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SUSTAINABLE WATER SUPPLY AND SANITATION (SWSS) PROJECT

FINAL REPORT

OCTOBER 1, 2009–DECEMBER 30, 2012

APRIL 21, 2013

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ACRONYMS

BPHS	Basic Package of Health Services
CAF	Care of Afghan Families
CDC	Community Development Council
CHW	Community Health Worker
CLTS	Community-Led Total Sanitation
COP	Chief of Party
COR	Contracting Officer's Representative
EC	Electrical Conductivity
EMMP	Environmental Mitigation and Monitoring Plan
FHAG	Family Health Action Group
FPO	Field Program Officer
GHWD	Global Hand Washing Day
GIRoA	Government of the Islamic Republic of Afghanistan
GIS	Geographic Information System
HIF	Hygiene Improvement Framework
IEC	Information, Education, and Communication
IVR	Integrated Voice Response
KAP	Knowledge, Attitudes, and Practice
M&E	Monitoring and Evaluation
MoPH	Ministry of Public Health
MoU	Memorandum of Understanding
MRRD	Ministry of Rural Rehabilitation and Development
MSH	Management Sciences for Health
NEPA	National Environmental Protection Agency
NGO	Nongovernmental Organization
ODF	Open Defecation Free
PMP	Performance Monitoring Plan

PNF	Project Nomination Form
ppb	Parts per Billion
PPHD	Provincial Public Health Department
PRRD	Provincial Rural Rehabilitation and Development
PRT	Provincial Reconstruction Team
RuWATSIP	Rural Water Supply Sanitation and Irrigation Program (MRRD-led)
SSDA	Society for Sustainable Development of Afghanistan
SWSS	Afghan Sustainable Water Supply and Sanitation Project
USAID	United States Agency for International Development
USG	United States Government
WASH	Water, Sanitation, and Hygiene

1.0 BACKGROUND AND DEVELOPMENT APPROACH

The Afghan Sustainable Water Supply and Sanitation (SWSS) Project increased access to potable water supply and sanitation services, decreased the prevalence of water-related diseases through household hygiene interventions, and improved the sustainable management of potable water services in Afghan villages. The Project began on October 1, 2009, and was completed on December 30, 2012. The United States Agency of International Development (USAID) provided $43,314,113 to fund the Project.

The 100+-member Project team installed and expanded water supply and sanitation infrastructure primarily based on a "flexible approach" that was responsive to Project Nomination Forms (PNFs) provided by USAID's Provincial Reconstruction Team/Field Program Officers (PRT/FPOs) within the Regional Command structure of the U.S. Department of Defense. Such flexibility was necessitated by the highly dynamic conditions in which all U.S. Government (USG) activities were carried out in Afghanistan between 2009 and 2012. While this was not an optimal arrangement to support long-term community-based development, as it limited opportunities for stakeholder engagement, it was the most effective approach to align with USG priorities in Afghanistan.

Fortunately, the Project team was also able to follow a more conventional and participatory "Provincial Approach" in areas where security allowed more intensive collaboration with local residents and leaders consistent with best practices in USAID's water, sanitation, and hygiene (WASH) programs.

The Project's social development activities and water infrastructure subprojects were the foundations for involving communities in managing and controlling their own potable water and sanitation services. The Project team worked with beneficiaries, the Government of the Islamic Republic of Afghanistan (GIRoA), and the Afghan private sector toward improving sustainable use of safe water, clean sanitation, and hygiene practices. The basis for the Project's collaboration with local stakeholders was defined by a Memorandum of Understanding (MoU) signed by USAID with the Ministry of Rural Rehabilitation and Development (MRRD) of the GIRoA outlining cooperation on Project activities. The signed MoU is contained in Annex C.

The MoU was the entry point for Project collaboration with local government and signaled to all regional MRRD offices that the Project's goal was to work with them to facilitate positive contact and improved health with communities, local leaders, subcontractors, and other stakeholders. The Project team sought the active participation of MRRD personnel in districts where the Project worked and trained community-resident entrepreneurs and government personnel as hand pump mechanics able to serve communities for the long term.

The Project achieved its health improvement objectives by emphasizing household, community, and school hygiene practices and boosting community awareness of the need for protecting water sources, using clean sanitary facilities, and adopting key hygiene behaviors most directly related to the prevention

of diarrheal diseases—a major cause of mortality and morbidity among children in communities across Afghanistan.

To achieve the Project's objectives, the team undertook activities in three mutually supportive technical areas: (1) designing, contracting, and overseeing the installation of safe water systems and appropriate public latrines for communities; (2) managing an extensive parallel health and hygiene training and promotion program that systematically stimulated installation of household latrines by families without subsidies; and (3) producing community buy-in for its work. The Project's Monitoring and Evaluation (M&E) and Strategic Communications units continuously documented, photographed, and reported on progress or shortcomings.

LINKING COMMUNITIES AND SERVICES VIA MOBILE PHONE

Watertracker is a cloud-based data storage and monitoring tool that enables the MRRD to track the implementation of geographically dispersed water supply infrastructure projects, and provides rural communities with the ability to report on the status of local infrastructure via mobile phone. It was created through a partnership between subcontracting partner Arc Finance, Ltd., ROSHAN Telecommunications, and MRRD.

As part of the Project's extensive monitoring program, the team developed an innovative Web-based mapping and toll free call-in technology called Watertracker to map and track the functionality of water points in Afghanistan. The Project team worked with the MRRD—the ministry in charge of rural water supplies—to locate current wells for planning purposes and to track and service non-functioning wells for the improved economic output and health of rural residents. The Watertracker system, described briefly at left and presented fully in Annex F, and its technical support staff were integrated into the MRRD before the completion of the Project. The system is now owned and operated by the ministry.

During Project Year 1, the Project put in place social and systematic foundations for sustainability and financial discipline while submitting and fully developing initial PNFs. The Project initiated construction of infrastructure as soon as subprojects were adequately designed, and put in place hygiene activities in collaboration with Afghan nongovernmental organizations (NGOs). During Project Year 2, the SWSS Project generated significant demand for services and established itself as a provider of stability-promoting small-scale infrastructure. At the beginning of the final year of implementation, USAID informed the Project that it would receive significantly fewer funds than originally anticipated and budgeted for. Thus, the obligated funds to support the Project were $8,549,785 less than the original contract value. The timing of the reduction in funding was unfortunate in that it occurred at the peaks of demand for services and provision of outputs. This reduction had a particularly negative impact on Year 3 infrastructure outputs.

Per the requirements of Task Order No. EPP-I-05-04-00019-00, Section F.5 (f) page 22, this Final Report summarizes and highlights SWSS' programmatic approach and results. It includes: (1) objectives of the program; (2) summary of activities by objective; (3) results by objective; (4) cost by objective; (5) sustainability by component; (6) recommendations; and (7) lessons learned for future programming. A listing of the full set of contractual deliverables prepared by the SWSS team and accepted by USAID is presented in Annex D.

1.1 SWSS OBJECTIVES

The three interrelated objectives of the SWSS Project aligned with the three Components of the Project. Project objectives were to:

1. Increase access to potable water supply and sanitation in communities that demand these services (Component 1 – Sustainable Water Supply and Public Sanitation);

2. Decrease the prevalence of water-related diseases through community, household, and institutional hygiene interventions (Component 2 – Sustainable Health Outcomes); and

3. Improve the sustainable management of potable water in Afghanistan's rural communities (Component 3 – Sustainable Local Management).

1.2 PARTNERS AND STAFFING

Table 1.1 summarizes the organizations that collaborated to make the SWSS Project a success and outlines their respective expertise and roles. Each consortium member provided specialist input to the Project team. Tetra Tech ARD provided Project leadership and overall management, as well as the staff members responsible for M&E, communications, engineering, social development, contracting, finance, administration, and housekeeping—approximately 90 people at peak operating capacity. Management Sciences for Health (MSH) provided all of the staff responsible for delivering the hygiene promotion aspects of the projects under Component 2 and collaborating with health sector NGOs—approximately 30 people at peak. Arc Finance, Ltd. supplied expatriate technical assistance and managed the work of the Watertracker Associate until his full-time transfer to MRRD. The Society for Sustainable Development of Afghanistan (SSDA) provided external training and technical assistance to the Project team at the launch of Component 2. GardaWorld provided security services to the team.

Table 1.1: SWSS Prime Contractor and Core Subcontractors

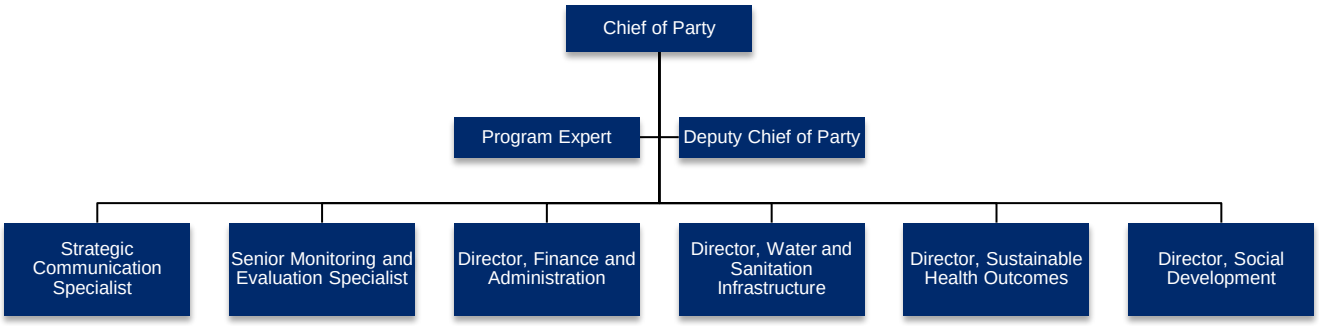
Firm	Expertise	Project Role
Prime Contractor		
TETRA TECH ARD	**Tetra Tech ARD** brought expertise encompassing project management, contract and subcontract administration, community-based participation, WASH programming, and a comprehensive understanding of the objectives of USAID's "water earmark" funding.	Lead organization for all technical, contractual, financial, management, and administrative aspects of the Project. Technical lead for Components 1 and 3.
Subcontractors		
MSH MANAGEMENT SCIENCES for HEALTH	**MSH** has worked in Afghanistan for over 30 years promoting community mobilization to improve health and access to quality primary health care services. They provided critical relationships with a network of local NGOs and community health workers mobilized in 10,000 communities across Afghanistan.	Core subcontractor tasked with developing, leading, and quantifying a program that ensures that state-of-the-art WASH programming contributes to health improvement. Technical lead for Component 2.
arcfinance	**Arc Finance, Ltd.** is a small, woman-owned enterprise that specializes in microfinance planning and action in the water and energy sectors in developing countries.	Analyzed rural financial management structures for sustainability planning. Led development of Watertracker. Facilitated partnership with ROSHAN Telecommunications to support long-term operation of Watertracker.
Afghanistan	**SSDA** is an Afghan non-profit organization with a partner office in Pakistan made up of trainers and implementers of community-based WASH programs. SSDA conducted a 2008 review of WASH projects across Afghanistan.	Lead technical resource to the project training staff and partners during launch of Community-Led Total Sanitation (CLTS) central to Component 2.
GardaWorld	**GardaWorld** is a leading global provider of security consultancy and services, training, and support services in permissive and challenging environments. They have significant Afghan experience and have served as Tetra Tech ARD's security service provider since their entry into the country.	Provided physical security at residential and office compounds; protective security detail support to travel; secure radio communications, vehicles, equipment, and licenses; and access control.

In addition to these core subcontracted partners, the Project team subcontracted with Afghan NGOs to master CLTS and incorporate it into their delivery of the national Basic Package of Health Services (BPHS)[1]. These NGOs are presented in Table 1.2.

Table 1.2: Locations and Implementing Partners of the SWSS CLTS Program

Province	Number of Districts	Implementer
Nangarhar	6	Health Net International
Laghman	4	Health Net International
Logar	4	Medical Refresher Courses for Afghans
Baghlan	6	Bakhtar Development Network
Takhar	6	Care of Afghan Families (CAF)
Badakhshan	8	CAF & Social & Health Development Program
Total Number of Districts	**34**	

The SWSS Project senior management staff led every aspect of Project implementation. They were a small team of multi-talented specialists led by the Chief of Party (COP) as presented below. The Program Expert provided counsel to the Deputy Chief of Party and together they served as the interface between the COP and the remainder of unit managers. Component 1 was headed by the Director, Water and Sanitation Infrastructure; Component 2 by the Director, Sustainable Health Outcomes; and Component 3 by the Director, Social Development. Specialists in communications and M&E also served as senior management so that their work would be fed by and complement all other aspects of project operations. The Director, Finance and Administration oversaw the staff responsible for contracts management, human resources, information technology, administration, and finance. The Project was led from a base of operations in Kabul, through which three provincial offices were coordinated in Nangarhar, Parwan, and Paktiya. The full-time staffing chart for the Project is presented in Annex B.



By the end of the Project, only two of the senior managers were non-Afghans. The COP was Afghan-American and the Director, Finance and Administration was a Dari-speaking American with over 30 years of presence in Afghanistan.

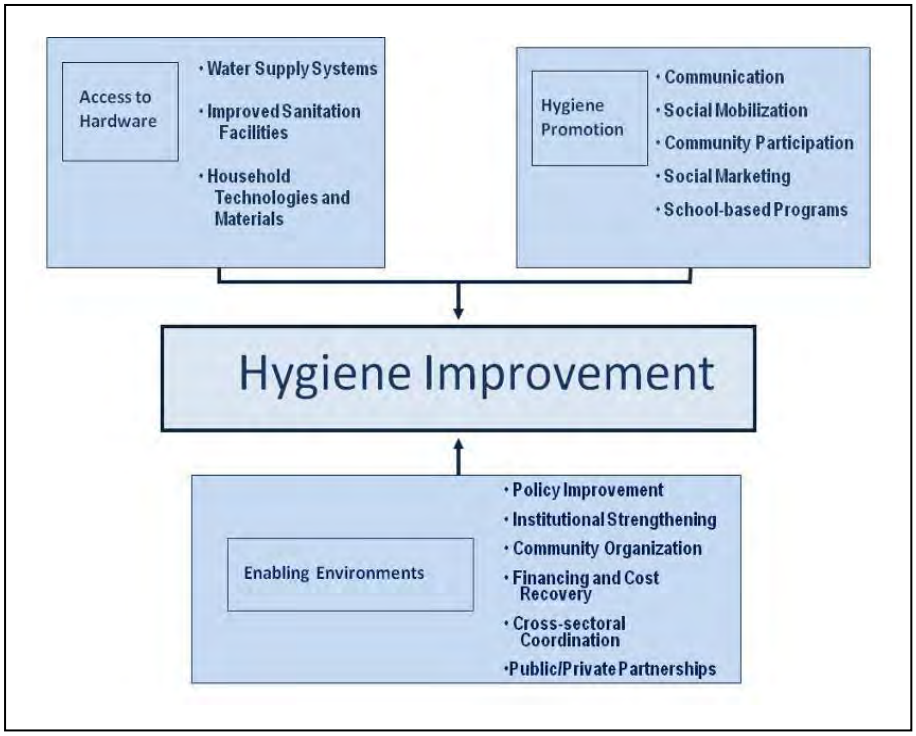
1.3 OVERALL IMPLEMENTATION APPROACH

The SWSS Project approach fully integrated the principles of the Hygiene Improvement Framework (HIF). The HIF was developed by USAID's Environmental Health Project in collaboration with leading

[1] The BPHS is the foundation of the Afghan health system. It is the basis for the primary health care system of Afghanistan and establishes its standards. (Adapted from A Basic Package of Health Services for Afghanistan, 2005/1384. Islamic Republic of Afghanistan, Ministry of Public Health)

global partners in the WASH sector—UNICEF, the World Bank's Water and Sanitation Program, the Water Supply and Sanitation Collaborative Council, and USAID—as a comprehensive approach for preventing childhood diarrhea through balanced resource commitments across three essential elements: (1) Improving Access to Water and Sanitation "Hardware"; (2) Promoting Hygiene; and (3) Strengthening the Enabling Environment (see Figure 1.1). Application of the HIF allowed SWSS to integrate its programming in a manner that positioned the relatively short project to improve health and hygiene for the long term and aligned the work with best practices in the WASH sector.

Figure 1.1: The Hygiene Improvement Framework



1.4 COMPONENT 1: SUSTAINABLE WATER SUPPLY AND PUBLIC SANITATION

Hygiene Improvement Framework Options
ACCESS TO HARDWARE
Water Supply Systems
Improved Sanitation Facilities
Household Technologies and Materials

Under Component 1, the Project team contracted and managed the installation of safe water supplies and public sanitation infrastructure. Actual installation of infrastructure was accomplished through subcontracts to the Afghan private sector. Representative engineered designs created by the Component 1 staff to guide contracting and construction are presented in Annex E.

