## General information معلومات عمومی

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| **FCDO – Driving Action for Wellbeing to Avert Mortality (DAWAM) Project**  **تلاش برای رفا و کاهش مرگ و میر** | |
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| **Administration of survey** | **مدیریت سروی** |
| Name of province: | Ghor |
| Name of district: | Ferozkoh |
| Name of health center | Zartali |
| Health Center Type: please select one ( H3, CHC,BHC,SHC) | SHC |
| Building ownership (private or governmental) | Government |
| Number of clinic personnel | 7 |
| Number of patients visited in clinic (daily basis) | 50 |
| Number of hospitalized patients (the max capacity) | N/A |
| Name of surveyor(s) | Farid Ahmad Qaderi |
| DATE of survey | 23-Feb-24 |

## Description of workتشریح کار

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| **Scope of intervention**  **عرصه حمایت** | | **All three component require major maintenance:** | |
| **Perimeter protection** | | The provision and improvement of Water, Sanitation, and Hygiene (WASH) facilities play a pivotal role in safeguarding human health and overall well-being. These initiatives serve multifaceted purposes, ranging from the prevention of waterborne and diarrheal diseases to the control of vector-borne illnesses. Additionally, they contribute to the enhancement of health and nutrition outcomes, mitigate the risk of epidemics, and foster dignity and safety among communities. Economically, investing in WASH facilities yields significant benefits, while also ensuring environmental protection and alignment with international sustainability and health standards.  To enhance the capacity of healthcare workers to uphold hygiene standards, ActionAid is committed to revitalizing and enhancing existing Water, Sanitation, and Hygiene (WASH) facilities in targeted Healthcare Facilities (HCFs). | |
| **Clinic map** نقشه کلینیک | | | |
| GPS of HCF: Please collect the GPS related HCF building جی پی اس نقاط کلیدی: لطفا جی پی کلنیک مربوطه را بگیرید: | | | |
| 1 | N: 34°, 19´, 26.88.6ʺ | | E: 65°, 24´, 50.028ʺ |
| Please draw a freehand sketch of the HCF facility; point out : Main building – Sanitation facilities, water source , waste disposal site ) | | | |
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## Project feasibilityامکان پذیری پروژه

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| **Parameters inspection and findings**  **بررسی پارامترها و یافته ها** | Background information: The Zartali Healthcare Facility was constructed 15 years ago by the government. This facility employs a diverse team, including one male doctor, a midwife, a female vaccinator, a female nutritional consultant, a female health promoter, a female Targeted Supplementary Feeding Program (TSFP) worker, and a male guard.  The healthcare facility is equipped with designated rooms for the Outpatient Department (OPD), nutrition services, delivery, vaccination, pharmacy, Maternal and Child Health (MCH), and stock storage. It is located in Zartali Village, part of the Ferozkoh District in Ghor province. On average, the facility serves 50 outpatients daily. Water source For both clinical use and drinking purposes, the water supply at the Zartali Healthcare Facility (HCF) is provided by a public gravity water supply network that also serves the Zartali community. During the survey, the tap within the Zartali HCF compound showed good water yield and quality. However, during the cultivation season, the community relies heavily on this water source for agricultural purposes. Consequently, the water supply network becomes insufficient to meet both agricultural and drinking water needs.  As a result, the community cuts off water access to residents and the HCF for three months, posing a significant challenge for the healthcare facility. The lack of water during this period is one of the biggest issues faced by the HCF, severely impacting its operations and the health and well-being of both staff and patients. Stand Tap: The tap within the compound is currently connected via a PPR pipe with a faucet and lacks a reinforced concrete (RCC) stand and apron, making it susceptible to damage. During the winter, the tap is left open to prevent freezing, which further exacerbates the risk of breakage and leads to persistent leakages. These issues compromise the reliability and efficiency of the water supply, highlighting the need for a more robust and winter-proof solution. Water storage and distributionWater Tanks There are two high-capacity polyethylene water tanks installed on the roof of the Zartali Healthcare Facility (HCF) main building. The capacities of these tanks are 500 liters and 1000 liters. The 500-liter tank is dedicated to the solar heater, while the 1000-liter tank supplies cold water. Both tanks have well-maintained pipes and fittings, free from any leakages or damages. The inlet and outlet pipes are thoroughly insulated, providing excellent resistance against freezing during the cold season.  