pipe from tank to Flat (LM including fittings)	65%	16.0	1,300	2.5	4	3,413	5,460	8,873	109.2	354.90
Water pipes from tank to kitchen (LM including fittings)	65%	18.0	1,463	4	4	6,143	6,143	12,285	151.2	491.40
Water pipes from tank to bathrooms (LM including fittings)	65%	20.0	1,625	4	4	6,825	6,825	13,650	168.0	546.00
Water taps for kitchen and bathrooms	25%	2.5	78	25	5	2,051	410	2,461	78.8	98.44
TOTAL- YEAR 2						22,565	21,121	**43,687**		

Item Year 3 125 HH	A %	B Unit	C Units Replaced A * B * HH	D Cost of Material/Unit	E Workmanship	F Total Material Cost C * D	G Total Workmanship C * E	H Material & Workmanship F + G	I Max Grant/HH H / C	J Average Grant/HH H / HH
Water tanks (Unit # of tanks)	30%	1.0	38	70	30	2,894	1,240	4,134	110.3	165.38
Water pipes from meter to roof (LM including fittings)	15%	28.0	525	2.5	2	1,447	1,158	2,605	138.9	104.19
water pipe from tank to Flat (LM including fittings)	65%	16.0	1,300	2.5	4	3,583	5,733	9,316	114.7	372.65
Water pipes from tank to kitchen (LM including fittings)	65%	18.0	1,463	4	4	6,450	6,450	12,899	158.8	515.97
Water pipes from tank to bathrooms (LM including fittings)	65%	20.0	1,625	4	4	7,166	7,166	14,333	176.4	573.30
Water taps for kitchen and bathrooms	25%	2.5	78	25	5	2,153	431	2,584	82.7	103.36
TOTAL- YEAR 3						23,693	22,177	**45,871**		

Item Year 4 125 HH	A %	B Unit	C Units Replaced A * B * HH	D Cost of Material/Unit	E Workmanship	F Total Material Cost C * D	G Total Workmanship C * E	H Material & Workmanship F + G	I Max Grant/HH H / C	J Average Grant/HH H / HH
Water tanks (Unit # of tanks)	30%	1.0	38	70	30	3,039	1,302	4,341	115.8	173.64
Water pipes from meter to roof (LM including fittings)	15%	28.0	525	2.5	2	1,519	1,216	2,735	145.9	109.40
water pipe from tank to Flat (LM including fittings)	65%	16.0	1,300	2.5	4	3,762	6,020	9,782	120.4	391.28
Water pipes from tank to kitchen (LM including fittings)	65%	18.0	1,463	4	4	6,772	6,772	13,544	166.7	541.77
Water pipes from tank to bathrooms (LM including fittings)	65%	20.0	1,625	4	4	7,525	7,525	15,049	185.2	601.97
Water taps for kitchen and bathrooms	25%	2.5	78	25	5	2,261	452	2,713	86.8	108.53
TOTAL- YEAR 4						24,878	23,286	**48,164**		

Item Year 5 50 HH	A %	B Unit	C Units Replaced A * B * HH	D Cost of Material/Unit	E Workmanship	F Total Material Cost C * D	G Total Workmanship C * E	H Material & Workmanship F + G	I Max Grant/HH H / C	J Average Grant/HH H / HH
Water tanks (Unit # of tanks)	30%	1.0	15	70	30	1,276	547	1,823	121.6	72.93
Water pipes from meter to roof (LM including fittings)	15%	28.0	210	2.5	2	638	511	1,149	153.2	45.95
water pipe from tank to Flat (LM including fittings)	65%	16.0	520	2.5	4	1,580	2,528	4,108	126.4	164.34
Water pipes from tank to kitchen (LM including fittings)	65%	18.0	585	4	4	2,844	2,844	5,689	175.0	227.54
Water pipes from tank to bathrooms (LM including fittings)	65%	20.0	650	4	4	3,160	3,160	6,321	194.5	252.83
Water taps for kitchen and bathrooms	25%	2.5	31	25	5	950	190	1,140	91.2	45.58
TOTAL- YEAR 5						10,449	9,780	**20,229**		

Staffing Needs for Household Infrastructure Component

The program staffing is estimated according to the number of working hours and the time of implementing the project activities in urban and rural areas. The tables below show estimated activities and estimated number of hours per staff.