The word "sustainable" is key to the work accomplished under Component 1. Without appreciation of the needs of sustainability, it is easy to conclude the no major activities were accomplished during Project Year 1 under Component 1, as few facilities were contracted for and constructed. This is not an accurate conclusion.

Beginning with the proposal submitted by Tetra Tech ARD to USAID, the sustainability of investments was key to the Project approach, budgeting, and staffing. It has been proven in hygiene improvement

projects supported by USAID that "hardware follows software." This means that engagement of communities and local authorities must be achieved before "hardware" infrastructure decisions are made and supported.

A 2009 review of the WASH sector in Afghanistan commissioned by the MRRD concluded that across multiple provinces, over 40 percent of the rural water supplies constructed during the previous three years were non-functional, sanitation had not improved at all, and the health status of rural Afghans was not improving. To avoid a repeat of this dismal performance, Tetra Tech ARD approached the SWSS Project fundamentally as a community-based development project—transitioning the Afghan WASH sector from low service delivery to longer-term, sustainable programming and requiring significant commitment of time and resources to establish the "software" elements of the work.

Adapting the HIF to meet the challenges of the WASH sector in Afghanistan required that particular attention be paid to the community-level processes necessary to support sustainability. Those of most direct relevance to the WASH sector in Afghanistan are equity, transparency, sanitation demand creation, and environmental improvement. During the first year of implementation, the Project team began with a small number of PNFs that had been prepared by PRT/FPOs and vetted by USAID. Using this foundation of information and contacts, the Project team followed, to the extent possible, the discipline of community "software" that would prepare for wise investments for "hardware."

This process required significant time and effort, but its pay-offs were many, putting in place the enabling environments that have been shown to lead to sustainable community services. So, while infrastructure construction began in earnest late in Project Year 1 and grew exponentially in Project Year 2, Project Year 1 was primarily an investment in sustainability and community development. The achievements made during that year were necessary to avoid the failures of past projects.

Initially, SWSS employed a "flexible approach" that was reactive to PNFs. As was noted in a USAID Trip Report by a Washington, DC-based WASH specialist prepared in December 2010, "*the need to be responsive to PRT requests for water supply only has stretched them [the SWSS Project team] geographically, and this approach does not provide strong support for sustainability*." When possible, a holistic and integrated "community development approach" was used in cooperation with MRRD staff to identify subprojects that were demand-driven and originated from local authorities working with SWSS' social development mobilizers. The two approaches are described more completely in Section 1.5.

The following Component 1 themes highlight the overall Project approach to development:

- **Engage the Afghan Private Sector**: At the end of the Project, over $17.4 million had been contracted to Afghan private sector entities through 199 local subcontracts. This brought opportunity and capacity building to local contractors constructing water supplies and latrines under Component 1 and implementing health activities under Component 2.

- **Integrate Local Units of MRRD in Planning and Approving Investments**: Provincial offices of the MRRD (PRRD) and staff were placed in the lead in the Project's provision of infrastructure and support services at the community level. They were among the first points of contact for Project staff, they developed and proposed construction projects to the Project, and they were vital recipients of the handover of improvements through their representation on traditional and non-traditional systems for local government management of service delivery: *Shuras* and Community Development Councils (CDCs).

- **Expand Access to New Water Supply Infrastructure**: The Project facilitated the construction of 3,011 wells and 37 piped water systems, an impressive achievement in the expansion of access to improved water supply for 615,725 Afghan citizens. As noted in a USAID Trip Report by the Washington, DC-based specialist referenced above, the "*SWSS methodology is sound, and*

contractual targets for infrastructure may need to be adjusted to reflect the time required to implement the full suite of 'process' activities that support the sustainability of hardware investments." A more thorough explanation of the magnitude of these achievements against the contract deliverables and the efforts made to adjust the deliverables to implementation realities is contained in Section 2.4.

- **Facilitate Construction Through Thorough Planning**: The Project sent three-person units made up of a social mobilizer, a hygiene promoter, and an engineer to vet potential activities in nearly 5,000 communities. In areas of low security and high risk, these were usually one-time visits. In more secure areas, the units offered a multi-sectoral approach to effectively understand and address the needs of each community. Through this approach, social leaders, technical specialists from MRRD, and health specialists from the Ministry of Public Health (MoPH) and local NGOs were engaged in planning and decision-making before construction of new infrastructure.

- **Establish Local Ownership of Infrastructure**: The Project team established a process by which community leaders and members agreed to and signed documents delineating infrastructure locations and ownership of the infrastructure by local authorities. This avoided disputes and claims to higher authorities that outsiders did not consider the true needs of the community or held responsibility for its care. It was important for Project staff to lead these efforts as PRT/FPOs typically had neither the skills nor the time to obtain commitments from all facets of a community both before and after infrastructure construction.

- **Facilitate Construction of Controlled Public Latrine Blocks**: The Project catalyzed the unsubsidized construction of over 42,000 household latrines under Component 2. In addition, the Project financed and contracted the construction of 37 public latrine blocks through seven local construction contracts under Component 1. Typically each public latrine block had four stalls and served market centers, schools, clinics, or other public spaces. In each case, an existing institution or organization was responsible for owning and managing the facility. The Project team was well aware of the global failure of ill-managed public sanitation facilities and consequently ensured that single owners and management were in place that would be accountable for the investment.

Construction was carried out in 27 of Afghanistan's 34 provinces. Figure 2.1 is a map adapted from Watertracker showing the geographic distribution of water wells constructed by the Project.

Figure 1.2: Geographic Distribution of Project Infrastructure Construction (www.watertracker.af)

1.5 COMPONENT 2: SUSTAINABLE HEALTH OUTCOMES

Hygiene Improvement Framework Options

HYGIENE PROMOTION

Communication | Social Mobilization

Community Participation

Social Marketing | School-based Programs

Component 2 of the Project, implemented by the Sustainable Health Outcomes unit under the direction of MSH, had two sub-components. Both were aimed at achieving sustainability of health outcomes. The first, the Provincial Approach, was an integrated approach to hygiene and sanitation consisting of CLTS and hygiene education. This was implemented in provinces shown in Table 1.2. The second, the Flexible Response, provided hygiene education to beneficiaries of water supplies constructed by the Project in response to PNFs and where security concerns limited staff time in beneficiary communities. A selection of hygiene education materials used in Information, Education, and Communication (IEC) in all communities are presented in Annex H.

The original Project design for CLTS called for use of "rewards" as a stimulus for communities to achieve open defecation free (ODF) status. A proposed reward was construction of a Project-funded water supply. In practice, however, a reward was not a necessary part of CLTS implementation and this planned commitment was dropped.

For the Provincial Approach sub-component, the SWSS team selected CLTS as the strategy to overcome the lack of rural sanitation and hygiene. CLTS was pioneered in 1999 by Mr. Kamal Kar in a small community of Rajshahi District in Bangladesh. Since then the approach has spread within Bangladesh and has been introduced in a number of other countries in Asia and in Africa. In Afghanistan, several governmental and nongovernmental agencies had previously implemented subsidized sanitation programs, but no significant sustainable outcomes were observed. Prior to the SWSS Project, no organization had put in place a CLTS program at scale.

DEFINING COMMUNITY-LED TOTAL SANITATION

Community-Led Total Sanitation (CLTS) focuses on igniting a change in sanitation behavior rather than constructing toilets. It does this through a process of social awakening that is stimulated by facilitators.

— Kamal Kar, Robert Chambers, Handbook on CLTS (2008)

CLTS works by engaging whole communities in examining and acknowledging the extent and shamefulness of open defecation, its importance in the transmission of diarrheal diseases, and the costs of such diseases to well-being and household finances. This motivates the community to achieve ODF status by ensuring that all households have access to a safe latrine and that everyone uses one. This is achieved without any external subsidies and within the scope of the community's resources.

Combining the CLTS approach to sanitation with behavioral change communication approaches, which emphasized other aspects of home and personal hygiene, further strengthened this approach. The behavioral change approaches included launch of and support to Family Health Action Groups (FHAGs) for mothers of young children, training of community and religious leaders to reach men, and school programs to reach children.

Effectiveness and sustainability were further strengthened by integrating CLTS with the already successful community-based health services of the Afghan government's BPHS. The Project's Component 2 staff invited the NGOs implementing the BPHS (that were therefore already familiar to the communities) to also implement CLTS and hygiene education programs in the Provincial Approach provinces.

The Provincial Approach. The Provincial Approach was implemented in the areas highlighted in Figure 1.3. The Project selected provinces for inclusion on the basis of accessibility, relative security, and the need to address the problem of diarrhea. The selection of districts reflected the same criteria, as well as

provincial population size. In each province, the program was started in half the districts in April 2010 and the remainder a year later. Since CLTS was nearly completely new to Afghanistan, this allowed for refinement of the program and development of experience before full expansion.

To initiate a CLTS program, communities react with disgust to open defecation and the clear chain of infection by collectively determining to build latrines and become an ODF community. To advance the process, NGO facilitators made follow-up visits. After two to four months, many communities were ready to be verified and then certified by local authorities as an ODF community with access to a new or improved latrine for all households.

Figure 1.3: Geographic Distribution of SWSS CLTS Programs

The parallel program of hygiene education started shortly after triggering (see below) with the formation of women's FHAGs. Male community and religious leaders were invited to two-day hygiene education courses held centrally in the province and taught by SWSS staff. School children were reached on the Global Hand Washing Days (GHWDs) in October 2010 and 2011. FHAGs and GHWD celebrations are described in more detail later in this section.

The Flexible Response. The Project team constructed wells with hand pumps and some piped water schemes in communities that had been identified by PRT/FPOs and were in less secure areas. The Sustainable Health Outcomes staff was responsible for providing hygiene education to the beneficiaries of these water points. This was done through training community leaders and schoolteachers. In a few districts, it was possible to train community women, but it was not possible to recruit women trainers for most parts of the country where this approach was required.

Community Selection. Selection of communities in the Provincial Approach initially focused on maximizing the possibility of early successes in areas with high need. The characteristics of favorable communities were:

- Manageable community size (50 to 60 households);
- No current or past programs of water and sanitation hardware subsidies, and none that were proposed;
- High prevalence of diarrheal disease and child mortality;
- Common open defecation, a very dirty village, and readily and widely visible human excreta;
- Existence of wet, moist, and/or visibly filthy and disgusting conditions where fecal contamination is offensive;
- Locations where it was easy for people to see and analyze the links between their defecation habits and ingestion of feces;
- Practice of defecation near houses during rains or at night; and
- An accessible community that allowed for easy follow-up.

NGO staff made the selections in coordination with staff of the provincial offices of MRRD (PRRD) and the Provincial Public Health Department (PPHD).

Triggering. "Triggering" is the term applied to the introduction of CLTS to communities by NGO facilitators. It includes a transect walk of the village and participatory mapping of all the areas of open defecation. NGO representatives and community members then calculate both the amount of feces loose in the community and the amount of money spent on medical expenses for diarrhea treatment.

Male and female facilitators implemented activities separately for men and women. The process took three to five hours during which the villagers analyzed their own hygiene and sanitation situation, characterized the problem, and came up with appropriate solutions. The facilitators did not prescribe anything, but only facilitated the process. If triggering was successful, communities generally spontaneously formed a committee of concerned men to coordinate and oversee activities.

Initial responses to the triggering experiences were varied and were not easily linked to community structure, function, or personalities. In many cases, there was immediate enthusiasm for action. In some cases, there was little response or desire to change. Sometimes, community members later changed their minds on hearing about the much-praised success of a nearby community that achieved ODF status.

Follow-up. The Project Master Trainers equipped the NGO implementing partners to lead CLTS implementation and follow-up. Project staff were not direct implementers of CLTS. The Project's goal was to have CLTS become part of the daily practice of partners—including NGOs, the MoPH, and MRRD—as an additional element of BPHS implementation. The NGO facilitators returned to communities regularly after triggering in order to monitor progress, encourage the community, and give technical advice on latrine construction if requested. After two or three consecutive weeks of observed progress, the facilitators proposed the formation of an FHAG and invited community and religious leaders to participate in one of the hygiene education meetings designed for them. A broad spectrum of community leaders—from both CLTS communities and adjacent villages—were given the ultimate responsibility for the success of the activity.

Latrine Construction. Construction of over 42,000 household latrines was completed in CLTS communities without any construction subsidies provided by the SWSS Project. Construction materials were those that could be afforded by families, sometimes with assistance from wealthier individuals in the community who saw that an ODF community was in their own interests. In most areas households built their own latrine. In Nangarhar and Laghman provinces some latrines were shared by two or more households (usually brothers) if they shared the same compound.

Most latrines were pit or vault latrines depending on the geology and terrain. The Project staff recommended cement slabs for safety and cleanliness reasons, but not all households were able to afford them. Criteria for an acceptable latrine were safety for adults and children and basic privacy. Covers were recommended to prevent flies from entering either through the hole at the top or through the hole at the back of a vault latrine (required for emptying). This was described in the *SWSS Sanitation and Latrines Options Manual*, Section 2.4:

> "CLTS aims to change how people view their place to squat or sit when defecating and to make the use of a latrine of any level or technology a key that affects hygiene improvement by virtue of its *cleanliness not its title* or standard design features.
>
> SWSS considered *the construction and use of a new facility OR the transformation from an unhygienic to a hygienic, clean toilet of any simplicity the creation of an improved place to defecate*. Our operational definition of an improved sanitation facility is a facility that:
>
> 1. Is odor-free and clear of any debris such as dirt or feces;
> 2. Provides privacy and contributes to community-wide public health;
> 3. Is free of flies, which transmit feces to eyes, open wounds, exposed food, or containers;
> 4. Meets the cultural needs and desires of its users;
> 5. Is close enough to one's place of residence or is conveniently located near a place of work or commerce;
> 6. Makes possible safe emptying of feces and urine when the pit or vault is filling up;
> 7. Encourages use by women, men, and children; and
> 8. Has a nearby source of water and soap where washing one's hands can be done with convenience after using, cleaning, or emptying the latrine."

ODF Verification and Certification. A village was not certified as ODF by SWSS Project staff. First verification of ODF status was given by local community leaders and NGO staff once the community and facilitators agreed that all households have and use a latrine. For verification, a team consisting of NGO staff, representatives of government line departments (PRRD, PPHD and the National Environmental Protection Agency [NEPA]), leaders of a neighboring village, a SWSS team representative, other stakeholders, and the villagers would undertake a full walk in the target village and observe each latrine as well as the previous places used for defecation before CLTS implementation. The investigation team members completed a verification form and signed it. For a community to be verified, no open defecation must be found and 100% latrine coverage and use must be noted.

After the village was verified, the ODF certification process was carried out, usually one to three weeks after verification. The certification team, usually led by the PRRD Director,

WHY CLTS WORKED IN AFGHANISTAN

- In subsidy-based latrine programs, instead of promoting self reliance, communities demand more subsidies.

CLTS communities accepted zero-subsidy latrines.

- Shame and disgust, honor, and privacy are part of Afghan culture, and value systems are such that these are strong motivational triggers.

Shame and disgust proved to be strong "triggers" for CLTS.

- Expecting Afghan communities to help themselves is not asking too much:
  - A household sanitary latrine was constructed almost for free; and
  - When free construction was not possible, local masons and entrepreneurs provided low-cost products.

In CLTS, communities decided, acted, and were recognized for their achievement.

investigated the village and the latrines on a sample basis. Once convinced, the certification team granted the village an ODF certificate at a public ceremony and installed an ODF board (proclaiming that the community is a certified "clean village") at the entrance gate of the village.

Post-ODF Follow-up. Three to six months after ODF certification, the provincial CLTS team from the NGO and the Project visited each ODF community to check for any recurrence of open defecation. This was not possible for communities that reached ODF close to the end of the Project. However, the recurrence rate back to open defecation in earlier ODF communities was found to not exceed 1%. At the end of the Project, communities that had been certified as ODF were officially handed over to the PRRDs for follow-up.

Family Health Action Groups. Women's FHAGs were a key element of the SWSS Project's hygiene behavior change program because women play a central role in the collection and storage of water in the home, the preparation of food, and the care of young children. FHAGs were introduced as a new official activity in the BPHS. They had previously been shown to be an effective way of rolling out various healthy behaviors and changing social norms in the community. Previously, some FHAGs had been started around community nutrition activities, and others around birth spacing and maternal and child health; for the SWSS Project, the starting point was hygiene and sanitation.

Most communities in Afghanistan now have both male and female community health workers (CHWs) who are trained to treat common illnesses, provide birth-spacing methods, and lead health promotion. Each FHAG is a group of respected women leaders, selected by the female CHW. Each of the women in the FHAG is a leader of a group of eight to ten women with young children from her neighborhood group of homes. The female CHW meets with the FHAG members regularly to share what she has learned about keeping healthy. The FHAG members then apply what they learned in their own homes and demonstrate the changes to their neighborhood groups of women. The approach is, "Come and see how I do it in my kitchen."

The creation of the FHAGs was one of the most important tasks of the female NGO facilitators under the SWSS Project. They helped the CHWs train the FHAG members. In those communities where there was no CHW, the facilitators directly conducted all the training and motivation of the FHAG leaders.