However, the 1000-liter tank's capacity for cold water is insufficient to meet the facility's needs. Increasing the volume of cold water storage is necessary to ensure a consistent and reliable water supply for the HCF. Water supply network The existing pipe network within the compound is connected to the tap located inside the Healthcare Facility (HCF) compound. This network is designed to supply both hot and cold water to several key areas within the facility, including:   * The bathroom adjacent to the delivery room * The toilet in the corridor * Two handwashing sinks, one in the delivery room and one in the corridor * This setup ensures that essential areas have access to the necessary water supply for maintaining hygiene and sanitation standards.  Stand Tap There is one tap stand located inside the Zartali Healthcare Facility (HCF) which is used for the following purposes:   * Patient Care and Hygiene: Handwashing, bathing patients, and maintaining hygiene to prevent infections. * Sanitation: Cleaning and disinfecting surfaces and medical instruments. * Medical Procedures: Wound cleaning, surgeries, and other treatments requiring sterile environments. * Drinking: Providing safe drinking water. * Waste Management: Proper disposal and management of medical and biological waste.   Problems with these water points include:   * Lack of Concrete Structure: The existing tap stand lacks a concrete structure, leaving the pipe exposed to the open air and prone to damage. * Broken Tap: The tap is broken, resulting in water leakages. * Uninsulated Pipe: The pipe is not insulated against cold weather, increasing the risk of freezing. * Inadequate Valve Box: The valve directing water to the plastic water storage tanks lacks a proper valve box. It is exposed to the open air, making it susceptible to freezing in cold weather. Additionally, the quality of the valve is low, and it also has leakage issues.  Hand washing In total 15 hand washing sinks are installed inside the clinic. The problems are as following.  In total, there are six handwashing sinks in the Healthcare Facility (HCF). Four of these sinks are metallic and removable, while the remaining two are ceramic and permanently installed.  The metallic handwashing sinks are broken and suffer from persistent leakages, despite multiple repair attempts. As a result, they remain unreliable. In contrast, the two ceramic handwashing sinks are fully functional and continue to serve the facility effectively Bathroom There is only one bathroom inside the building.  The bath fixtures, including the shower, valves, and floor drains, are all functioning properly. However, the drained water is currently directed to a temporary pit. Septic Tank, Toilets and latrines There are three latrines and one toilet in the clinic.   * The latrines suffer from several issues, including structural vulnerability, poor roofing, incomplete doors that compromise privacy, inadequate ventilation, an unstable foundation, and the absence of handwashing facilities. * The latrines lack proper pits; instead, they are covered with plastic squatting slabs. * The toilet adjacent to the delivery room is connected to a temporary pit.  Septic Tank: The Healthcare Facility (HCF) has a stone masonry septic tank with dimensions (6.7x3.7). Although the stone masonry work has been completed, the septic tank lacks a slab and pipes. The inside of the tank is filled with soil and garbage, and the poorly lined masonry causes leakages. Furthermore, there is no leach field to drain the liquid waste from the septic tank. Waste management The following process and system for solid waste collection and disposal are in place at the Zartali Healthcare Center: Waste collection and separation: Although all types of solid waste are separately stored and collected, the available bins are of low quality and insufficient to handle the daily volume of disposed waste. Incineration A temporary metallic incinerator is available on the premises, positioned over a pit to allow ash to be directly emptied into it. However, the incinerator is damaged and not functioning properly. The surface is not sealed, allowing rainwater to enter the pit. The incinerator is located at the back of the HCF main building, more than 100 meters away from residential buildings. Sharp pits Sharps waste is disposed of in a special unsealed pit, constructed with RCC rings. The pit is covered with an RCC slab, but it does not cover the pit properly and requires additional lining. Organic waste pit: The three pits are situated offsite, approximately 100 meters away from adjacent residential buildings. The finish floor lacks PCC (Plain Cement Concrete), resulting in an uneven surface and poor drainage, leading to stagnant rainwater accumulation.  Furthermore, the disposal site lacks adequate restriction measures to deter irresponsible individuals from accessing the area. |