- In Urban Areas

Inspection and Drawing F Number of Applications

Number / Year	No of Inspections	Working Days	No of HH per Day	Social Officer	Engineers	Days for Social Officers	Days for Eng	No. of Social Officers	No of Engineers
6 months									
Year 1	700	100	7.0	1	1	0.125	0.125	0.9	0.9
Year 2	1200	220	5.5	1	1	0.125	0.125	0.7	0.7
Year 3	1800	220	8.2	1	1	0.125	0.125	1.0	1.0
Year 4	1800	220	8.2	1	1	0.125	0.125	1.0	1.0
Year 5	1250	180	6.9	1	1	0.125	0.125	0.9	0.9
	6750								

Estimated Quantities for approved HH

Number / Year	No of Approvals HH	Working Days	No of HH per Day	Surveyor/CAD	Engineer	Days for Surveyor	Days for Eng	No. of Surveyors	No of Engineers
6 months									
Year 1	300	100	3.0	1.25	0.75	0.15625	0.09375	0.5	0.3
Year 2	700	220	3.2	1.25	0.75	0.15625	0.09375	0.5	0.3
Year 3	900	220	4.1	1.25	0.75	0.15625	0.09375	0.6	0.4
Year 4	900	220	4.1	1.25	0.75	0.15625	0.09375	0.6	0.4
Year 5	700	180	3.9	1.25	0.75	0.15625	0.09375	0.6	0.4
	3500								

Replacement Check and Approval of the Materials and Works

Number / Year	No of replacements	Working Days	No of HH per Day	Surveyor/CAD	Engineer	Days for Surveyor	Days for Eng	No. of Surveyors	No of Engineers
6 months									
Year 1	300	100	3.0	1.0	1.5	0.125	0.1875	0.4	0.6
Year 2	700	220	3.2	1.0	1.5	0.125	0.1875	0.4	0.6
Year 3	900	220	4.1	1.0	1.5	0.125	0.1875	0.5	0.8
Year 4	900	220	4.1	1.0	1.5	0.125	0.1875	0.5	0.8
Year 5	700	180	3.9	1.0	1.5	0.125	0.1875	0.5	0.7

Staffing for Inspection, BOQ estimation, and replacement work installation and approval

Number / Year	Engineers	Social Officer	Surveyor
6 months			
Year 1	1.7	0.9	0.8
Year 2	1.6	0.7	0.9
Year 3	2.2	1.0	1.2
Year 4	2.2	1.0	1.2
Year 5	2.0	0.9	1.1

- In Rural Areas

Inspection and Drawing Pr Number of Applications

Number / Year	No of Inspections	Working Days	No of HH per Day	Social Officer	Eng	Days for SO	Days for Eng	No. of Social Officers	No of Engineers
6 months									
Year 1	50	100	0.5	2	2	0.25	0.25	0.1	0.1
Year 2	250	220	1.1	2	2	0.25	0.25	0.3	0.3
Year 3	250	220	1.1	2	2	0.25	0.25	0.3	0.3
Year 4	200	220	0.9	2	2	0.25	0.25	0.2	0.2
Year 5	150	180	0.8	2	2	0.25	0.25	0.2	0.2
	900								

Estimated Quantities for approved HH

Number / Year	No of Approvals of HH	Working Days	No of HH per Day	Surveyor	Eng	Days for Surveyor	Days for Eng	No. of Surveyors	No of Engineers
6 months									
Year 1	25	100	0.3	1.25	0.75	0.15625	0.09375	0.04	0.02
Year 2	125	220	0.6	1.25	0.75	0.15625	0.09375	0.09	0.05
Year 3	125	220	0.6	1.25	0.75	0.15625	0.09375	0.09	0.05
Year 4	125	220	0.6	1.25	0.75	0.15625	0.09375	0.09	0.05
Year 5	50	180	0.3	1.25	0.75	0.15625	0.09375	0.04	0.03
	450								

Replacement Check and Approval of the Materials and Works

Number / Year	No of Replacements	Working Days	No of HH per Day	Surveyor	Eng	Days for Surveyor	Days for Eng	No. of Surveyors	No of Engineers
6 months									
Year 1	25	100	0.3	2.0	2.5	0.25	0.3125	0.1	0.1
Year 2	125	220	0.6	2.0	2.5	0.25	0.3125	0.1	0.2
Year 3	125	220	0.6	2.0	2.5	0.25	0.3125	0.1	0.2
Year 4	125	220	0.6	2.0	2.5	0.25	0.3125	0.1	0.2
Year 5	50	180	0.3	2.0	2.5	0.25	0.3125	0.1	0.1