Schools and Global Hand Washing Days. Global Hand Washing Day is celebrated every year on October 15. The Project used this opportunity in both 2010 and 2011 to reach large numbers of school children. In 2010, activities were held in the Provincial Approach provinces, and over 10,000 boy and girl students washed their hands with water and soap and conveyed the message of washing hands to their families and villages. In 2011, the schools program was also done in Bamyan Province and three other secure provinces where the Component 2 team provided hygiene education to communities with new water supplies. These school programs were implemented in close coordination with the MoPH, Ministry of Education, MRRD, and their provincial departments.

The Project provided training and materials, and the actual programs were implemented in the schools by NGO staff. In October 2011 this day was celebrated in 40 schools, one in each of the target districts of the CLTS provinces. More than 41,000 students and teachers participated, washed their hands, and later transferred the message of washing hands to their families and villages.

Community Leaders. Men remain the main decision-makers in Afghan communities. It was, therefore, very important that in each community involved in the CLTS and hygiene education programs the male community and religious leaders fully understood the key issues and their roles in achieving program goals. Two-day education meetings were arranged in a central place in each province. A selection of materials used in these sessions is presented in Annex H. Three to four key male leaders from each of the CLTS villages were identified by the NGO facilitators and invited to attend. The Project's Community Mobilization Master Trainers implemented the training programs.

Radio. Radio spots and programs were prepared and available for broadcasting through provincial radio stations. However, this was not considered of sufficient priority by the Project's senior management team to justify funding broadcasts.

1.6 COMPONENT 3: SUSTAINABLE LOCAL MANAGEMENT

Hygiene Improvement Framework Options
ENABLING ENVIRONMENT
Policy Improvement Institutional Strengthening
Community Organization
Financing and Cost Recovery
Cross-sectoral Coordination
Public-Private Partnerships

Component 3 focused on the pre- and post-construction enabling environments needed to establish a platform that supports the sustainability of the work undertaken under Components 1 and 2. As a result of work conducted under this component, CLTS was incorporated into MRRD policy, NGO capacity was built, local financing options were identified, and component staff led the cross-sectoral coordination of each Project component. A particular challenge for the Project was to engage repeatedly with communities and community-appointed infrastructure caretakers to bring about sustainable operations and maintenance of investments and improvements. The pre-construction work of the Component 3 staff has been described earlier.

The Project's community development approach placed a high degree of importance on the caretaker mechanism of collecting fees to repair hand pump wells or clean public latrines to ensure sustainability, avoid breakdowns, and ensure that public toilets were hygienic. The Component 3 staff worked through the CDC/*Shura* structure to identify candidates to serve as caretakers. Component 1 and 3 staff trained and equipped each caretaker and assigned each to a set of geographically compact wells.

Early Project research conducted by Arc Finance specialists found both traditional and non-traditional ways in which communities gather funds to address needs. Traditional approaches were widely prevalent and implemented for maintenance and repair of water supplies. In these approaches, the *Shura* gathered funds from community residents, contacted the designated mechanic, oversaw and approved his work, made payment, and maintained records of the transaction.

Records available on Watertracker indicate that this method of accessing skilled mechanics to meet community needs for a fee is working. In addition, the records show that communities also make efforts to repair their wells and hand pumps using their own materials and skills instead of those of the mechanic. At the end of the Project, the team was not able to determine whether the trained mechanics were able to generate sufficient income from this work for it to become a long-term employment opportunity.

The following sections describe the achievements of the Project's Component 3 staff:

- **Community Engagement**: Component 3 staff facilitated the Project's entry into communities and ensured that all relevant authorities from both the USG and the GIRoA were aware of the work to be undertaken. In the first year of the Project, Component 3 staff played a lead role in identifying communities, conducting needs assessments, mobilizing communities for active participation, and working with *Shuras* and CDCs to ensure that WASH investments were planned to establish a foundation for sustainable maintenance. They led the "software" part of preparation for investments in infrastructure "hardware." This approach was followed in every community in which SWSS worked within the limitations imposed by local insecurity.

- **Community Assessments**: To ensure consistency of implementation in locations identified by MRRD, PRT/FPOs, or other organizations, the staff of Components 1 and 3 visited prospective work locations, assessed technical options and social context (e.g., operational power structures, capacity of

local authorities), and made plans with line ministry officials (or municipal officials) and local development *Shuras*.

As the Project moved into Years 2 and 3, Component 3 staff led ground-truthing and stakeholder engagement efforts. They also continued their community engagement activities by assisting them to set up systems for maintaining hardware investments, continue good hygienic practices learned from BPHS NGO facilitators, and respond to community needs post-implementation.

- **Sustainability**: The Component 3 staff led efforts to promote and enable local ownership of infrastructure improvements. A foundation of sustainability was established by: (1) ensuring high quality construction by hiring local construction contractors who were known to and present in local communities that could help hold them accountable for performance; (2) training, equipping, and assigning to communities maintenance mechanics; and (3) creating and developing Watertracker while training communities in its use and equipping MRRD for its upkeep. The Component 3 staff worked with the entire Project team to ensure the employment of sustainable development approaches in line with local customs throughout the entire implementation cycle.

  It was particularly important for the Component 3 staff to work closely with the Component 1 engineers and construction managers to strengthen their ability to pay equal attention to efficient construction and effective social support and usage of constructed infrastructure. Without collaboration with the Component 3 staff, it was typical for the Component 1 staff to focus purely on the technical aspects of the infrastructure. It is well known that such a focus on hardware alone leads to widespread short-term failure of small-scale infrastructure. This has been the history of investment across Afghanistan as documented by MRRD.

  Within the short timeframe of the Project and the continual push for infrastructure delivery, the Component 3 staff engaged stakeholders as broadly as possible in project development, design, location, and ownership. This effort was documented in the set of official acceptances of infrastructure improvements documented in Watertracker.

- **MRRD and USAID MoU**: An MoU was the foundation for SWSS collaboration with local stakeholders. The MoU was signed by USAID and MRRD senior leaders, and it outlined their cooperation on SWSS activities. It is presented in Annex C. In response to the MoU, Project staff sought the active participation of MRRD personnel and trained government personnel as hand pump mechanics.

- **Willingness to Pay Assessment**: Arc Finance, a key SWSS subcontractor, conducted pilot community assessments in the Istalif cluster of villages of Kabul Province early during Project implementation to characterize the potential for local financial sustainability of infrastructure investments. Their team determined that financial agreements in a variety of formal and informal forms can be applied through existing social systems to contribute to maintaining WASH investments and that community members were willing to pay for the upkeep of water supplies.

- **Training of Hand Pump Mechanics**: Training of 150 mechanics was completed in the following provinces: Nangarhar, Laghman, Kunar, Ghazni, Paktiya, Logar, Panjshir, Kapisa, Bamyan, Parwan, Baghlan, Ghor, Farah, Faryab, Kundoz, Balkh, Jawzjan, Kandahar, Takhar, and Badakhshan. Each mechanic was assigned to a set of SWSS-constructed infrastructure, introduced to the community, and made available to the community via mobile phone.

1.7 SWSS MONITORING, EVALUATION, AND PROGRAM INDICATORS

M&E played a central role in the SWSS Project. It was an essential element to ensure, evaluate, and describe Project success. Definitions of project indicators are presented in the Project's Performance

Monitoring Plan. The Project developed and implemented an M&E system through a dedicated team that worked with all technical staff and regional offices to continuously measure Project performance. Beyond the normal M&E activities related to the reporting on contractual indicators, the team was deeply involved in content, structure, and data management associated with the roll out of the Watertracker system.

The full set of contractual indicators is presented below. The M&E staff directly documented and recorded data related to Component 1 indicators. Data for reporting on Component 2 indicators in CLTS areas were measured with annual household behavioral surveys described in the Section 1.8. Component 3 indicators (consumer satisfaction score, number of community water systems with functioning management committees and long-term financing) were not formally measured after agreement with USAID on prioritization of Project funds. The reduction in anticipated funding and a prioritization on infrastructure construction resulted in limited visitation to beneficiary communities by M&E staff, constrained their ability to conduct follow-up visits with stakeholders, reduced their opportunities for direct monitoring and reporting, and resulted in the elimination of the planned customer satisfaction survey.

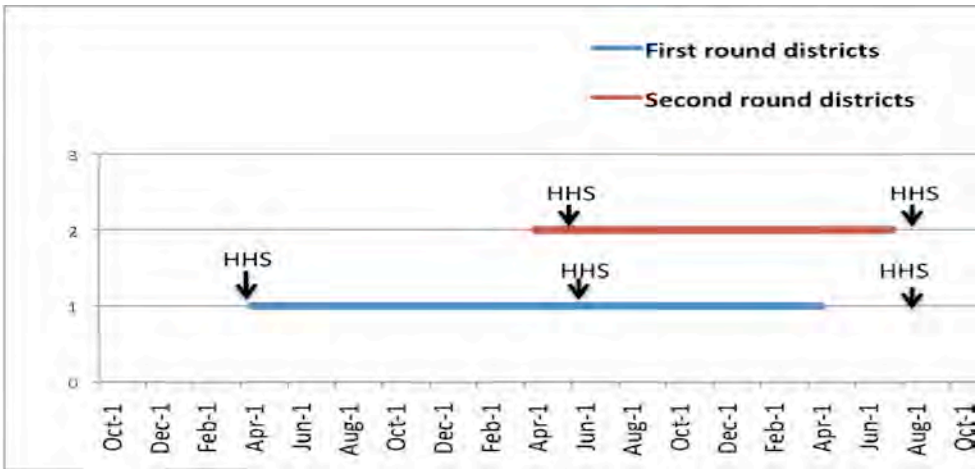
Despite these constraints, the following bullets highlight the many efforts of the M&E team:

- **Regionalization of Monitoring**: The Project placed many of its M&E staff in field positions to most directly oversee, supervise, and support subproject implementation. The Project used its field offices in Parwan, Nangarhar, and Paktiya to ensure that activities had regular monitoring and reporting staff and systems to populate the central M&E databases.
- **Operations Trackers**: The M&E unit worked across the Project to develop and maintain a variety of operations trackers to manage information. These include trackers for management of Requests for Proposals, contracts, completed infrastructure, infrastructure under contract, and subcontractor expenditures. The tracking of this information was critical for Project supervision, reporting, and general management. During Project Year 2, it became clear that the Project required a more comprehensive and integrated data management system. In response, the Project developed Watertracker.
- **Export of Data to Afghan Info**: On a quarterly basis the M&E unit uploaded Project results into USAID/Afghanistan's Afghan Info database in line with contract requirements. Uploads were also conducted at other times at the request of USAID/Afghanistan.

1.8 HOUSEHOLD BEHAVIORAL SURVEYS

Annual KAP Household Surveys. The SWSS Project monitored changes in hygiene-related behaviors by a series of annual Knowledge, Attitudes, and Practice (KAP) household surveys with particular attention to the impact of CLTS and the certification of ODF status. These were organized each year during the summer months, when diarrheal diseases are usually most frequent. Baseline surveys were done for the first set of districts in 2010 and for the second set of districts in 2011. A mid-project survey was done in the first set of CLTS districts in 2011, and an end-of-project survey was conducted in both sets of districts in 2012 (see Figure 1.4). The survey instrument, sampling protocol, and methods of data analysis are contained in the SWSS CLTS Community Baseline Report submitted to USAID by SWSS as a Project deliverable.

Figure 1.4: Timing and Sequencing of SWSS CLTS Programs and Household Surveys, 2009–2012



The surveys used the Lot Quality Assurance Sampling approach each year. The data presented as baseline data are weighted averages from the baseline survey of the first round of districts in 2010 and the baseline of the second round of districts done in 2011. Although separated by a year, both surveys were done in the same provinces, before any interventions in the communities, and at the same season of the year. The mid-project follow-up survey in 2011 was only conducted in the first round of districts that had commenced the CLTS program a year earlier. The sampling frame included all communities that had been involved regardless of whether they eventually reached ODF status or not in order to document overall change during the effort. The end-of-project survey sampling frame included only those communities from both rounds of districts that had reached ODF. This community selection was done in order to capture achievements and change that could be most closely attributed to the full range of Project and local inputs that led to ODF status. Survey results for each province are presented in Table 2.5.

Targets for hygiene behaviors had not been set in the SWSS Task Order contract. In order to place these targets at sensible levels, the SWSS team used the opportunity of the Task Order's required Baseline Analysis Report to compile the results of baseline and follow-up surveys that had been carried out in representative regions of the country by DACAAR, an NGO with a long track record of implementing WASH projects in Afghanistan. These findings indicated both aggregated baseline levels of behaviors and the levels of improvement that might be expected from good hygiene promotion programs. Targets were then established in a contract modification agreed to by USAID and Tetra Tech ARD.

No monitoring surveys were done for the communities that received only hygiene education following installation of a new water supply from the Project. These communities were the least secure areas in which the Project worked, so access to the community was limited and information was unusually controlled. The Component 2 unit provided as much hygiene education as security would allow but did not have the ability for full education regimens and appropriate follow-on involvement. The team hoped to do some limited surveys in communities involved in some of the larger water schemes. However, time and security became major factors and the budget reductions of the final year finally precluded them. This preclusion

THE CONTRIBUTION OF WATERTRACKER TO THE AFGHAN WASH SECTOR

- It is notably difficult for the GIRoA to monitor water supply infrastructure operation and impact across the country.

  Watertracker provides MRRD with a centralized database of location, construction, and key contacts for rural water supplies.

- It is very challenging for MRRD to provide support services that link communities and repair specialists.

  Watertracker enables remote communities to report the status of the water supplies directly to MRRD via cell phone.

- 80% of inhabited areas of Afghanistan have cell phone coverage with 15 million subscriptions and 53% annual growth rate.

  Watertracker is a tool for monitoring, hearing community insights, linking resources to needs, and optimizing resources to reduce problems.

did not affect SWSS' reporting on project indicators for Component 2 as baselines and useful impact information required the examination of a comprehensive hygiene improvement program as was possible only in ODF communities.

1.9 WATERTRACKER

Watertracker is a monitoring and community reporting application that the SWSS Project developed and put into practice during Years 2 and 3 to support Component 3 sustainability objectives. The Project subcontracted partner Arc Finance to manage Watertracker's concept development, partnership facilitation, research and design, field-testing, implementation, and ultimate transfer to MRRD.

Watertracker was a technical innovation developed by the Project to meet contractual requirements for post-construction monitoring and to be fully consistent with the effort within USAID to incorporate innovation—particularly information technology innovation—into development programming. Watertracker was conceived to enable Project staff to complete three functions:

1. To track and analyze ongoing and completed community infrastructure projects;
2. To provide beneficiary communities with the ability to report via mobile phone technical and financial challenges related to local water supply infrastructure; and
3. To identify and evaluate long-term sustainability trends related to both technical and social performance.

Watertracker was deployed in November 2011 following a 12-month research and development period. A presentation of the elements of Watertracker and a description of its key functions and components are contained in Annex F. A brief description is presented in the box below.

While web and mobile technology are core material components, Watertracker should not be viewed narrowly as a technical application only, but rather as a multi-dimensional program that requires committed human and financial resources and considerable planning and coordination to be successfully implemented.

WATERTRACKER COMPONENTS AND OPERATION

- **Communication with Communities.** Through Watertracker, rural communities are able to report directly via mobile phone on the working condition of water supplies. An Integrated Voice Recognition system was developed specifically for this purpose
- **Record-keeping and Accountability.** Through Watertracker, the MRRD can control a database containing all important information regarding any rural water supply in the country. Well logs, documents of local authority, photographs, geospatial information, and the responsible builder are all part of its interactive information storage capacity

In order for Watertracker to add lasting value to the Afghan WASH sector, three programmatic elements had to be actualized: (1) a process and mechanism for collecting high-quality, standardized water point data; (2) a method for training water point beneficiary communities in the use of the Watertracker Integrated Voice Response system (IVR), and the necessary resources to carry out such training in regions where water points are located; and (3) the capacity at regional and provincial levels to respond to and resolve technical issues that cannot be addressed with community resources and expertise. If any one of these three components is not regularly operationalized, then the application's value will not be realized.

This key point was made clear to USAID and MRRD during discussions as recently as October 2012, and each organization appears to have taken the importance of the three to heart during the transfer of Watertracker to Ministry authority. The hiring of the full-time SWSS Watertracker Associate by MRRD in December 2012 and

their acceptance of all hardware and software associated with Watertracker from the Project demonstrate this most clearly.

Results and Observations. Watertracker was first field deployed after small samples of beneficiary communities in Nangarhar and Logar participated in training sessions conducted by Project regional field staff. Over the following 10 months, 1,098 caretakers across 11 provinces received training. The total number trained by December 2012 represented roughly 36% of all caretakers. If fully funded, SWSS could have completed caretaker training, but MRRD and the Watertracker Associate have committed to providing post-project training for other caretakers.