| **Technical solution in compliance with MoPH/WHO standards**  **راه حل تخنیکی مطابق ستندرد های وزارت صحت عامه وسازمان صحی جهان** | Water source **Quantity Perspective:** The Zartali Sub Health Center (SHC) faces significant challenges due to lack of water. To address this issue, ActionAid plans to dig a bore well with a depth of 40 meters and a diameter of 12 inches. Additionally, an apron will be constructed on top of the bore well to provide protection and control.  **Borehole Design and Justification:** The bore well will be designed to ensure a sustainable and reliable water supply. Based on ActionAid's technical observations from dug wells in this area, it has been identified that the region contains a productive aquifer layer located between 15 and 40 meters below ground. This assessment informs our borehole design and expected yield:   * **Depth and Diameter:** The bore well will reach a depth of 40 meters with a diameter of 12 inches, sufficient to fully penetrate the aquifer layer and ensure a consistent water flow. * **Sanitary Seal:** A sanitary seal, extending at least 2 meters below the ground surface, will be implemented using cement grout to prevent contaminants from entering the well. * **Casing and Screen:** The well will be cased with high-quality PVC casing to support the well structure and prevent collapse * **Pumping Test Conditions:** To determine the well’s capacity and ensure its efficiency, a pumping test will be conducted under the following conditions: * **Duration:** The pumping test will be conducted over a 24-hour period to assess the well’s performance and sustainability. * **Discharge Rate:** The test will start at a low discharge rate, gradually increasing to determine the optimal yield without over-extracting the aquifer. * **Water Level Monitoring:** Continuous monitoring of the water levels during the test will help in understanding the aquifer’s recharge rate and the well’s impact on the water table.   **Expected Yield:** Given the favorable conditions of the aquifer layer between 15 and 40 meters underground, we anticipate that the bore well will yield approximately 3000 to 4,000 liters per hour. This yield is expected to meet the daily water requirements of the health center by incorporating these design features and conducting thorough testing, we aim to secure a clean, safe, and sustainable water source for the Zartali Sub Health Center, ultimately improving the health and well-being of the community it serves.   * Quality Perspective: ActionAid is committed to ensuring that the water from the borewell meets the highest standards of quality. As part of this effort, water quality testing will be conducted during the drilling process to ensure compliance with the WHO water quality standards. The results of the water analysis will be documented and included in the table below.  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Parameters | Turbidity (NTU | Color | Odor | Water Temperature | TTC (CFU/100ml | PH | TDS | Arsenic | | WHO Guideline | <5 NTU | None Detected | Not Offensive | 25C° - 30C° | 0/100ml | 6.5 to 8.5 | 1000 ppm | 10µg/l | | Lab Result |  |  |  |  |  |  |  |  |  Hand Pump installation and Well Apron construction: We propose the installation of a hand pump alongside the existing solar pump on the borewell. This dual pump system will ensure a consistent and reliable water supply to the Healthcare Facility (HCF). In the event of any issues with the solar pump, the hand pump will serve as a reliable backup, allowing the HCF to continue accessing water from the well without interruption.  Furthermore, to mitigate the risk of potential contamination to the underground water source, we have designed a proper apron. This apron will not only protect the well but also effectively divert surface water away from the vicinity of the well, minimizing the risk of contamination. Water storage and distributionWater tank (water availability)  |  |  | | --- | --- | | **WHO suggested minimum water quantities in health care facilities** | | | Use | Guideline quantity | | Outpatients | 5 liters/consultation | | In patients | 40–60 liters/patient/day | | Operating theatre / maternity | 100 liters/intervention | | Dry or supplementary feeding center | 0.5–5 liters/consultation | | Wet supplementary feeding center | 15 liters/consultation | | Inpatient therapeutic feeding center | 30 liters/patient/day | | Cholera treatment center | 60 liters/patient/day | | Severe acute respiratory diseases isolation center | 100 liters/patient/day | | Viral hemorrhagic fever isolation center | 300–400 liters/patient/day |  |  |  |  |  | | --- | --- | --- | --- | | **Total daily water demand of Zartali Health Care Center** | | | | | Type of user | # of user | Consumption norm (Liters /day) | Total daily demand | | Outpatients | 50 | 5 | 250 | | clinic personnel | 7 | 110 | 770 | | **Total daily water need** | | | **1020** | | Required water for 48 hours to avoid any shortage | | | **2040** |   To ensure an uninterrupted water supply for at least 48 hours, it's imperative to have adequate water storage capacity. Based on our calculations, we recommend the installation of a single water tank with a storage capacity of 2000 liters. The water tank is factory-made from high-density polyethylene, ensuring durability, lightness, and ease of handling. Its perfectly smooth inner surface allows for easy cleaning with traditional detergents. The tank is supplied with a top screwed lid and includes all necessary accessories and fittings and the existing 1000-liter storage tank shall be connected to the new toilets to cover It’s water for two hand washing sinks and four flash tanksSolar System: Install the solar panels on the healthcare center’s rooftop, ensuring they are tightly secured against wind and theft. Position them for optimal sunlight and proper tilt. Although relocation is possible, consistent sunlight exposure is crucial for efficient energy production.  Fortunately, as far as there is enough space available on the roof Zartali building. Therefore, the solar will be installed there. And the solar will be protected by a fixed lockable frame.  Submersible pump: We need the PEDROLLO product the submersible model: 4SR2/13 because it is a suitable pump for our system it’s flowrate is 1.2m3/hour. the well probe should be installed in the system to prevent the pump from running dry.  Total required pipe: only a 110-m pipe is needed from the well to the water tank.  Metallic box for protecting Inverter: To protect the Inverter, it needs to be installed in a metallic box that could be a safe place for the inverter.  Solar Panels: Solar sizing calculation indicates that we should use 4 numbers of Solar panel PROPSOLAR 270W Poly crystalline 37.9V 9.22A for running the system. (for more details please have a look at the attached solar sizing calculation in PDF file).  Inverter: The Controller Inverter FRECON IP65 1.5kw 220V made in China is designed for this system and can control the fluctuation of the electrons and prevent the pump from most breakdown.  Note : If the specified brand of solar panels or any other listed accessories are unavailable, the supplier must obtain written approval from the AAA WASH Specialist or an authorized technical team member for an alternative and changes. This ensures that any substitute meets the project's technical requirements and maintains quality standards.  Remember!  Each solar pump item needs to be supplied by a registered customs license seller with the following standard certifications:  FCC C009911 Standard, ISO 0991:2000 Standard, UL Standard, TUV Standard Water reticulation within the HCH premises: To optimize the existing distribution system and accommodate the addition of new facilities, it's imperative to connect it to the new borewell and extend it to the newly constructed toilets, handwashing sinks, and handwashing stations. This will ensure efficient water distribution throughout the facility. To achieve this, we will utilize PE pipes with a diameter size of 1 inch, PN 10-bar.  Moreover, to guarantee the longevity and reliability of the system, the pipes will be buried at a depth of at least 80 cm from the ground level. This strategic placement not only protects the pipes from external damage but also helps maintain consistent water flow, particularly during colder seasons when the risk of freezing is heightened.  With a total length of 100 meters, these PE pipes will seamlessly integrate with the existing distribution network, facilitating uninterrupted water supply to the newly established amenities. By preventing leakages and minimizing water wastage, this comprehensive approach not only enhances the functionality of the system but also promotes sustainability and responsible resource management. Existed Stand Taps As part of our plan, we aim to construct a strategically located handwashing station adjacent to the entrance door. This station will feature a valve box and receive water supply from two sources: the existing tap and a new water tank. This dual-source system is designed to ensure continuous availability of water, even during periods when the community water supply network may experience shortages or dry spells.  The construction of the handwashing station will adhere to the following specifications:   * The structure of the handwashing station will be constructed in accordance with the provided drawing, ensuring its stability and functionality. * To prevent freezing during colder weather conditions, the pipes will be insulated using glass wool, safeguarding the water supply and maintaining usability throughout the year. * The existing taps will be replaced with MOGOUL type taps, specifically 0.5 size brass 100% Mogul taps. This upgrade will enhance durability and reliability, ensuring consistent water flow and minimizing maintenance requirements over time.   