Staffing for Inspection, BOQ estimation, and replacement work installation and approval

Number / Year	Engineers	Social Officer	Surveyor
6 months			
Year 1	0.2	0.1	0.1
Year 2	0.5	0.3	0.2
Year 3	0.5	0.3	0.2
Year 4	0.5	0.2	0.2
Year 5	0.3	0.2	0.1

LOE distribution for HH Infrastructure Component

Summary for Year 1- 5 of LOE- Days for Management and Technical Staff

HH Infrastructure Component Total Year 1 - 5	Project Director	Project Manager	Eng 1	Eng 2	Eng 3	Eng 4	Social and Community Officer 1	Social and Community Officer 2	Communication Expert	Surveyor 1	Surveyor 2
Develop a targeting plan	15	25	10	-	-	-	75	75	50	-	-
Establish a grants manual including operating procedures	25	32	22	-	-	-	13	13	50	-	-
Conduct survey of the suppliers and services' providers & Develop Master Plan Agreements	12	17	13	13	13	13	-	-	-	-	-
Promote household infrastructure grants within the communities	25	75	40	-	-	-	75	75	75	-	-
Implementation of replacement works for the approved list of beneficiaries- Urban	75	150	370	704	704	704	492	492	-	756	373
Implementation of replacement works for the approved list of beneficiaries- Rural	50	100	150	149	149	149	124	124	-	136	63
TOTALS	202	399	605	867	867	867	779	779	175	892	437

HH Infrastructure Component Year 1	Project Director	Project Manager	Eng 1	Eng 2	Eng 3	Eng 4	Social and Community Officer 1	Social and Community Officer 2	Communication Expert	Surveyor 1	Surveyor 2
Develop a targeting plan	3	5	2				15	15	10		
Establish a grants manual including operating procedures	5	8	10				5	5	10		
Conduct survey of the suppliers and services' providers & Develop Master Plan Agreements	4	5	5	5	5	5					
Promote household infrastructure grants within the communities	5	15	8				15	15	15		
Implementation of replacement works for the approved list of beneficiaries- Urban	15	30	70	126	126	126	96	96		186	
Implementation of replacement works for the approved list of beneficiaries- Rural	10	20	30	17	17	17	14	14		22	
TOTALS	42	83	125	148	148	148	145	145	35	208	-

HH Infrastructure Component Year 2	Project Director	Project Manager	Eng 1	Eng 2	Eng 3	Eng 4	Social and Community Officer 1	Social and Community Officer 2	Communication Expert	Surveyor 1	Surveyor 2
Develop a targeting plan	3	5	2				15	15	10		
Establish a grants manual including operating procedures	5	6	3				2	2	10		
Conduct survey of the suppliers and services' providers & Develop Master Plan Agreements	2	3	2	2	2	2					
Promote household infrastructure grants within the communities	5	15	8				15	15	15		
Implementation of replacement works for the approved list of beneficiaries- Urban	15	30	70	116	116	116	75	75		197	
Implementation of replacement works for the approved list of beneficiaries- Rural	10	20	30	38	38	38	31	31		51	
TOTALS	40	79	115	155	155	155	138	138	35	248	-

HH Infrastructure Component Year 3	Project Director	Project Manager	Eng 1	Eng 2	Eng 3	Eng 4	Social and Community Officer 1	Social and Community Officer 2	Communication Expert	Surveyor 1	Surveyor 2
Develop a targeting plan	3	5	2				15	15	10		
Establish a grants manual including operating procedures	5	6	3				2	2	10		
Conduct survey of the suppliers and services' providers & Develop Master Plan Agreements	2	3	2	2	2	2					
Promote household infrastructure grants within the communities	5	15	8				15	15	15		
Implementation of replacement works for the approved list of beneficiaries- Urban	15	30	80	159	159	159	113	113		127	127
Implementation of replacement works for the approved list of beneficiaries- Rural	10	20	30	38	38	38	31	31		25	25
TOTALS	40	79	125	199	199	199	176	176	35	152	152