Bureaucratic delays during the development of Watertracker resulted in its operationalization for the final year of project implementation. Instead of the Project taking on direct responsibility for training, MRRD was equipped with the skills, commodities, and staff to take on responsibility for completing the training as part of their overall rural water supply and sanitation portfolio.

Over the one-year deployment period of Watertracker, 87 unique callers in 10 provinces executed 203 separate IVR reports. The incidence of community IVR reporting by province corresponded roughly with training penetration levels, with those provinces with the highest level of training experiencing the highest reporting levels.

Communities using the IVR reported a diversity of events, though the vast majority concerned technical malfunctions that limited or fully disrupted water supply. Damage to the hand pump, and inadequate water table levels constituted the leading malfunctions reported. In the case of the former, it was observed through contact between the Watertracker Associate and reporting communities that in most instances resources could be mobilized locally to overcome and resolve the cause of the malfunction.

In many cases, Project-trained mechanics were available and possessed the necessary equipment and technical skills to execute repairs; however, it was noted that approximately 20% of communities reporting technical challenges also reported an inability or unwillingness to pay technicians to repair their water points. In these cases, communities were willing to apply their own skills and resources to execute any repairs. This should not be viewed as a failure of the trained mechanic approach, as 80% of communities were willing to pay for repair services, but rather as a reality of the marketplace for their services. It should not be expected that all challenges that arise require a trained mechanic to resolve them. The important lesson is that repairs are occurring through a variety of mechanisms that do not require external, project-provided resources.

Future Application. From the earliest stages of Watertracker's development, the objective was to develop an application that could continue to have impact on the Afghan WASH sector following the completion of the Project. As early as July 2011, plans to propose adoption of the application by MRRD for the diversity of non-SWSS projects were underway. Initial dialogue between SWSS and MRRD took place in October 2011, and by the following spring, the Ministry had expressed a commitment to adopt Watertracker and apply it across a variety of WASH projects, involving numerous agencies and stakeholders. The Project team convinced ROSHAN, the sole telecommunications partner supporting Watertracker's IVR, to agree to provide maintenance and airtime support pro bono for a period of three years—continuing after the completion of the SWSS Project.

By July 2012, the Watertracker Associate was working directly with MRRD staff on a full-time basis while still employed and supported by the Project. His mission involved expanding training in use of Watertracker, completing the population of Watertracker, and facilitating Watertracker's incorporation with the Rural Water Supply Sanitation and Irrigation Program (RuWATSIP) division of MRRD. Earlier in the year, RuWATSIP Executive Director Ghulan Qader expressed his intention to hire the Associate as a permanent employee to oversee the continued implementation and management of Watertracker. Internal management within MRRD, beyond the influence of SWSS, gave a best effort to integrate the

Associate into the Ministry's team and practices. The transfer of personnel was successfully completed and Watertracker was adopted into the MRRD's geographic information system (GIS) operations in December 2012.

One of the objectives articulated by MRRD for Watertracker in 2013 is the incorporation of the 135,000 water points for which RuWATSIP has data of varying levels of quality. In addition, water points completed by members of the Afghan Water Sector Group will be incorporated gradually during this same period. In order to ensure that the three necessary programmatic elements outlined above are successfully realized, the application will be integrated with another parallel database and an MRRD capacity building project being funded by UNICEF and the World Bank. At the center of the project is the development of a new GIS database system that will standardize water point data collection processes across the WASH sector. This subproject effectively fulfills the first essential program element: data collection. Watertracker will be directly incorporated into this project, functioning as the community reporting mechanism.

In parallel to the GIS database's development, UNICEF is providing financial and technical support for a community mechanic training module and MRRD capacity-building initiatives, which have strong potential to provide the resources required to fulfill the other two of the three essential program elements: community IVR training and technical response.

1.10 WATER QUALITY TESTING

USAID Requirements. The Project team sought to follow USAID's drinking water quality testing requirements as outlined in USAID's Environmental Guidelines for Small-Scale Activities in Africa. According to this document, USAID only requires testing for arsenic in drinking water sources. The Project received limited USAID guidance on drinking water quality monitoring, but the Project team took the initiative to work with USAID to develop a program that was both meaningful and cost-effective.

Comprehensive testing of drinking water quality in remote and rural regions of Afghanistan is logistically difficult, costly, and time intensive. Qualified laboratories are currently available only in Kabul, so the Project made reasonable commitments that met USAID requirements, promoted public health, and supported the ability of local government to provide informed services to the Afghan population.

In line with the USAID requirement of testing for arsenic for each new water source, the Project team, under the leadership of the Program Expert and Tetra Tech ARD's home office Technical Advisor/Manager, began to conduct arsenic tests to ensure that arsenic was not found at impermissible levels. On an ad hoc basis, the Project also conducted water quality testing on a variety of optional water quality parameters when uninhibited by logistics, security, and/or cost. A representative water quality analysis report is presented in Annex G.

A particular focus was paid to water quality testing for piped water systems and for wells being constructed in areas thought to have problems with water quality. The SWSS Project followed the water quality testing regime outlined in the Project's Environmental Mitigation and Monitoring Plan (EMMP), which described a regime in line with USAID's environmental guidelines.

GIRoA Requirements. Central to the MoU negotiated between MRRD and USAID and signed in October 2010 (see Annex C) are the following clauses:

> "USAID will advise its implementing partner to follow MRRD's Rural Water Supply and Sanitation Policy: USAID recognizes that the MRRD has a policy and implementation guidelines for implementing rural water supply, sanitation, and hygiene promotion. USAID agrees that its implementing partner's activities under the SWSS program will follow the ministry's policy and guidelines…

> The USAID implementing partner agrees: To prepare, organize, supervise, and monitor all aspects of the project planning, design, and implementation (technical, quality, etc.) in accordance with the official guidelines of MRRD."

Water quality testing requirements, at the beginning of the Project, were referred to in several GIRoA documents. Key documents and citations are presented in Table 1.3.

Table 1.3: Drinking Water Quality Monitoring Requirements of the GIRoA

Document	Drinking Water Quality References
Water Law	The water quality standards for drinking water and sanitation will be established by the MoPH in conjunction with the international norms and standards. The NEPA with cooperation from MoPH and other relevant organizations will establish water quality standards.
Afghanistan National Rural Water, Sanitation, and Hygiene Policy	There is a lack of adequate infrastructure and capacity for water quality monitoring at district, provincial, and national levels. Though field test kits exist in some programs, effective use is hindered by lack of capacity and orientation of human resources. Policy priorities: The policy proposes to streamline investments in the sector according to the identified policy priorities: water quality monitoring and surveillance (among others).
MRRD Rural Water Supply and Sanitation Implementation Manual	Water Quality Sampling and Testing: After completion of the well and installation of the hand pump, the community will be requested to pump for two days without using the water for drinking purpose. After this period, the contractor will again sample the water and analyze for electrical conductivity (EC) and turbidity. Should the turbidity value be higher than 5 NTU or/and the EC higher than 300 mS/cm, the hole will be rejected and another hole constructed. Before starting the construction of the spring protection structure, the water quality must be identified and confirmed to be of potable standard.

The Project team adapted to the GIRoA's water quality testing protocols for new water points as the government's policy continued to evolve throughout the life of the Project. In line with the evolving guidelines, the Project ultimately performed complete physical, chemical, and bacteriological tests as illustrated in Annex G for one of every 10 of its built wells and on each piped water scheme. Tests were conducted only upon completion of the infrastructure. Analysis reports are stored in Watertracker.

Arsenic Testing – Unreliable Kits and a Practical Plan. To be in compliance with USAID guidelines pertaining to the testing of arsenic in water supplies constructed under the Agency's contracts, initially the Project followed the requirements presented in the SWSS EMMP. The content of the EMMP was based on USAID's Guidelines For Determining the Arsenic Content of Ground Water in USAID-Sponsored Well Programs in Sub-Saharan Africa (December 2003), the assumption being that these guidelines would apply to contractors working outside of sub-Saharan African countries.

USAID's guidelines state that there was "one field kit that USAID will accept for use in measuring arsenic in the field, the Hach Arsenic Kit, which appears to be reliable in measuring arsenic down to the U.S. standard of 10 ppb [parts per billion]." Initially, if maximum acceptable limits were exceeded using the Hach kit, the Project team was to have further samples analyzed at a qualified laboratory and consult with USAID/Afghanistan for guidance.

However, following highly discrepant tests from the field using Hach kits, Project leadership decided to test the reliability of the kits against laboratory results. Project staff employed two methods of comparative testing on identical water samples using: (1) the USAID-recommended field Hach kits

performed by the Project's non-lab-technician employees; and (2) laboratory results, where a DACAAR-managed laboratory used the Wagtec digital arsenic test kit.

A random sample of nine wells showed that while DACAAR's tests pointed to amounts of arsenic below the permissible limit, the results from the Hach kits showed wide variations. This led the Project to conclude that the Hach kit test results were unreliable. The Project team reported that for the conditions in rural Afghanistan, Project-employed, non-lab-trained supervisors are compelled to test for arsenic using this method in non-laboratory conditions, and that Project staff could not vouch for the reliability of results based on the Hach Arsenic Kit testing method.

Based on these findings, the Project continued to abide by its procedure of subcontractor delivery of samples for every one in 10 wells and for each gravity or pipe scheme system to DACAAR per MRRD's guidelines, relying on DACAAR's analysis for arsenic testing. Project leadership reported results to USAID for water points found to have higher than 10 ppb of arsenic when such results were received from the DACAAR water quality testing lab. USAID then gave direction on whether to seal or permit use of the well or water system.

2.0 ACHIEVEMENTS

The first three sections of this chapter tabulate and present the achievements of the SWSS Project. Section 2.4 discusses the magnitude of the achievements relative to the indicators and targets established by USAID.

2.1 COMPONENT 1: SUSTAINABLE WATER SUPPLY AND PUBLIC SANITATION

The SWSS Project achieved impressive results for the construction of new water supplies and public sanitation facilities. The Project constructed 3,011 new wells and 37 piped water systems benefiting an estimated 615,725 people. These numbers clearly could have been higher as demand for Project services from PRT/FPOs was at a peak, implementation processes were optimized, and contractors were efficiently engaged entering Project Year 3, but the Project's ability to respond was disrupted.

A breakdown of the water supply results by Regional Command is provided in Table 2.1. In addition to the water supply results, the Component 1 team led the construction of 37 public latrine blocks benefiting schools, clinics, and other public spaces.

Table 2.1: Achievements in Delivery of Access to Safe Drinking Water

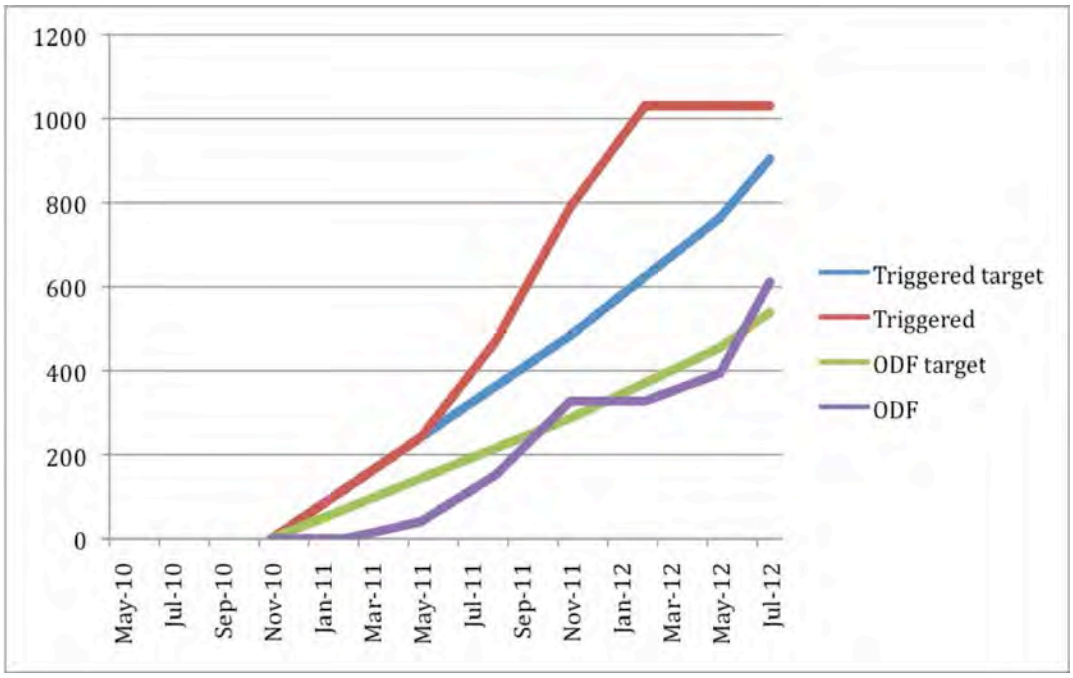
Regional Command	Water Supply		Beneficiaries*
	Wells Completed	Pipe Schemes Completed	
East	2,477	35	517,475
West	184	0	32,200
South	82	0	14,350
Southwest	0	0	0
North	268	2	51,700
Total	**3,011**	**37**	**615,725**

* The estimated total beneficiary figures represent both well and pipe schemes users. Beneficiaries are computed using the MRRD standards adopted by SWSS at the inception of its project of 25 families per well multiplying one family by an average household number of seven. The potential beneficiaries from the pipe schemes are estimated to be 2,400 per water system. Gender split is estimated to be 50/50.

2.2 COMPONENT 2: SUSTAINABLE HEALTH OUTCOMES

SWSS was the first project in Afghanistan to implement CLTS in more than one or two villages. The slow start to the CLTS program to allow for preparation, training, and gaining experience was followed by a steady acceleration in the program's implementation and improvements in its effectiveness and efficiency. In just over two years, the Project triggered 1,031 communities and assisted 611 of them to be certified as open defecation free. Figure 2.1 shows the progress of triggering and ODF as monitored by NGO monthly reports, compiled internally by the SWSS Component 2 staff, and available to partners and USAID upon request.

Figure 2.1: SWSS CLTS Open Defecation Free (ODF) Targets and Performance (number vs. month)



ODF certification requires that all households have access to a hygienic latrine. Figures 2.4 and 2.5 show the progress of building new or improved latrines and the numbers of beneficiaries of those latrines plotted against Project targets. The original target for improved latrines was 50,000. The project delivered 42,129 hygienic latrines through the CLTS approach.

As a result of funding decisions and the continued prioritization on maximizing the delivery of drinking water infrastructure, it was necessary to stop providing support to the least successful and newest CLTS programs during Project Year 3. In this way, available funding could continue to support the CLTS programs that had demonstrated the most success.

In the final year of the Project, three of the provincial CLTS programs were ended prematurely, and the contracts for the remaining first-round districts were shortened by a month or two. It is certain that with full funding, the SWSS team would have been much closer to reaching the latrine construction target.

The Project's successful implementation of CLTS resulted in the incorporation of CLTS into the MRRD's national water and sanitation policy and strategy. The national capacity for implementing CLTS also had been given a good start by Project trainers. Not only were the staff of NGOs contracted to implement the program trained, but staff of several other NGOs active in WASH, as well as MRRD and MoPH staff, were trained by the Project. Altogether, 682 people were trained by the Project to implement CLTS.

Hygiene Education Beneficiaries. FHAGs were the primary vehicle for providing an adequate level of hygiene education to women. FHAGs were initiated in 952 villages, significantly more than the 611 that reached ODF, but less than the 1,031 that were triggered. This was as expected, as triggering should not be expected to always lead to ODF status or the commitment to establish an FHAG (as described in Section 1.5). Female CHWs and NGO female facilitators trained 8,626 women leaders. They in turn demonstrated and taught what they had learned to another 45,362 women. These 53,916 women represent a total of 377,916 beneficiaries in their households.

In support of hygiene behavior change in the Provincial Approach communities, 2,165 community and religious leaders were trained, over 2,000 health caregivers were also trained, and a total of 51,186 teachers and students were reached through the schools' Global Hand Washing Day programs. Similar to CLTS data, these numbers were collected in collaboration with NGO partners; compiled, verified, and stored by Component 2 staff; used by the SWSS team as internal management tools; and made available to USAID upon request.