By implementing these measures, we aim to create a robust and reliable handwashing station that can effectively serve the needs of the community, promoting hygiene and safeguarding Hand washing sink The installation of handwashing sinks within healthcare facilities is paramount for effective infection control, adherence to hygiene standards, and the enhancement of overall health outcomes. By ensuring that healthcare workers, patients, and visitors have easy access to handwashing facilities, the spread of infections can be significantly reduced, thereby supporting compliance with protocols and minimizing health risks. This initiative ultimately results in lower infection rates, heightened staff productivity, improved patient care, and an overall safer environment within the healthcare setting.  Moreover, the presence of handwashing sinks fosters hygiene awareness, contributing to broader public health initiatives and promoting a culture of cleanliness and wellness. To address this critical need, ActionAid has outlined plans to install a total of 8 handwashing sinks in key sections of the building, including the (OPD), nutrition services, vaccination, pharmacy,(MCH) rooms and new toilets.  Additionally, two of these sinks will be allocated to the male and female toilets situated behind the main building of the Zartali Healthcare Facility (HCF).  Each handwashing sink will be equipped with essential amenities, including a shelf for soap and a mirror with shelves, ensuring convenience and practicality for users. These sinks will be securely fixed onto the walls, providing stability and durability for long-term use. Notably, the existing sinks, while functional, will receive enhancements in the form of supplied shelves for soap and mirrors with shelves, further elevating the hygiene standards within the facility.  Septic Tank, Toilets and latrines  At the clinic center, there are currently three latrines and one toilet. While the existing toilet within the Healthcare Facility (HCF) is in satisfactory condition, with a functioning water supply system and sewerage, the latrines present several issues. These include structural vulnerability, inadequate roofing, and incomplete doors, compromising user privacy. Given the irreparable nature of these latrines, ActionAid has devised plans to construct two male and two female toilets equipped with flash tanks to replace them. Additionally, these new facilities will be designed to accommodate Peoples with Disabilities (PWDs), incorporating both ramp and stand toilets.  In terms of infrastructure, the water supply for these toilets will be connected to an existing 1000-liter water tank, ensuring consistent access to water. Furthermore, the sewer pipes will be connected to a septic tank to manage waste effectively. All construction and plumbing work will adhere closely to the specifications outlined in the relevant drawings, ensuring the durability and functionality of the new facilities. Septic Tank: ActionAid plans to rehabilitate the existing septic tank with the following measures:   * Clean the interior of the septic tank thoroughly. * Plaster the walls to enhance durability and prevent leaks. * Construct an RCC slab to cover the septic tank securely. * Construct a pit for draining the liquid waste from the septic tank. * Install sewerage plumbing in accordance with the related drawings.  Waste managementAccording to WHO’s requirements, the perimeter of healthcare facilities must not only be protected against clinical hazardous waste but also be secure from domestic waste generated within these facilities. To achieve the desired optimal hygienic conditions, ActionAid intends to equip and upgrade the current solid waste management system at Zartali Health Care Center. The planned enhancements are as follows:   * Incinerator Construction: The incinerator will be constructed with a pit made from reinforced cement concrete (RCC) and brick masonry, following the specified drawings. * Waste Disposal Pits: To secure and protect the organic waste disposal pit (for placental waste) and the hazardous waste disposal pit (for sharp wastes), the slabs should be repaired and reinforced to ensure they are impervious to rainwater infiltration. * Incineration Area Security: The incineration area will be protected by erecting a fence with GI pipe poles and fence gates to prevent unauthorized access. The floor will be made of 10 cm thick plain cement concrete (PCC). Proper surface sloping will be incorporated to ensure effective drainage of rainwater from the incineration area. |

## Period of workمدت زمان کار

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| **Start Dateتاریخ شروع** |  |
| **End Dateتاریخ ختم** |  |