HH Infrastructure Component Year 4	Project Director	Project Manager	Eng 1	Eng 2	Eng 3	Eng 4	Social and Community Officer 1	Social and Community Officer 2	Communication Expert	Surveyor 1	Surveyor 2
Develop a targeting plan	3	5	2				15	15	10		
Establish a grants manual including operating procedures	5	6	3				2	2	10		
Conduct survey of the suppliers and services' providers & Develop Master Plan Agreements	2	3	2	2	2	2					
Promote household infrastructure grants within the communities	5	15	8				15	15	15		
Implementation of replacement works for the approved list of beneficiaries- Urban	15	30	80	159	159	159	113	113		127	127
Implementation of replacement works for the approved list of beneficiaries- Rural	10	20	30	34	34	34	25	25		25	25
TOTALS	40	79	125	195	195	195	170	170	35	152	152

HH Infrastructure Component Year 5	Project Director	Project Manager	Eng 1	Eng 2	Eng 3	Eng 4	Social and Community Officer 1	Social and Community Officer 2	Communication Expert	Surveyor 1	Surveyor 2
Develop a targeting plan	3	5	2				15	15	10		
Establish a grants manual including operating procedures	5	6	3				2	2	10		
Conduct survey of the suppliers and services' providers & Develop Master Plan Agreements	2	3	2	2	2	2					
Promote household infrastructure grants within the communities	5	15	8				15	15	15		
Implementation of replacement works for the approved list of beneficiaries- Urban	15	30	70	144	144	144	95	95		120	120
Implementation of replacement works for the approved list of beneficiaries- Rural	10	20	30	24	24	24	23	23		12	12
TOTALS	40	79	115	169	169	169	150	150	35	133	133

Labor Cost HH Infrastructure Component

		Year 1		Year 2		Year 3		Year 4		Year 5		Year 1- 5	
Staffing Cost	Salary	LOE Months	Basic Salaries	LOE Months	Basic Salaries	LOE Months	Basic Salaries	LOE Months	Basic Salaries	LOE Months	Basic Salaries	LOE Months	Basic Salaries
Project Director	4500	2.3	10,309	2.2	10,309	2.2	10,825	2.2	11,366	2.2	11,934	11.0	54,743
Project Manager	2500	7.1	17,786	6.8	17,965	6.7	18,568	6.7	19,497	6.7	20,471	34.2	94,287
Eng 1	1500	7.9	11,825	7.3	11,508	7.8	12,958	7.8	13,606	7.3	13,233	38.1	63,131
Eng 2	1000	8.1	8,054	8.5	8,899	10.9	11,975	10.6	12,311	9.2	11,233	47.3	52,472
Eng 3	1000	8.1	8,054	8.5	8,899	10.9	11,975	10.6	12,311	9.2	11,233	47.3	52,472
Eng 4	1000	8.1	8,054	8.5	8,899	10.9	11,975	10.6	12,311	9.2	11,233	47.3	52,472
Eng 5	1000	-	-	-	-	-	-	-	-		-	-	-
Social and Community Officer 1	900	7.9	7,118	7.5	7,126	9.6	9,512	9.2	9,632	8.2	8,975	42.5	42,363
Social and Community Officer 2	900	7.9	7,118	7.5	7,126	9.6	9,512	9.2	9,632	8.2	8,975	42.5	42,363
Communication Expert	1500	1.9	2,864	1.9	3,007	1.9	3,157	1.9	3,315	1.9	3,481	9.5	15,823
Controller	1200	9.6	11,520	9.6	12,096	9.6	12,701	9.6	13,336	9.6	14,003	48.0	63,655
Accountant	800	8.2	6,545	8.2	6,873	8.2	7,216	8.2	7,577	8.2	7,956	40.9	36,168
Surveyor 1	800	11.3	9,075	13.5	11,347	8.3	7,310	8.3	7,676	7.2	7,040	48.7	42,448
Surveyor 2	800	-	-	-	-	8.3	7,310	8.3	7,676	7.2	7,040	23.8	22,026
Admin Assistant	400	8.2	3,273	8.2	3,436	8.2	3,608	8.2	3,789	8.2	3,978	40.9	18,084
Total Basic Salary		96	111,595	98	117,492	113	138,604	112	144,035	103	140,782	522	652,509
Fringe Benefits 25%			27,899	-	29,373	-	34,651	-	36,009	-	35,196	-	163,127
Overhead 35%			39,058	-	41,122	-	48,512	-	50,412	-	49,274	-	228,378
Annual Cost 12			178,552		187,987		221,767		230,456		225,252		1,044,014

6 Program Implementation Team

For this project, it is envisioned to invite contractors who have experience in communication and social marketing programs, and proven records of working with the community groups to change targeted behaviors through education, barriers removal, and increasing access. The contractors will work with multiple levels of government including central and local government offices, community organizations, schools, youth clubs, and others to implement the targeted communication and education activities. Demonstrations sites, training sessions, and joint community activities are at the core of the intervention concept and implementation.