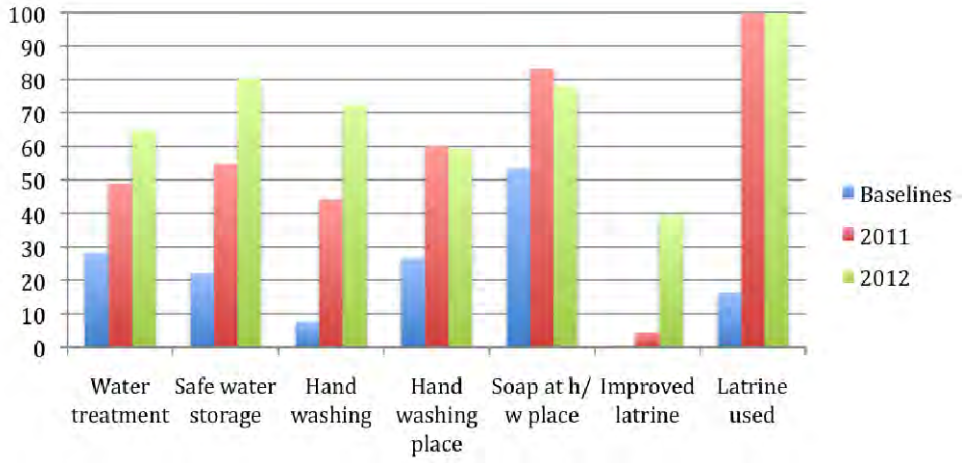
Through the hygiene education program under the Flexible Response, 2,019 schoolteachers and community leaders were trained to pass on messages to an estimated 196,175 beneficiaries of the new water points. The program started about six months late due to staff recruiting issues and was limited significantly by security issues and by funding decisions. As a result, only about 32% of the water point beneficiaries expected were reached with hygiene education.

The best estimate of the total number of beneficiaries of hygiene education programs is gained by adding the beneficiaries of the FHAGs (377,916) and those of the Flexible Approach program (196,175). This total comes to 574,091.

Behavior Change. Behavior change in the CLTS communities was measured by a series of three annual household surveys that provided data on seven required USAID indicators. The findings of the household surveys (see Figure 2.3) show satisfactory improvements in all areas. Comparison of the magnitude of the measured changes against the indicators and targets of the project is presented in Section 2.4.

The practice of water treatment rose to 65%, and in nearly 80% of homes it was stored safely. Hand washing at all appropriate times was observed by over 70% of women, 60% of homes had a specific place for hand washing, and 80% of those places were provided with soap. The apparently low coverage of improved latrines is explained first by the constraining international definition of an "improved" latrine, many of which are neither practical nor affordable by poorer households. The second reason is that the requirement that latrines be kept clean was met in only 57% of the "improved" latrines. The communities surveyed were those that had been certified as ODF, with access for all families to a latrine. The final indicator on use of latrines was at 100%.

Figure 2.2: Improvements in Hygiene Behaviors and Latrine Usage in CLTS Communities (percent vs. key behaviors)



Tables 2.2 and 2.3 present the CLTS, household latrine, and hygiene training results disaggregated by Regional Command in order to provide details on the geographic concentration of Project achievements. The magnitude of the achievements against Project targets is discussed in Section 2.4.

Table 2.2: Achievements in Community Sanitation, Gender Engagement, and Direct Beneficiaries

Regional Command	ODF Communities	New and Improved Household Latrines	Number of FHAGs Formed	Beneficiaries from Improved Sanitation Facilities and Practices*
East	214	12,165	367	85,155
West	0	0	0	0
South	0	0	0	0
Southwest	0	0	0	0
North	397	29,964	585	209,748
Total	**611**	**42,129**	**952**	**294,903**

* The aggregate beneficiary figures are derived from multiplying each newly improved or constructed latrine by seven household members—the average family size presumed to use the working latrine.

Table 2.3: Achievements in Health-related Training

Regional Command	Training Achievements	
	CLTS Training	Hygiene Training
East	356	2,807
West	0	0
South	0	58
Southwest	0	34
North	326	1267
Total	**682**	**4,166**

2.3 COMPONENT 3: SUSTAINABLE LOCAL MANAGEMENT

All SWSS infrastructure investments were associated with the formation of a community management committee and ensuring that outputs would become the responsibility of traditional or new local government structures such as *Shuras* and CDCs. Due to Year 3 funding decisions and USAID's prioritization on drinking water supply infrastructure construction, the Customer Satisfaction Survey and Sustainable Financing Evaluation planned for Year 3 were canceled. Thus, it is difficult to report quantifiably on Component 3 results, but significant qualitative results suggest notable success with establishment of sustainable local management systems.

SWSS built sustainability and local ownership for continued operation and maintenance into every engagement with communities, local government, and traditional systems such CDCs and *Shuras*. This is a best practice in any development undertaking. The participation, acceptance, and transfer of ownership of infrastructure constructed under the Project are represented in the supporting documents in Watertracker that contain authoritative signatures and fingerprints of local government representatives who accepted the construction. Every indication suggests that community priorities were met and that outputs were properly integrated into existing *Shuras* and CDC structures for continued management and sustainable service.

2.4 M&E – INDICATORS, TARGETS, AND ACHIEVEMENTS

The success of the SWSS Project was designed by USAID to be measured against 14 indicators consistent with USAID's framework for WASH project implementation—the Hygiene Improvement Framework (HIF). The 14 indicators are divided to correspond to the components of the HIF and of the Project. The Component 1 indicators relate to hardware installation only and are insufficient to describe the health objectives of a WASH project. The Component 2 indicators relate to hygiene behavior change

and measure whether the Project delivered on its ultimate objective: health improvement. The Component 3 indicators relate to sustainability and community engagement.

The Component 1 indicators are presented in Table 2.4 and show the Project's five indicators, targets, and achievements for infrastructure and access. The Project was in the general range for meeting four out of five of these indicators. However, the Project did not meet the illustrative water well construction targets proposed by USAID. This is not surprising given the analysis provided early in the Project by USAID/Washington's WASH Specialist in the Trip Report cited in this document.

The SWSS team and USAID agreed near the end of Project Year 1 that initial deliverable estimates would not be met based on realistic implementation security and costs per unit. SWSS began in January 2012 to submit official requests to USAID for consideration of proposed amended targets ("Proposed Reduced Budget Targets" in Table 2.4) that were in line with actual costs of infrastructure. In addition, as a response to funding decisions, no new construction contracts were issued after January 2012—eight months before closeout of the Project.

The achievements of SWSS against the Component 1 reduced budget targets discussed with USAID in early 2012 is the best measurement of the success of the Project, rather than analysis against the original Life of Project targets. SWSS' performance against the reduced budget targets was acceptable for a project of this magnitude and size.

The relatively small achievement of people with access to improved sanitation services can be easily explained. The original Life of Project target was calculated assuming 10 people were using a single sanitation facility. If the Project would have used this number, then the number of beneficiaries would increase to 421,290 and the Project would have achieved 84% of the target. Unfortunately, the reality was that on average seven people use a single latrine. Thus, even though latrine targets were satisfactorily approached, beneficiary numbers appear to be less satisfactory.

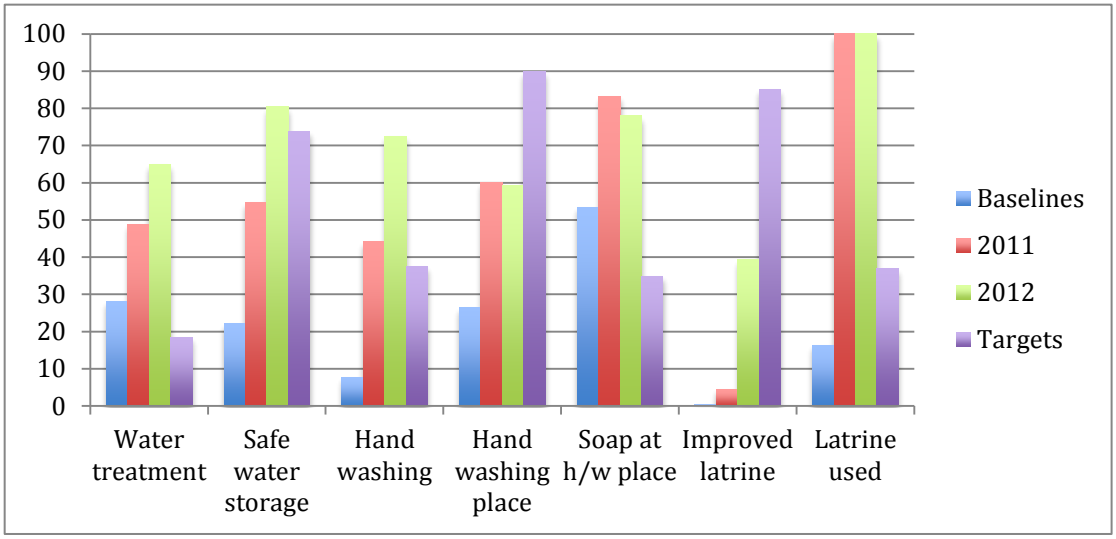
One could conclude that the Project was significantly under its target for "Number of piped water systems." The achievements are nonetheless impressive given the diversion of staff resources in the first year of the Project in response to ad hoc, highly technical water system designs to which the Project was asked to contribute and that were eventually either rolled into other donor programs or abandoned as low priorities.

Figures 2.4 and 2.5 illustrate several key considerations of Project implementation. First, it can be seen that infrastructure delivery was, as originally proposed by Tetra Tech ARD, low in the first Project year. This was expected and played out during Project implementation given the importance of "software" and sustainability. During that year, the SWSS team focused on developing fully operational PNFs, establishing transparent and legal construction contracting mechanisms, and establishing the community-based foundation for sustainability of investments. Second, it can be seen that in Year 2 of the Project (Q5 through Q8), SWSS delivery aligned very strongly with anticipated targets of both beneficiaries and household latrine construction. The delivery of water systems increased significantly in Project Year 2 although it is clear that the original goal of delivering 10,000 water wells required amendment. Third, the figures illustrate the negative impacts of funding decisions. The Project's ability to delivery water systems was slowed and neither beneficiaries of sanitation nor the number of household sanitation facilities could continue at the pace established in Year 2.

Table 2.5 shows a summary of Component 2 behavior change impacts. As can be seen from the information in the table, the SWSS Project made significant advancement on all indicators across the CLTS areas. The PMP and the Project's contract modifications contained targets for each of seven indicators for Component 2. These are shown together with the weighted averages for each of the indicators from the rounds of surveys in Figure 2.3 and are tabulated in Table 2.6.

Levels of water treatment are greatly in excess of the target set (18.5%) and also much higher than the rate found in earlier DACAAR projects (including Nangahar and Takhar) described in the 2010 Baseline Analysis Report. The safe water storage target (73.9%) was set at an appropriate level and was met overall. Only 60% of project households had a specific place for hand washing against a target of 90%; however, the availability of soap and the practice of hand washing far exceeded the targets.

Figure 2.3: Project Weighted Averages and Targets for Behavior Change Indicators (percent vs. key behaviors)

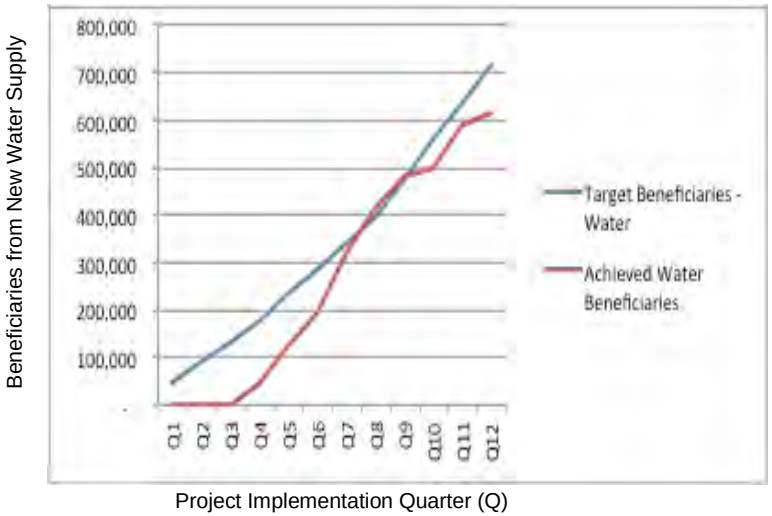


The CLTS target for access to a latrine is 100%. The contractual target for an improved latrine, using the international standards for "improved," was set at 85%. It must be noted that a CLTS-approved latrine that can be afforded by all households does not meet the international standards. This target has not been met, but the intent of the target has been meet, with latrines that are effective and safe. The target for using latrines was set at 36.9%, but household surveys found that 100% of the toilets were being used. This difference is understandable when applying the Project's definition of an acceptable household latrine in the rural Afghan context (as described in Section 1.5).

A lesson from collection and analysis of these data is that questions about dedicated places for hand washing and the construction and use of "improved" latrines meeting the global definition are likely not appropriate or relevant to evaluate future WASH projects. Knowledge of hand washing times, presence of soap in the household, and use of hygienic but simple latrines are more relevant indicators of success and are proximate to diarrheal disease reduction. They are therefore strong indicators of health improvement in CLTS communities.

All new infrastructure investments by the Project had new or existing local management committees. However, Component 3 indicators were not formally measured due to funding decisions and the continued prioritization of infrastructure construction throughout Year 3..

Figure 2.4: SWSS Numbers of Beneficiaries by Quarter Plotted Against Project Targets



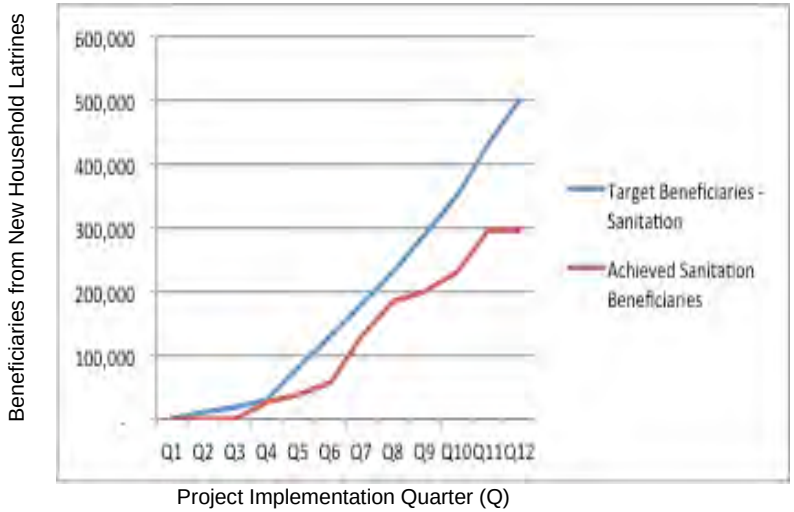
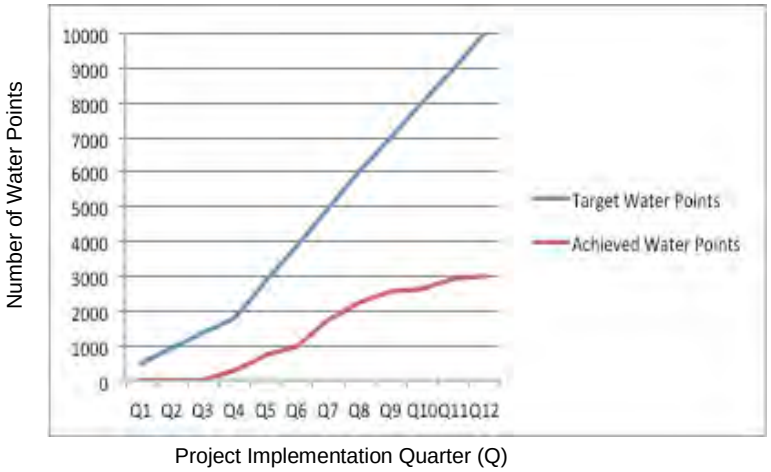


Figure 2.5: SWSS Numbers of Infrastructure Delivered by Quarter Plotted Against Project Targets



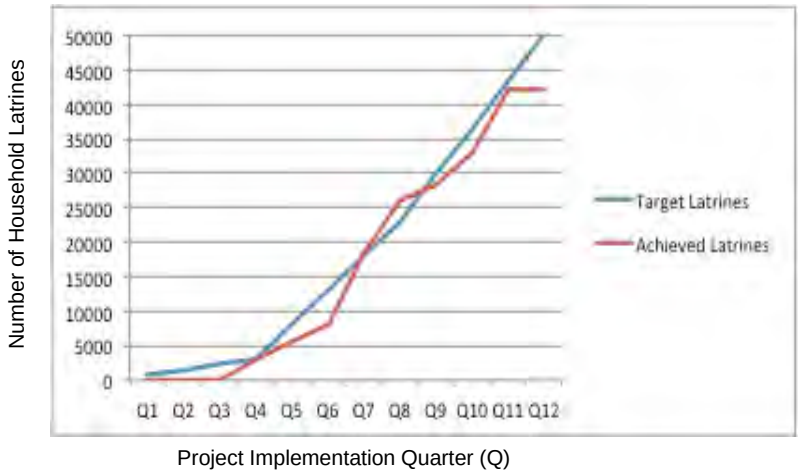


Table 2.4: Component 1 Indicator Results and Targets – Infrastructure and Access

Task Order Performance Indicators	Cumulative Achievements	Life of Project Targets	% Achieved	Proposed Reduced Budget Targets	% Achieved Against Reduced Budget Targets
Number of water systems installed or rehabilitated (wells, spring boxes, catchment, etc.) from CLTS and response to request from USAID, USG stakeholders, or other programs	**3,011**	10,000	30%	3,100	97%
Number of piped water systems built or rehabilitated	**37**	50	74%	50	74%
Number of sanitation facilities installed (in communities, schools, and health centers)	**42,129**	50,000	84%	50,000	84%
Number of people with access to improved water supply as a result of SWSS programming	**615,725**	717,500	85%	717,500	85%
Number of people with access to improved sanitation services as a result of SWSS programming	**294,903**	500,000	59%	500,000	59%

Table 2.5: Component 2 Indicator Results by Province – Hygiene Behaviors for CLTS Areas Based on SWSS KAP Surveys

Province	Logar			Nangarhar			Laghman			Badakhshan			Takhar			Baghlan			Weighted average		
Date of survey	Base line	2011	2012	Base line	2011	2012	Base line	2011	2012	Base line	2011	2012	Base line	2011	2012	Base line	2011	2012	Base line	2011	2012
% households practicing effective household water treatment	38.5	76.6	77.8	5.1	5.9	65.2	36.8	20.4	63.1	22.2	52.1	42.1	6.7	40.4	70.5	82	89.5	81	28.2	48.8	64.9
% households correctly store drinking water treated at the household	21.5	19.4	82.8	0	40	80.7	62	57.9	60.3	10.7	39.4	94.7	1.8	92.5	76.1	66	91.8	88	22.1	54.8	80.4
% mothers who know all critical times for hand washing	0	22.3	71.8	0	36.5	65.1	0	33.3	68.4	0.5	54.2	80.1	27.6	62.6	66.3	7.1	44.2	78.4	7.6	44.2	72.5
% households with a specific place for hand washing	26	19.2	69.8	44.7	49.4	60	31.7	61.3	55.5	7.4	54.2	56.3	12.2	90.9	64	57.4	89.5	71.5	26.6	60.2	59.2
% households with soap at the place of hand washing.	41.8	77.8	82.8	62.6	100	87.5	29.7	91.2	75.4	40.5	63.1	69.4	60.4	100	82.4	79.3	88.2	80.8	53.4	83.2	78
% households with access to an improved sanitation facility	0	5.3	52	2	4.7	36.3	0.6	12.9	33.2	0	0.5	32.4	0	3	42.8	0.6	4.2	40.7	0.4	4.4	39.4
% households that have an improved sanitation facility and use it	0	100	100	0	100	100	62.8	100	100	0	100	100	0	100	100	55.8	100	100	16.2	100	100

Table 2.6: Component 2 Indicator Results and Targets – Hygiene Behaviors for CLTS Areas Based on SWSS KAP Surveys

Task Order Performance Indicators	Cumulative Achievements	Life of Project Targets	% Achieved
Increased percentage of households having children aged 0–59 months that are practicing effective household water treatment	**64.9**	19	341%
Increased percentage of households with children aged 0–59 months where drinking water treated at the household is correctly stored	**80.4**	73	110%
Increased percentage of mothers of children aged 0–59 months who know all critical times for hand washing	**72.5**	38	191%
Increased percentage of mothers of children aged 0–59 months that live in households with a specific place for hand washing	**59.2**	90	66%
Increased percentage of mothers of children aged 0–59 months that live in households with soap at the place of hand washing	**78.0**	35	223%
Increased percentage of households with children aged 0–59 months with access to an improved sanitation facility	**39.4**	85	46%
Increased percentage of households with children aged 0–59 months using available sanitation facility	**100.0**	37	270%

2.5 ACHIEVEMENTS ABOVE CONTRACT OBLIGATIONS

Above the requirements of the contract described in the previous sections, the SWSS team developed and put into operation the following significant achievements:

1. The MoU between USAID and MRRD;
2. Private sector in-kind leverage from ROSHAN for Watertracker and the MRRD;
3. Non-profit sector cash leverage from H2O for Life; and
4. Successful and noted gender equity.

Of direct benefit to the USG, USAID and the SWSS Project team facilitated the signing of the first MoU between the USG (represented at the Ambassadorial level) and the MRRD (represented by the Minister). The roles of each contributor to this landmark agreement should be clearly understood. The SWSS team worked to finalize the wording and signatories to the agreement. But, without the leadership and political acumen of Contracting Officer's Representative (COR) Dr. Gul Afghan Saleh, the MoU would have not taken place. He played a key and decisive role in engaging high-level USG officials by emphasizing both the field-level benefits of an MRRD commitment and the long-term advantages of a close relationship between MRRD and the U.S. Embassy staff.

This MoU was helpful in strengthening the relations between USAID and the GIRoA. It was also important for obtaining acceptance of regional MRRD directors and officers to collaborate with Project staff to identify subprojects, build operation and maintenance capacity, and demonstrate their capacity to delivery basic services to Afghan citizens as part of stability operations—a specific goal of USG assistance during Project Years 2 and 3.

The SWSS Project team also succeeded in leveraging private sector in-kind support to the development of Watertracker, an M&E tool in English, Dari, and Pashtu languages described in detail in Section 1.8. The SWSS Project team, under the innovative leadership of staff from subcontracting partner Arc Finance, leveraged a commitment of over $180,000 of in-kind services from the largest telecommunications private sector operator in Afghanistan, ROSHAN, in support of the development of Watertracker. ROSHAN also agreed to provide no-cost support services to maintain Watertracker at MRRD for at least two years after the SWSS Project's completion date.

The SWSS team also facilitated the formation of a partnership and obtained leveraged funds from a U.S.-based NGO, H2O for Life. In this partnership, half the cost of two school latrine blocks and water supplies was covered from cash donations made from U.S. middle schools. An Economics Officer from the U.S. Embassy in Kabul presided over the opening of the facility, and this officer posted a YouTube video of the event (www.youtube.com/watch?v=aaL6i1Gd-8 or search "Afghan water project H2O for Life"). An additional video describing SWSS Project work can be viewed at www.youtube.com/watch?v=GelY_76EwTo. It was provided by USAID and illustrates typical achievements of the Project.

Finally, the SWSS team was highly successful in engaging Afghan women in community decision-making and ensuring their equitable benefit from Project resources. As stated by the USAID Global Water Coordinator in a September 2011 speech at the Woodrow Wilson Center for International Scholars in Washington, DC:

> "In Afghanistan, our Sustainable Water Supply and Sanitation Project (SWSS) engages women and girls in improvements in sanitation and hygiene in multiple ways. First, women's groups have emerged as leaders in decision-making around village sanitation improvements for all the same

reasons found around the world: women's focus on dignity, privacy, and family health. Second, SWSS works with local NGOs in each village to create women-driven Family Health Action Groups where young mothers learn hygiene practices and the skills to communicate them to other women. Third, half of the SWSS hygiene education trainers and facilitators are women who travel to villages to train NGO staff and Community Health Workers in the basics of sanitation and hygiene. Fourth, we work extensively with girls' schools across the country to provide facilities and teach hygiene and hand washing practices—30,000 school children were mobilized on Global Hand Washing Day in 2010, and we anticipate an even larger turnout this year. Fifth, the SWSS team has a women-led finance staff who have mastered USAID's accounting requirements, and accounted for every dime of funding provided, while the leaders pursue their MBAs in evening school in Kabul. This three-year investment has made enormous changes to the lives of individual rural and professional women and girls."

2.6 COMMUNICATIONS AND OUTREACH

During Project implementation, the following outreach and communication materials were designed, developed, printed, and distributed by the Project Communication Unit to reach target audiences. A sample of each was passed to USAID on its creation, and examples of communications and outreach materials can be found in Annex A. The items in Annex A were developed for audiences across USAID and outside of Afghanistan. A list of materials that were regularly developed for USAID/Afghanistan is presented below:

- Brochures;
- Posters;
- Banners;
- Plaques for hand pumps;
- Sign boards for water supply projects;
- Success stories;
- Before & After pieces;
- First-person narratives;
- Case studies;
- Press releases;
- Fact sheets;
- PowerPoint Presentations
- Bi-weekly highlights;
- Monthly reports;
- Quarterly reports;
- Annual reports; and
- A final report.

The SWSS team agreed with USAID early in Project implementation that regular and continual outreach and communication was critical to overall Project success. The two parties worked closely together throughout the Project to ensure that interested parties were:

- Regularly informed of Project progress;
- Given the opportunity to provide input and participate;
- Aware of the major issues and risks; and
- Accountable for their Project role.

The Project team adopted USAID's definition of "outreach" to guide the selection of communication materials and their use. This definition states, "outreach activities are roundtable discussions, meetings, presentations, and other public forums to discuss current issues" in the appropriate technical field. For SWSS, "outreach" was conducted to share information, generate collaboration, and promote the innovative aspects and accomplishments of the Project. To achieve the Project's outreach objectives, the SWSS team:

- Communicated with counterparts—particularly the MRRD, DACAAR, and the WASH Working Group—to convey information on the Project scope, objectives, progress, and benefits;
- Communicated with all internal and external stakeholders regularly throughout the life of the Project;
- Ensured that outreach activities were timely, cost-effective, and directly supportive of the narrow goals of the Project;
- Carried out a unified approach using common terminology across all identified communication methods; and
- Publicly positioned the GIRoA as the driver behind the Project.

The SWSS Project's outreach and communication efforts served a wide range of audiences, including:

U.S. – Government, Coalition, and the General Public:

- SWSS Project staff
- SWSS subcontracting partners
- USAID field and mission staff
- Other Afghanistan-based USG field offices
- Provincial Reconstruction Teams
- International donors and private sector entities
- Washington D.C.-based USG officials
- WASH sector professionals

Afghanistan – Government and the General Public:

- SWSS staff
- SWSS implementing partners

- *Shuras*/CDCs
- Civil society groups
- Provincial Governors
- District Governors
- Line ministry staff
- Local media
- Private sector contractors and service providers

For the SWSS team, outreach and communication were not the responsibility of one specialized staff member, although tasks were coordinated by the Strategic Communication Specialist. All outreach and communication efforts were cross-cutting and integrated into all activities of the Project by the COP; Deputy Chief of Party; Program Expert; Director, Water and Sanitation Infrastructure; Director, Sustainability and Health Outcomes; Director, Social Development; and Strategic Communication Specialist. Their unified involvement ensured close coordination across the Project to devise outreach and communication materials and activities that described the Project in a timely manner and met audience needs.

In the first weeks of the Project, the SWSS team settled on a "tag line" and core elements of the Project. These were reflected on the Project poster and brochure that were used for the duration of the Project and served to establish "SWSS" as a brand in its own right:

- Project Tag Line:
  - "Enabling communities to improve their health"
- Project Vision:
  - "Our mandate can be verified and will be realized as working when the following are accomplished:
    - Village councils take responsibility for maintaining clean water sources and monitor hygienic behavior and this continues after the completion of a subproject;
    - Household toilets of all types are used and safe;
    - Communities become and remain open defecation free (ODF);
    - Each household uses and maintains a safe and clean place to go to the toilet;
    - Women's groups promote health and hygiene education in communities;
    - Well users transport and handle their drinking water safely; and
    - Communities recognize a reduction in waterborne diseases and health expenses."

The Project then focused on a very small set of key messages to enable consistency of communication. Key messages captured in the representative materials in Annex A include the:

- Importance of mobilization for ownership and sustainability;
- Many opportunities to educate, support, and engage women;

- Application of innovation in support of development objectives;
- Use of technology as a foundation of post-construction monitoring;
- Contribution of WASH to stability operations and diplomacy objectives;
- Shared partnership of the USG and the GIRoA to provide WASH services;
- Existing possibilities of locally managed long-term financing;
- Options for providing post-construction support;
- Engagement of and benefits of WASH to girls and boys;
- Generation of positive understanding of Afghanistan by U.S. citizens; and
- Unique positioning of USAID to address the global WASH deficit.

Depending on the target audience, region, activity, and objective, the SWSS team applied a range of media and methods. The following list is indicative:

- **Face-to-face dissemination**. This was typically used across communities and with local leaders.
- **Celebrations**. These were conducted principally around project completion, ODF certification, and Global Hand Washing Days.
- **Illustrated material and publications**. A selection of these materials is presented in Annex H.
- **Success stories**. Four representative stories are presented in Annex A.
- **VIP visits and organized public events**. Governors, Field Program Officers, other government officials, and USAID staff were regularly engaged in launching ceremonies at the completion of infrastructure construction.

2.7 IEC MATERIALS

The SWSS Project developed, designed, adapted, printed, and distributed a variety of IEC materials for use by Project implementers and partners such as CLTS-implementing NGOs and SWSS master trainers. Copies of each were provided to MRRD, PRRD, and MoPH staff. Some illustrative IEC materials can be found in Annex H. The Project developed the following IEC materials:

- CLTS guideline for trainers and trainees (English, Dari, and Pashtu versions);
- FHAG guideline for trainers (Dari and Pashtu);
- Hygiene guidelines for FHAGs;
- Guideline for IEC material;
- Guideline for KAP household survey;
- Posters;
- Brochures;
- Notebooks with photos and health-related messages; and

- KAP household survey questionnaire (English, Dari, and Pashtu versions).

2.8 TECHNICAL MATERIALS PRODUCED AS PER THE SWSS CONTRACT

To help with the SWSS team's implementation planning, USAID required the Project to produce a set of technical documents that explained Tetra Tech ARD's approach to the key aspects of Project implementation. These are introduced below with a presentation of the Table of Contents of each and a summary of their applicability to WASH work in Afghanistan. A complete list of written Project deliverables is presented in Annex D.

- ***Hygiene Behavior Change Strategy***

ACRONYMS III
1.0 BACKGROUND AND DEVELOPMENT APPROACH 1
1.1 SWSS OBJECTIVES 2
1.2 PARTNERS AND STAFFING 3
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1.4 COMPONENT 1: SUSTAINABLE WATER SUPPLY AND PUBLIC SANITATION 5
1.5 COMPONENT 2: CLTS AND HYGIENE PROMOTION 8
1.6 COMPONENT 3: SUSTAINABLE LOCAL MANAGEMENT 13
1.7 SWSS MONITORING, EVALUATION, AND PROGRAM INDICATORS 14
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1.9 WATERTRACKER 17
1.10 WATER QUALITY TESTING 19
2.0 ACHIEVEMENTS 23
2.1 COMPONENT 1: SUSTAINABLE WATER SUPPLY AND PUBLIC SANITATION 23
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The *Hygiene Behavior Change Strategy* set the stage for the integration of Components 1, 2, and 3 aligned with USAID's Hygiene Improvement Framework; established the process by which the Project would implement CLTS and measure impacts of the program; and introduced the methodology the Project would follow to measure impacts of activities under Component 2. Its preparation was of great benefit in helping the Component 2 team prepare its action plan and guiding their implementation for the duration of the Project.

- ***Outreach and Awareness Strategy***

ACRONYMS ii
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1.2 DIFFERENTIATING OUTREACH AND AWARENESS 1
1.3 TARGET AUDIENCES 2
2.0 APPROACH 3
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2.2 OUTSIDE AFGHANISTAN 3

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3.0 OUTREACH STRATEGY MAP ……5
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3.3 OUTREACH TOOLS ……..6
3.4 LOCAL CONSULTATION ON AWARENESS PROGRAMS ……7
4.0 MONITORING THE STRATEGY ……9

This document identified the most efficient methods, frequency, and modes of communication between the Project team and parties with an interest in the Project. The SWSS team was quite successful in the outreach and communication activities as evidenced by the sample documents presented in the annexes in this Final Report and the high-profile contributions the Project continues to make in USAID/Washington.

- ***Sanitation and Latrines Options Manual***

(combining Latrine Options Manual and Sanitation Options Manual)

ACRONYMS……iii
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1.1 OBJECTIVE OF THIS MANUAL……1
1.2 INTENDED USERS OF THIS MANUAL ……..1
1.3 SCOPE OF THIS MANUAL ……1
1.4 WHAT IS REQUIRED AND CONTAINED IN THIS MANUAL ……2
1.5 A FRAMEWORK THAT LINKS TECHNOLOGY OPTIONS WITH SANITATION PROGRAMS ….2
2.0 THE AFGHAN CONTEXT……2
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3.1 MAKING DECISIONS ON SUSTAINABLE SANITATION AND LATRINES ……..7
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3.3 "HOME MADE" VARIETIES OF LATRINES IN THE AFGHAN CONTEXT ……10
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APPENDIX C: SIMPLE HOUSEHOLD LATRINE DESIGN AND BILLS OF QUANTITY (FROM "COMMUNITY HANDPUMP WATER SUPPLY AND SANITATION GUIDE FOR AFGHANISTAN," WATER AND SANITATION SECTOR GROUP, AFGHANISTAN…….109

This manual was prepared for both engineering and non-engineering field practitioners responsible for the design, construction, and sustainable operation of sanitation programs and facilities. The manual was designed to be used by the Project, its partners from across the USG, and its Afghan collaborators to make appropriate choices, prepare accurate cost estimates, and engage effectively with engineers working in the field.