6.1 Contractors Options

1. International NGO's and non profits groups with experience in managing large development programs and have experience in communication and knowledge improvement programs, and grants distributions.
2. Jordanian large NGO's with experience in local community development, capacity development of CBO's, grants programs, and communication and knowledge improvement programs around water issues.
3. International and local development companies with experience in managing similar programs
4. Consortiums for combinations of the above.

These groups will be able to implement the works, attract staff with experiences in development and community programs, and have expertise in social marketing. In the past, Jordanian and international NGO's have formed consortiums for implementing Joint programs funded by the government or donors agencies. When this bid is put out to the market, it is expected that these NGO's will form consortiums to address the program needs. The nonprofit companies/firms will be too expensive and will not be able to compete with NOG's who would have other sources of funds and have established offices in Jordan to serve different programs.

For the implementation of the Intervention "Household Infrastructure and Knowledge Improvement", we recommend keep the RfP open for above groups to bid on the project. The bidders will decide the best options for deciding the consortium members and the how to designate the roles for implementation.

6.2 Splitting the Implementation Works

The intervention activities could be implemented by one contractor, or could be divided between two contractors:. In the two contractor option, the main contractor will implement all the activities of knowledge improvement, and some activities under the household infrastructure component including:

- Targeting plan including reaching out to the NAF beneficiaries, identification of households who are eligible for replacement works
- Promotion of the household infrastructure replacement component
- Developing a list of replacement items for the targeted households. The BOQ items will include quantity, items specifications, and design drawings for the works.
- Inspection and acceptance of works of the "household implementation works contractor".
- Review and acceptance of the invoices which will be submitted by the "household implementation works contractor".

The second contractor will be responsible for execution of the infrastructure replacement works, and will have the following responsibilities:

- Review of the replacement design, which will be provided by the main contractor
- Development of master agreements with the supplier and the plumbers (implementing the works)
- Delivery of material to the site
- Assigning implementation to plumbers/service providers
- Quality assurance of the implemented works
- Delivery of works and acceptance by the main contractor
- Developing as built drawings and submitting of implemented BOQ
- Invoicing for implemented works

Splitting the household infrastructure replacement between two contractors will ensure additional quality assurance for implementation and acceptance of the replacement works, and take away incentives from main contractor to add items and quantities to the replacement works to increase the project budget. However, experiences of community development programs show that the implementation partners have incentives in building sustainable relationships with community groups, consider financing of works to address funds accessibility barriers, like the way they treat education and using media channels and education material to address knowledge and awareness barriers.

If the main contractor will develop agreements with the supply company(ies) and the plumbers, and will not implement works directly, it is expected that incentives to increase the items of replacement works do not exist. The main contractor is considered as a medium to pay subcontractors of suppliers and implementers.

6.3 Considerations and criteria for selecting the implementation Partner

The evaluation criteria for proposals may include:

1. Technical proposal and approach – which will include sub criteria for understanding of program, approach of communication and social marketing, approach for engaging the local contractors, infrastructure household, crossing cutting themes including gender, identification of barriers, approach for monitoring and evaluation, targeting of NAF, working with the multiple groups for project success.
2. Past performance including experiences with NGO's in Jordan, experiences in education and social marketing, experiences in implementing grants programs.
3. Staffing plan and staffing matrix – including experiences of staff in implementation of development and community projects, qualifications, reporting, and design of staffing structure, and reporting and communication with MCA-Jordan, and working with stakeholders.

These evaluation criteria which are fundamental to success of implementation will result in implementation groups from Jordan and international NGO's with experiences in Jordan. In the past, several Jordanian and international NGO's have implemented these programs in Jordan.