The manual focuses on two topics that are central to SWSS implementation: (1) sanitation technologies; and (2) CLTS. The manual emphasized that despite the availability of engineered designs by MRRD and others, there is no standard structure that one can use as a sanitation

facility. The economic context of Afghanistan precludes the uniform and widespread adoption of most of the conventional, engineered latrine designs approved by MRRD and compiled for the first time in Appendix A of the manual. Selections of these designs are presented in Annex E of this report.

Most of the MRRD designs are simply too expensive for poor families struggling to feed their families. This is not to say that the relatively simple pit or vault latrines illustrated should not be striven for. However, the Project's approach to CLTS aimed to change how people viewed their place to squat or sit when defecating and how to make the use of a latrine of any level or technology key to hygiene improvement by virtue of its cleanliness—ot its title or standard design features. The SWSS team laid out their Afghanistan-appropriate operational definition of an improved sanitation facility as part of this Manual.

- ***Strategy to Increase Market Products***

ACRONYMS ……iii
1.0 BACKGROUND ……1
2.0 GOAL AND OBJECTIVES OF THE STRATEGY TO INCREASE MARKET PRODUCTS...2
2.1 GOALS ……2
2.2 OBJECTIVES ……2
3.0 STRATEGIC APPROACH ……3
3.1 PRODUCTS AND THE HYGIENE IMPROVEMENT FRAMEWORK ……3
3.2 VALUE CHAINS FOR PRODUCT DELIVERY ……4
4.0 INTERVENTION OPTIONS ……5
4.1 WATER SUPPLY PRODUCTS ……5
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6.0 OUTPUTS, DELIVERABLES, MONITORING, AND EVALUATION ……9
6.1 SUSTAINABLE COMMERCIAL VALUE CHAINS ……9
6.2 PRODUCT USE ……9
6.3 MICROFINANCE MOBILIZATION ……9

The goal of this strategy was to expand the availability of products that can contribute to diarrhea prevention across Afghanistan—with an emphasis on young children and those most in need—through financially sustainable, market-based approaches. Four guiding principles defined the SWSS approach to implementing the strategy:

- SWSS is a health project with goals defined as health outcomes;
- Sustainability is a prime value, so no products would be introduced that do not have the prospect of full cost recovery within the existing commercial sector;
- Market-based initiatives would only be developed as they directly support the overall SWSS objective of establishing sustainable water supply and sanitation systems in rural communities across Afghanistan; and
- The introduction of a product into a market would always be an integral part of hygiene behavior change focused on the proper and sustainable use of the product.

The strategy was implemented in a limited way and in close coordination with the elements of the Project's Hygiene Behavior Change Strategy. To put this blend in operation, the Project team established five objectives. Three objectives related to use of products were achieved as described earlier: (1) households increase their use of effective point-of-use water treatment methods; (2) more households hygienically collect and store water; and (3) more households use soap at the place of hand washing.

During Project implementation, it was found that the other two objectives were not necessary to increase product usage: (1) small-scale businesses generate income by providing WASH products; and (2) microfinance institutions actively support these small-scale businesses. It was found that distribution chains were in place whereby small businesses made commercial products available. SWSS Project staff working in rural environments were well-positioned to simply promote the expanded use of the available products.

- ***Baseline Analysis Report***

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5.0 MONITORING AND EVALUATION OF THE HYGIENE BEHAVIOR CHANGE STRATEGY ……13
5.1 A MONITORING AND EVALUATION STRATEGY ……13

To establish baseline values and estimate long-term targets, USAID and SWSS agreed to conduct two types of baseline studies. The first, described in this report, was based on existing population-based data to achieve two objectives: (1) establish "typical" multi-locational aggregated project baseline values for inclusion in the Project's PMP; and (2) help guide the emphases and content of the SWSS Hygiene Behavior Change Strategy. The second of these was conducted as a core component of CLTS efforts through household surveys in individual communities to establish locally valid baseline data and make attributable impact evaluation possible.

The content of this Baseline Analysis Report was achieved through the statistical analysis of existing data from multiple communities across Afghanistan. These data cover a wide range of physical and cultural conditions. Their analysis provides a general description of the existing WASH conditions across the country and the potential for behavioral change through hygiene behavior change

interventions. Evaluation of health impact attributable to the Project is not feasible using this kind of broad data, but they can be used to meet USAID monitoring and reporting requirements.

SWSS household surveys to gather more attributable data were done in each province and district where the CLTS program was implemented and are reported in the Final Sustainable Health Outcomes Report described below.

- ***Final Sustainable Health Outcomes Report***

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The Sustainable Health Outcomes component (Component 2) of the Project, implemented by MSH, had two sub-components as described in this report. Both were aimed at achieving as high a level of sustainability of health outcomes as possible given security limitations and the limited duration of the SWSS Project. The *Final Sustainable Health Outcomes Report* summarizes the approaches and outcomes that resulted from the leadership of the Component 2 team and the community efforts of their partner NGOs.

2.9 RECOMMENDATIONS AND LESSONS LEARNED

Lessons Learned

The SWSS Project was implemented amidst complexity and conflict in one of the most challenging geographies in the world. Multiple lessons were learned from this experience. Those of most importance for consideration by future investments are presented below:

1. *Strict and detailed contracting is both necessary and possible in Afghanistan.*

   The transparency and effectiveness of local contracting is a concern for most donors in Afghanistan. The SWSS team maintained detailed contracts consistent with global practice with both its NGO partners and for-profit contractors. This resulted in over $17 million of fully auditable funding moved by SWSS into the Afghan private sector. The SWSS subcontracts were extensive and detailed yet appropriate to small local contractors, no compromises were made to flexibly address perceived Afghan challenges, and the final records provide a clear description of the accomplishments and documentation of each individual contract. Sufficient skilled staff must be hired to oversee contracting, a transparent bidding and award process must be established, and the implications and requirements of the contract must be reviewed with the contractor before an award is made.

2. *A group of finance and administration staff at least as large as the technical staff is necessary to fully account for USG funds.*

   Strict contracting and financial control is as important in Afghanistan as anywhere else in the world. But, such control does not come without a cost. As shown in the Project organizational chart presented in Annex B, it was necessary for Tetra Tech ARD to have nearly as many staff working on finance and administration as were working on technical operations. Resources allocated to each required service enabled the effective documentation of operations and the efficient payments to contractors and staff upon completion of activities.

3. *Project leaders must be fully versed in Afghan history and culture in order to fully understand Afghan challenges and fully engage Afghan stakeholders.*

   A WASH program implemented wholly or in part in support of stability operations in Afghanistan must fully engage Afghan stakeholders in order to conform with their priorities and planning. In addition, in any project of this magnitude with infrastructure, behavioral, political, and social improvement objectives, challenges will emerge. To fully identify, understand, and engage Afghan stakeholders and to overcome challenges in ways that are respectful of stakeholders and consistent with Afghan society and relationships, project leaders must be immersed in and sensitive to Afghan history and culture.

4. *Provision of sustainable and locally driven WASH services is a rapid, high-demand means for the USG to support post-conflict stabilization.*

   The SWSS Project was designed, implemented, staffed, and funded to serve as a development rather than a humanitarian effort. The Project worked best and was able to more easily meet its health-related objectives in locations where conflict was minimized and stabilization efforts were of top priority. Stabilization programs focus on establishing the ability of local governments to provide basic services to their citizens. The SWSS Project provided water supply and sanitation services rapidly in locations in support of local governments after they identified and responded to a need from their communities.

5. *A small set of standardized infrastructure designs endorsed by the national government are key to efficient construction, repair, and local maintenance.*

   In relatively short-duration WASH projects like SWSS, all opportunities must be taken to establish strong foundations for the efficient construction and long-term sustainability of infrastructure. The Project's infrastructure construction consisted of five variants adapted from and consistent with materials approved by MRRD for: (1) drilled wells; (2) dug wells; (3) reticulated water schemes; (4) small communal latrines; and (5) large communal latrines. Each undertaking was somewhat site-specific, but all shared a great deal of commonality. These commonalities facilitated consistent contracting, cost-estimation, bidding, contract award, construction, oversight, approval, and contractor payments

6. *CLTS is an appropriate approach to improve environmental conditions and hygiene behaviors in Afghanistan.*

   It was not clear at the beginning of the Project whether CLTS and its emphasis on shame and local collective decision-making would be successful in Afghanistan. During early planning, even Project staff did not believe that unsubsidized construction of household latrines was possible in the country. The unsubsidized construction of over 42,000 household latrines and the emergence of over 600 ODF communities clearly demonstrate that CLTS is appropriate in Afghanistan. Both the SWSS implementing partner NGOs and the MRRD have adopted the CLTS approach after experiencing and learning it with guidance from the SWSS team.

7. *Open and regular communication is critical to engaging all stakeholders and establishing a dedicated project team.*

   Any project in Afghanistan has a range of stakeholders ranging from U.S. taxpayers to rural Afghan citizens. No truer statement was made to the SWSS team than that of the Project's first COR, Dr. Gul Afghan Saleh: "The communication about SWSS is as important as the construction carried out under SWSS." The Project team learned early in implementation to communicate well with USAID, the general public, and internally (with its own staff). The information provided to USAID made possible clear documentation of the achievements from the expenditure of USG funds. Those provided to the general public documented the role and primary position of the Afghan government and private sector in project implementation. The information provided internally ensured that each of the over 100 Project staff members fully appreciated her or his role in the Project, why their contribution was important, and how their efforts directly contributed to the development of Afghanistan.

8. *Afghan women can be readily engaged in hygiene promotion with an understanding of gender roles in Afghan society.*

   It is commonly perceived that Afghan women are prohibited from engagement in community transformation. SWSS demonstrated clearly that this was not the case. Women were active participants in both community-level transformation and the operations of the SWSS office. But, all involvement and leadership of women was accomplished with a high degree of understanding of and sensitivity to the realistic gender roles that predominate in Afghan society.

9. *Fixed-duration USAID projects are well-suited to support Afghan organizations that have established trust in rural communities.*

   A trusting relationship between beneficiary communities and an implementer is a critical part of the delivery of sustainable WASH services. Fixed-duration USAID contracts limit the long-term involvement of contractors with communities and their leaders. The SWSS team worked in communities through local, nongovernmental, and private sector organizations that were part of and would remain part of local communities. As a result, these organizations had a high incentive to

deliver optimal outcomes and services to their neighbors and customers resulting in a high level of performance for which they could be held locally accountable.

10. *"Afghanization" of USAID project staff is most relevant from mid-level leadership through entry-level staff.*

    The leadership of USAID projects must be capable of responding "upward" to the needs and demands of the USG and "downward" to the realistic expectations of Afghan collaborators and beneficiaries. Deep experience with USAID and a thorough grounding in Afghan society are required to operate in both arenas. Meeting the "upward" needs of USAID typically calls for an expatriate who is familiar with the reporting and management requirements of the client. It is reasonable to expect Afghans to grow into this position, but it is not reasonable to expect them to immediately have the necessary skill set to meet client demands. The SWSS team elevated Afghans to the highest levels of responsibility possible to achieve both client and customer objectives. It should not be automatically promoted that all demands can be met without the experienced and highly nuanced input of veteran international staff.

11. *An accurate contract and construction tracker must be developed collaboratively between USAID and the implementer during the first 90 days of start-up.*

    The SWSS Project team did not put a comprehensive tracker in place early, and this created confusion for the duration of the Project. The tracker that was developed and used met the needs of the Project, but it proved insufficient to supply the operational and reporting information required by USAID. Establishing a better system at the beginning of the Project by which the needs of both could be met would have eased the implementation of the Project for both parties.

12. *During the first nine months of project implementation, project emphasis must be placed on establishing the processes for financial administration, contractual control, stakeholder engagement, technical design, and accurate documentation before infrastructure construction begins.*

    For sustainable WASH projects, "hardware" follows "software." This means that comprehensive community engagement, authority, and participation must be established before consideration is given to the construction of infrastructure. When reviewing the SWSS Project's delivery of infrastructure, it can be seen that limited construction occurred during the first Project year but construction escalated significantly in Project Year 2 consistent with Project targets.

    This delayed timing of delivery was not a fault of SWSS but rather a strength. Social processes were put in place during the first year of the Project that served as the basis for the planned sustainability of infrastructure investments. Without the early dedication of this time and effort, there would be less assurance of the long-term durability of infrastructure investments.

13. *Three years is sufficient to implement a WASH project in Afghanistan. But, it is an insufficient amount of time to leave a high confidence in the sustainability of infrastructure improvements and of social change.*

    The SWSS team followed best WASH practices to establish the processes and systems that have been proven to support the sustainability of infrastructure investments. This was readily accomplished within the time allotted to the Project. But, sustainability is only confirmed by monitoring the successful performance of investments over time. It was not possible for the SWSS team to ensure the long-term, consistent performance of new infrastructure or improved behaviors within the time limitations of the Project. Each should be monitored, at a minimum, up to five years after the introduction of new hardware or improved behaviors to ensure the sustainability of investments and move away from infrastructure failures of the past.

14. *Outcome and impact monitoring can be accomplished in Afghanistan, but only in areas where security conditions allow full application of community mobilization and behavior change approaches.*

    The dynamic security conditions in Afghanistan limit the locations were best "software" practices can be applied. In those areas where the SWSS team was able to apply best practices of social involvement and change, the Project was able to document—with professional and academic rigor through household surveys—the impact of its efforts. In areas where interaction with local communities and leaders was limited by low security, the Project team was less able to observe or document lasting change and infrastructure operation.

Recommendations

With the SWSS Project, USAID set off to remedy past lapses in the WASH sector by applying best practices across a wide geography to benefit the largest number of people, support the broader aims of the USG in Afghanistan, and ensure transparency and accountability of implementation. Through the Project, USAID made significant progress on each of these objectives. USAID has a long history of support to WASH programs, and the need in Afghanistan for sustainable WASH is as great as anywhere in the world. USAID/Afghanistan should continue their support for sustainable WASH in the country. The following recommendations are presented by the SWSS team to guide the preparation and implementation of future efforts.

1. *USAID funding and implementer operations must be consistent and predictable to allow customer expectations to be satisfied and a trusting relationship established.*

   The provision of WASH services requires the collaboration of a trusting customer with a reliable service provider. USAID operations and priorities in Afghanistan are subject to fluctuations in response to trends and events. These shifts should not be allowed to affect the funding streams that support the delivery of services expected by and agreed with beneficiaries. Future projects should not be designed as one-year renewable projects, and the authorized funds should be fully obligated to meet commitments to local government and partners.

2. *WASH programs in Afghanistan are cost-effective, high priority parts of stability operations that demonstrate the capacity of national and local government to deliver basic services to their populations.*

   Post-conflict stability operations have the primary objective of supporting the ability of a resurgent local government to provide services to its constituents. No government service is more basic than drinking water and sanitation. USAID knows how to implement efficient WASH programs and should build them into all post-conflict stability programs without compromising the focus on sustainable service delivery.

3. *All WASH programs that aim for sustainability must be implemented in accordance with the Hygiene Improvement Framework.*

   The HIF emerged from 25 years of implementation experience with WASH programs across the globe. The enabling environments that determine the social, financial, and institutional sustainability of investments in infrastructure, commodities, education, and mobilization must be the lead component if sustainability is an objective. "Hardware," the investments in infrastructure and products, must follow "software," the organization of communities and their leaders to commit to and own the introduction of infrastructure and/or products. Hygiene promotion focused on the proper use of "hardware" investments cannot be separated from the simple installation of infrastructure.

4. *CLTS programs should be implemented in close coordination with water supply provision.*

   Having an available water supply is necessary for communities to fully adopt improved hygiene practices and maintain clean sanitation facilities. Contracting for the construction of water supplies in CLTS communities is often not subject to the economies of scale gained from larger well construction efforts that cover a larger geography. Despite this, water supply provision should be included as a criterion for a community to be ODF, and future WASH/CLTS projects should ensure its provision—most likely as a reward for completion of ODF status.

5. *Support should be provided to the MRRD to serve as the central authority for infrastructure delivery and repository for all information on rural water supplies and sanitation systems.*

   The MRRD is the component of the GIRoA that is responsible for installation, ownership, and maintenance of rural water supplies and sanitation facilities. Its representatives at the district, provincial, and national levels must be central to all decisions regarding the planning, implementation, and monitoring of rural WASH activities. This can only occur if a portion of project funds is dedicated to ongoing support of the internal operations of MRRD to complete its mandate as the central decision-making authority and the ultimate repository of all information regarding rural WASH services across the country.

6. *Systems must be built into future WASH projects that hold implementation contractors—both NGOs and construction firms—accountable to both the communities where they work and the project that funds their work.*

   Afghan implementers exist that take the quality of their work seriously and deliver high-quality outputs. But, like anywhere in the world, there are contractors that will take advantage of the difficulty of direct oversight in Afghanistan to short change communities and funders. This can be overcome by employing community-based NGOs and contractors to the greatest extent possible, making payments contingent on approved outputs, and enabling communities to report directly to project leadership on any perceived or actual questionable activities on the part of contractors.