The technical approach sub criteria include:

1. Targeting Approach and Engagement
2. Approach for engage upstream, middle stream and downstream stakeholders in an effective manner
3. Monitoring and Evaluation Plan – reporting of results and impacts
4. Approach for working with MCA - Jordan
5. Utilizing and building on similar Jordanian and international programs and experiences

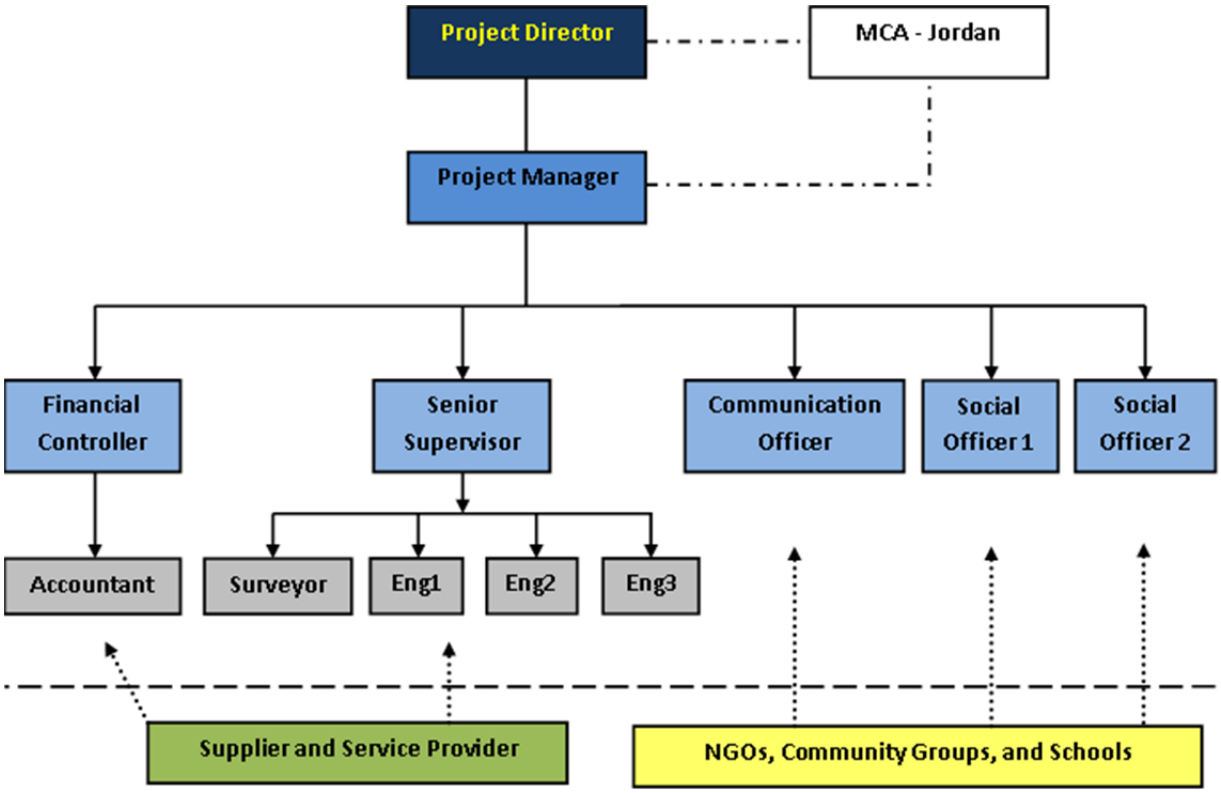
7 Project Team Structure and Responsibilities

The contractor will responsible for the following:

1. Setting up and staffing a technical support offices
2. Designing and implementing the grants program
3. Building the capacity of NGO's to implement the awareness programs and skills building on water quality testing and household infrastructure inspection.
4. Developing and managing the master agreements with the suppliers and the services' providers
5. Developing and implementing the strategic communication plan and the awareness campaigns
6. Supporting and using the CBO's a promotional channels for household replacement grants, but have the full responsibility for managing the funds disbursement repayment
7. Monitoring and evaluation of grant fund
8. Supply of tools, equipments, and procuring all requirements for the implementation of the program
9. Overall program management
10. Contractual requirements
11. Reporting
12. Designing and implementing MIS systems for project management and reporting
13. Developing and implementing a detailed M&E program that responds to the program requirements

7.1 Implementation Organization Structure

It is envisioned to have the organizational structure below to support the intervention implementation.


Project Director
MCA - Jordan
Project Manager
Financial Controller
Senior Supervisor
Communication Officer
Social Officer 1
Social Officer 2
Accountant
Surveyor
Eng1
Eng2
Eng3
Supplier and Service Provider
NGOs, Community Groups, and Schools

7.2 Project Team Responsibilities and Qualifications

Staff	Qualifications	Main Responsibilities
Project Director	Masters degree in social marketing, economic development, engineering, or relevant field. At least 20 years of work experience, of which 15 years of experience in community development work related to municipal services and water programs, program management	Overall program management and MCA-J reporting, support and advice to the project manager, monitoring and evaluation of the program activities
Project Manager	Relevant degree in local development, engineering, social marketing, or related field. 15 years of experience, out of which 5 years in similar programs. Project management experience and working with multi-stakeholders	Day to day project management and reporting to MCA – Jordan, working with government stakeholders, coordination with similar projects in the area, development and delivery of project reports, drafting master development agreements, design of project activities, overall management of the project components, staff management, quality assurance, and supervision.
Communication Officer	Communication or marketing degree 10 years of experience in economic development, out of which 3 years on water related programs, working with community groups and local NGO's, management responsibilities of communication programs is a plus	The communication officer is component leader of the knowledge improvement component. The officer is responsible for development of communication plan, communication materials, addressing, understanding the related behaviors within communities through focus groups and research, providing inputs related to community communication for training activities and demonstrations. Developing the skills of the

		NGO's, CBO's and other groups in awareness and communication to local communities, organizing annual events, and working with Infrastructure replacement component to promote the grants program.
Supervisor Engineer	Civil or mechanical Engineering Degree. 5-7 years of experience in water projects related to household systems and rehabilitation. Understanding of social marketing and community development programs. Management of small teams experience	Supervision and quality assurance of engineers work on review of applications, inspection of infrastructure, approval of the works, and coordination with MCA-Jordan on quality assurance. Design of technical inputs related to communication program, design and participation in the demonstration campaigns for cleaning and water quality testing.
Engineer	Civil or mechanical Engineering Degree. 3-4 years of experience on construction sites or on building household systems. Working with community development projects is a plus. Working knowledge in AutoCad Software	Inspection and review of applications; preparing the BOQ with the surveyors; quality control on supplies and checking material at the suppliers stores, inspection and approval of works; conducting surveys of suppliers and providers. On KI, demonstrations for water tanks cleaning and water quality testing, training of NGO's on water auditing and water saving devices installation and maintenance. providing technical inputs to communication material, checking mate.
Social Officer	Degree in social sciences, marketing or related field. 7-10 years of experience in working with Social Development Programs. Experience with the Ministry of Social	Development of targeting plan and including obtaining list of NAF beneficiaries from MOSD.

	Development or Ministry of Planning on Poverty Alleviation programs.	Designing criteria for consideration of NAF beneficiaries. Inspecting households with the engineer. Conducting focus groups, Assessment of CBO's and other community groups. Organizing events with the community. Sharing experiences and lessons with different groups.
Financial Controller	Accounting degree. 5-8 years of experience in contracting projects, monitoring suppliers and workmanship. Experience in preparing budgets and financial reporting.	Overall financial reporting, review and approval of invoices, control of expenditures, issuance of payments, coordination with MCA financial controller
Accountant	Accounting Degree. 2-4 years of experience in auditing, or working with contractor and designers on construction projects.	Review of invoices by the suppliers and providers/third party contractors. Processing of payments with the financial controller
Surveyor	Diploma in Engineering or Survey. 4-5 years of experience in BOQ preparation and works surveying. Experience in preparing AutoCad Drawings	Developing BOQ lists and design drawings Inspection of completed works and preparing of final BOQ
Administrator	Secretary Studies or Diploma 3-5 years experience in project administration and filing and organizing events. Working with community groups is a plus.	Day to day project administration, logistics support, office management, and organizing events

8 Benefits Assessments

8.1 Description of Beneficiaries

The beneficiaries of the knowledge improvement component will include all the population of Zarqa Governorate. These will include poor and non poor households. The knowledge improvement component will tackle the knowledge barriers related to household water quality, its variations through the household systems, and how to maintain these systems to keep quality to standards. The direct beneficiaries of this component are the households in Zarqa including urban, rural, poor and non poor families.

The Household Infrastructure Component will address the financial barriers to replacement through providing grants to NAF beneficiaries (about 10680). The grants will cover the replacement of tanks and water systems within households. NAF beneficiaries constitute about 6.7% of Zarqa Gov population, and the project will provide grants to about 4000 households (about 2.42% of Zarqa households or 36% of NAF households).

8.2 Cost Effectiveness Validation

The overall program cost is about 4.177 million JOD including labor, expenses and office contingency. The household infrastructure budget us estimated at 2.941 million, and the knowledge improvement budget is 1.235 million

The Socioeconomic Survey conducted in 2009 showed that:

1. About 30% of the population in Zarqa use shop water
2. Monthly expenditures on shop water is about 12-15 JOD. Annual expenditures range between 120 – 180 JOD.
3. 60% of households are dissatisfied with the water quality

Studies have revealed that water quality deteriorates within household systems. This is related to natural conditions of water storage, which are aggravated by poor storage conditions (sun light, algae growth which induce bacteria growth, old systems which cause roughness of surface and grow of algae, and rust which increase metals in the water and give color). Failing to clean the tanks to keep smooth surfaces, remove algae, and reducing bacteria growth will result in poor quality of stored water. In poor neighborhoods, it is assumed that 60% of dissatisfaction complaints are related to household infrastructure. These households do not have access to funds and are in a position to replace old water systems.

Benefits from Awareness Program

Assuming that shop water use will drop by 10% as a result of education and knowledge improvement component, then the estimated benefits are:

A	B	C	D	E
% of Shop water users	No of Households	Annual Expenditure (JOD)	Change in % because of the KI	Total Benefits of KI A*B*C*D
30%	165000	120	10%	594,000 JOD

Benefits from the Household Infrastructure replacement Program

A	B	C	D	E
% of Shop water users	No of NAF Households to be replaced	Annual Expenditure (JOD)	Change in % of shop water use because of the KI	Total Benefits of KI A*B*C*D
30%	4000	160	75%	144,000 JOD

The cost effectiveness of this Intervention is:

Program	**Cost**	**Effect**	**Cost effectiveness Ratio**
Household Infrastructure and Knowledge Management	4.177 Million	738,000	5.66

9 Environmental and Social Impacts

9.1 Environmental Aspect

- The project, through its different components (explained in the previous sections) will address water losses taking place in pipes within the household itself as well as those connecting the water meter and household storage system. It will also promote the installation of water-saving devices and rational water demand management within the household. All this shall reduce the NRW hence, sustaining the Country's water resources.
- Investigations revealed that in most cases, water quality degrades within the household level where it was noted that of the homes that utilize the governmental water system in Zarqa, approximately one quarter do not understand the fundamental steps of cleaning their water tanks. Hence, it can be concluded that in most cases the degradation of water quality takes place on the household level.
- The project will address the use of improper water storage techniques and replace/rehabilitate ones that are known to contribute to reducing water potability.
- One of the issues that need to be taken into consideration is the fact that water quality can be degraded as it flows in the main water network i.e. before the water meter. In such cases, water systems within the household will not be sufficient to mitigate the problem or non-potable water.
- Based on the aforementioned, it is safe to conclude that the proposed project will only provide positive environmental impacts to the project area.
- No negative impacts can be foreseen for this project.

9.2 Social/Gender Aspect

- DOS data revealed that about 34% of the population in Zarqa are using shop water and less than 5% are using bottled water where the average monthly expenditure of residents who are connected to the system on shop water is about JOD 8-10 and is about the same for shop water.
- Although there is little discrimination in water provision between men and women, the significant exception is when a woman is the leader of the home, there have been impediments to women attempting to receive water from WAJ when they lead the household.
- When it comes to the individual home, there is a clear bias towards certain tasks for each gender, women have the duties of performing home chores such as cooking, cleaning, filling the water tanks during 'Water Day' etc and therefore, is the one who determines how much water is allocated for each task. On the other hand, it is

considered the man's duty to contact the government or company, water the garden, clean the car, order and purchase water services

- As this project seeks to improve the availability and cleanliness of the city's water supply, it will address the practical needs of females as well as males by increasing their living standards. Women will also benefit in that it will make their household duties easier. Strategic needs of women (equal leadership) will not be directly addressed by this project but may be touched indirectly by helping increase and improve the water supply hence, allowing for the increased participation of women in the economy through facilitating home businesses.
- The vast majority of women in Zarqa are not economically active (63.4% of Zarqa's women above the age of 15), and the main bread-earner is the husband. Consequently, women have little control over the family's resources.
- Given that the target groups for this project are NAF beneficiaries, households with especially difficult living conditions will be targeted.
- Given the roles and status of both genders in the Governorate, awareness programs should target women on issues related to water demand management and men on issues related to household water infrastructure.
- Awareness campaign target women on WDM and men on HH water maintenance and installation of WSD. Women can also be targeted for simple water-related maintenances within the household.
- Given the way of targeting where community are not engaged in the process of selecting beneficiaries as well as taking into consideration the nature of the project which is a full grant, neighboring households for beneficiaries can perceive themselves as equally deserving of such aid. This can create tension among neighbors.