7. *New WASH projects should be designed to: (1) provide first-time access to services; and (2) ensure that the continued performance of all new infrastructure is confirmed or remedied at a minimum of one year and three years after completion of construction.*

   No excuses can be made for the failure of small-scale infrastructure investments within the first three years of operation. But, USAID is not currently positioned to ensure the performance of their investments over this time period. Future WASH projects should be designed of sufficient length to ensure equitable resource commitment to implementation, sustainability monitoring, and repair/replacement to cover, at a minimum, the first three years of the life of each infrastructure provided by the project.

8. *Future WASH programs must establish and provide sufficient funding for rigorous drinking water quality monitoring of all funded water supplies, with particular attention to microbiological, salinity, and arsenic control.*

   Microbiological pathogens, salinity, and arsenic are widespread contaminants of water supplies across Afghanistan. USAID, as a major donor in the sector, can be held accountable for the quality of drinking water delivered by systems they fund. An Agency-wide protocol for sampling (including timing and technique), storage, transportation, testing, and reporting of drinking water samples must be developed and required of future implementers. USAID must provide an adequate budget to cover the costs of this health-protecting service.

3.0 FINANCIAL SUMMARY

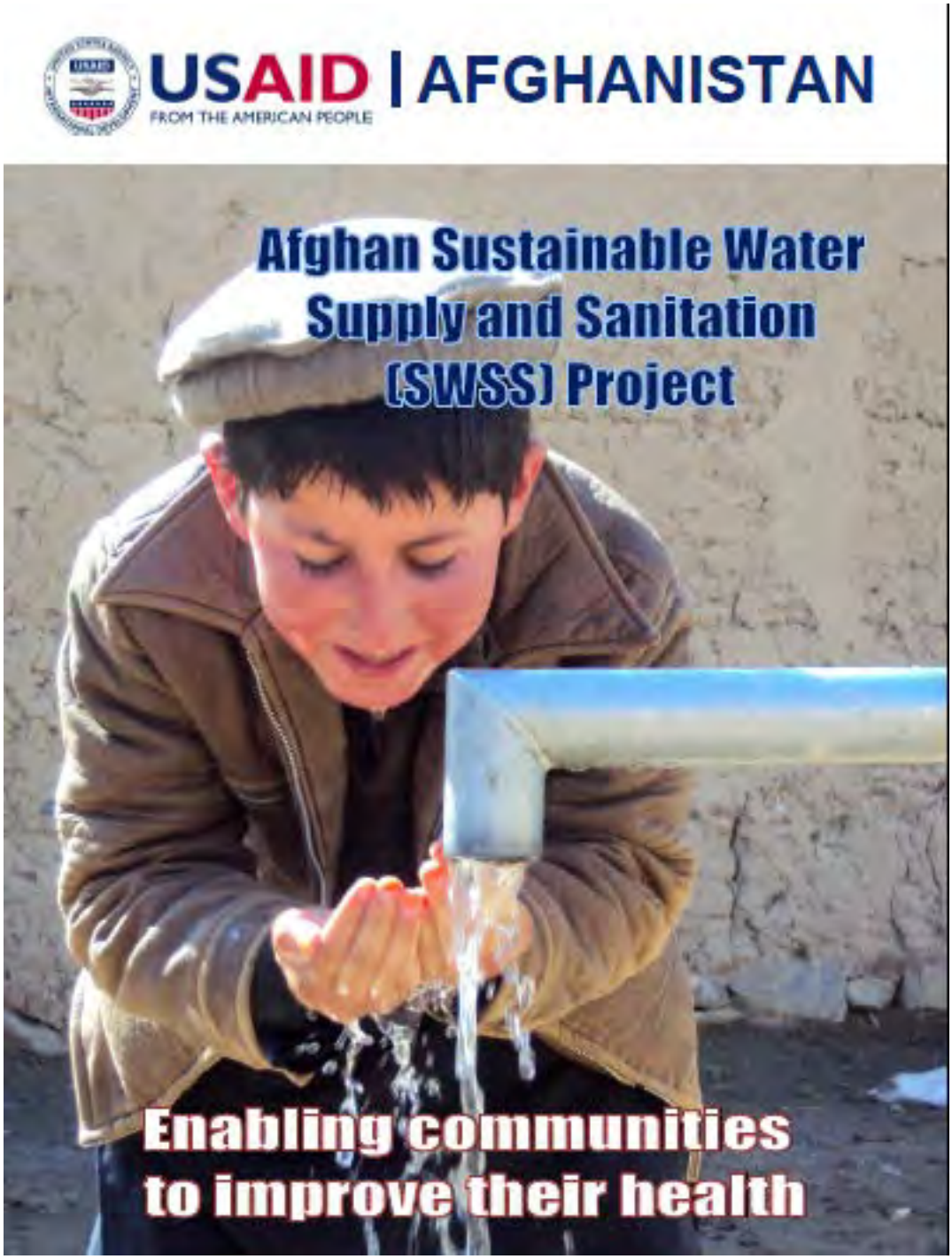
Project Costs by Objective: October 2009–December 2012

Expense Category	Original Contract Budget	Actual Contract Budget	Total Actual Expenditure
Component 1 – Sustainable Water Supply and Public Sanitation	$28,211,420	$23,560,756	$26,247,547
Component 2 – Sustainable Health Outcomes	$20,459,259	$17,086,542	$13,878,695
Component 3 – Sustainable Local Management	$1,176,774	$982,782	$669,970

ANNEX A. SAMPLE OUTREACH MATERIALS

- *SWSS Project Poster*
- *SWSS Project Brochure*
- *USAID Global Water Magazine – SWSS Feature – June 2012*
- *USAID Global Water Magazine – Watertracker – June 2012*
- *USAID 2011 Safeguarding the World's Water – SWSS Cover Photo and Section*
- *Example of Branding Plaque Fastened to Each SWSS Project Water Supply (photo)*
- *Link to "USAID – Committed to a Water Secure Future" Video (highlighting SWSS)*
- *SWSS Success Story – Bamyan Piped Water System*
- *SWSS Success Story – Handpump Mechanics*
- *SWSS Success Story – Panjshir Piped Water System*
- *SWSS Success Story – Global Hand Washing Day 2011*
- *TetraVision (Tetra Tech Corporate Publication) – SWSS Feature – Fall 2011*
- *CLTS Presentation to USAID/Washington Sanitation Working Group – May 2011*
- *SWSS Presentation to USAID/Washington Infrastructure Workshop – December 2012*

SWSS Project Poster



SWSS Project Brochure

Afghan Sustainable Water Supply and Sanitation (SWSS)

The Afghan Sustainable Water Supply and Sanitation (SWSS) Project aims to improve the health of Afghans by supplying clean drinking water and hygiene interventions in villages willing to adopt better habits.

We believe that a combination of clean water, community participatory interventions and community buy-in to maintain their new infrastructure and improved habits will result in an improved health impact and more productive citizens. People will then spend less time being sick and save money on medicine.

We currently work in Nangarhar, Laghman, Kunar, Khost, Paktya, Ghazni, Parwan, Panjshir, Baghlan, Ghor and Logar provinces.

This brochure is made possible by the support of the American People through the United States Agency for International Development (USAID). The contents of this brochure are the sole responsibility of ARD, Inc. and do not necessarily reflect the views of USAID or the United States Government.

Afghan Sustainable Water Supply and Sanitation Project (SWSS)

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Project Impemented by

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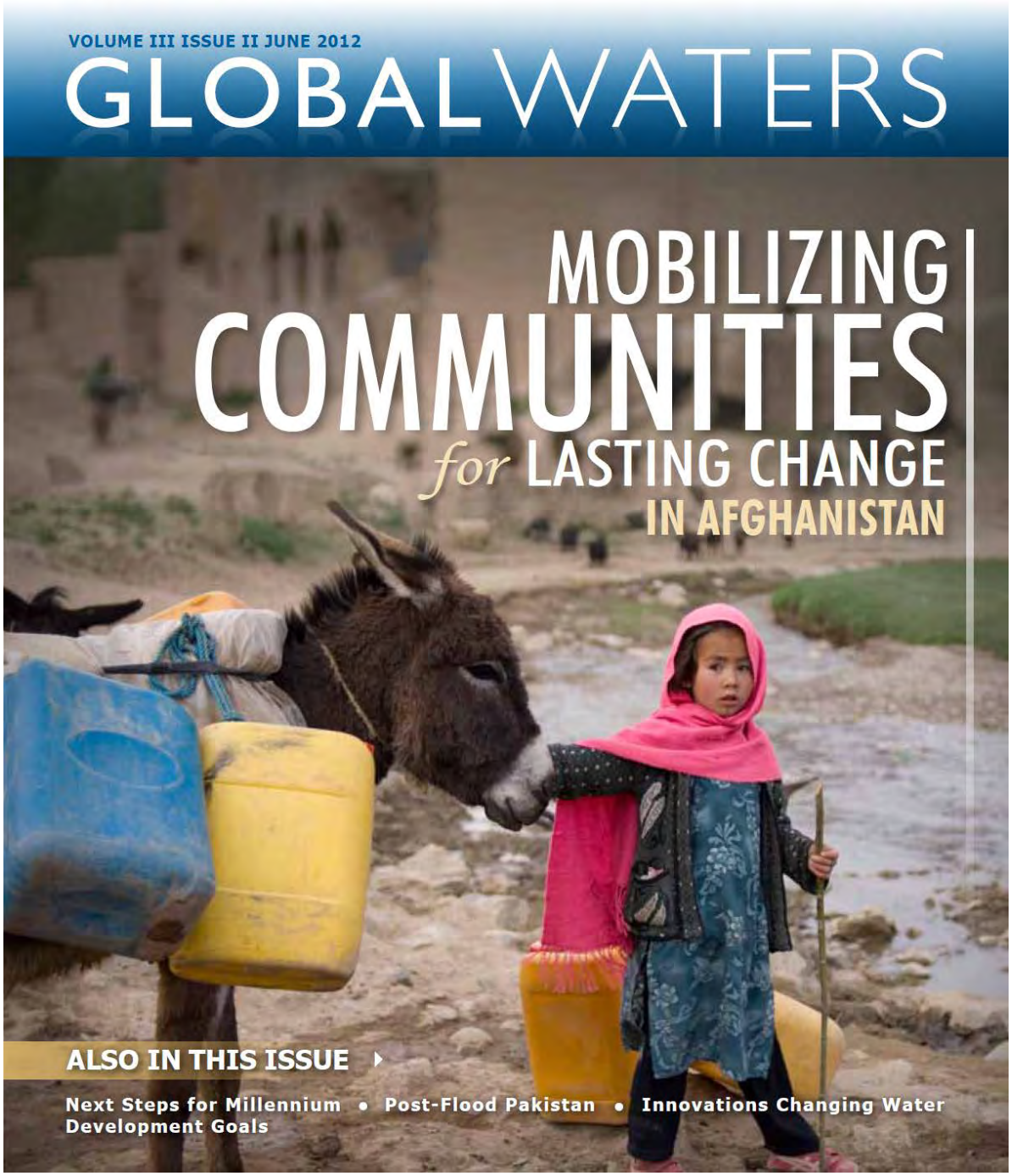
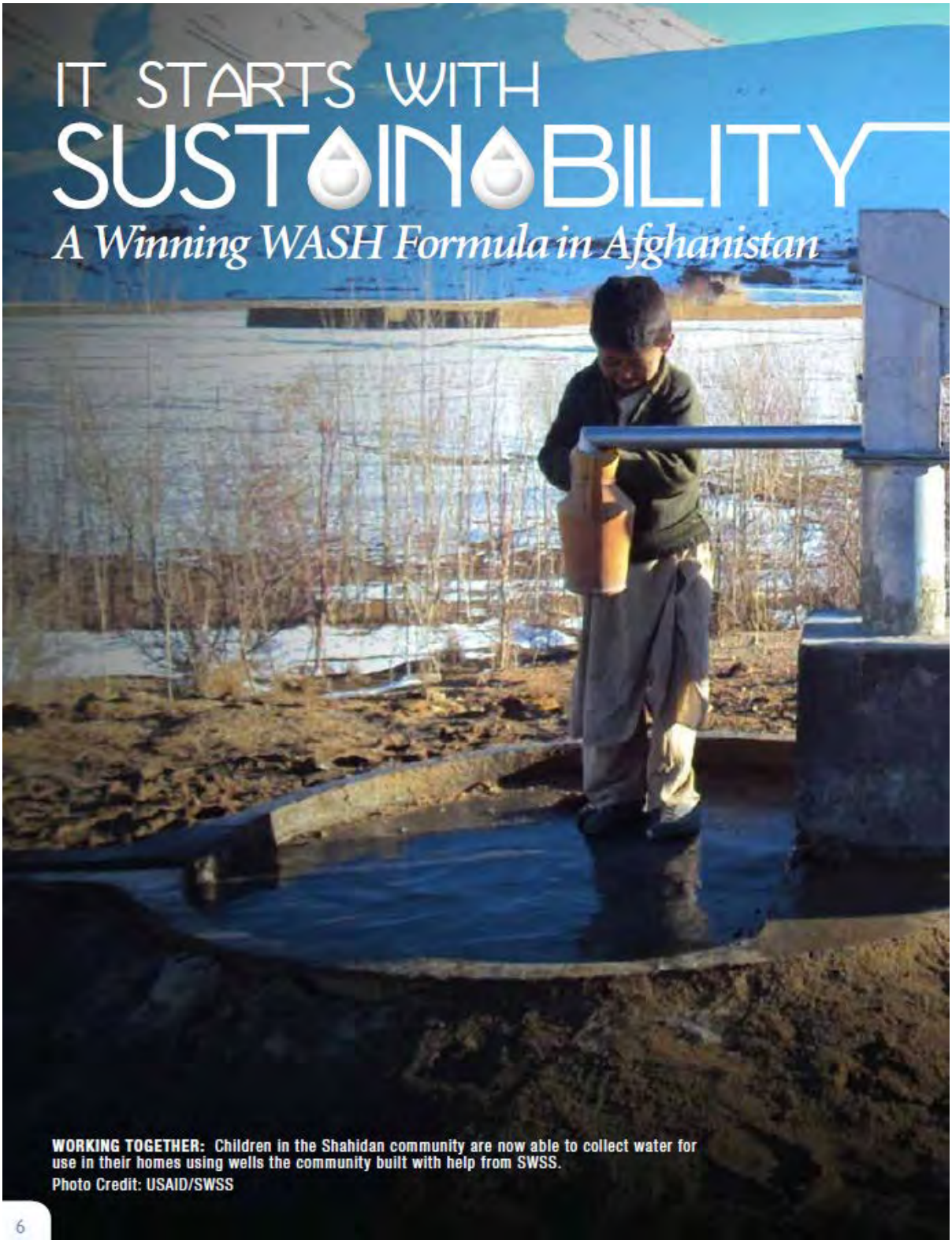
Enabling communities to improve their health

USAID Global Water Magazine – SWSS Feature – June 2012





WORKING TOGETHER: Children in the Shahidan community are now able to collect water for use in their homes using wells the community built with help from SWSS.
Photo Credit: USAID/SWSS

6

ON THE WATERFRONT
AFGHANISTAN HAS WEATHERED DECADES OF CONFLICT, BUT THE BIGGEST THREATS FACING ITS CHILDREN ARE UNSAFE WATER AND SANITATION. JUST 27 PERCENT OF RURAL HOUSEHOLDS HAVE ACCESS TO IMPROVED DRINKING WATER, AND ONLY 10 PERCENT OF THE POPULATION HAVE ACCESS TO IMPROVED SANITATION FACILITIES. YOUNG GIRLS AND BOYS OFTEN MISS SCHOOL BECAUSE THEY HAVE TO WALK LONG DISTANCES TO COLLECT DRINKING WATER FROM UNCLEAN SOURCES. CONSEQUENTLY, SIX AFGHAN CHILDREN DIE EVERY HOUR FROM DIARRHEAL DISEASES.
7

FILLING UP: Children in Nawa, Afghanistan fill their containers with fresh running water.

Photo Credit: USAID/LGCD

Since 2009, Afghan villagers have mobilized to improve water and sanitation with the help of USAID's Sustainable Water Supply and Sanitation (SWSS) project. The project (pronounced "swiss") has increased access to sanitation by working with community members to build or renovate 38,388 latrines and has increased access to safe drinking water by constructing over 2,674 wells. But, most importantly, SWSS started by focusing on sustainability.

From Hardware to "Software"

While constructing latrines and wells is essential for improved public health in rural Afghanistan, it is not enough to create a lasting impact. Generations of life without proper access to latrines or clean water had ingrained unhealthy habits in many villagers, and 89 percent of rural Afghans defecated out in the open. For the program to be sustainable, villagers would have to make fundamental changes to their behavior, and real change takes time.

SWSS engaged with national and provincial departments of Afghan ministries, community leaders, and local villagers to promote key behavior changes that, together with new and improved facilities, would reduce the incidence of diarrheal diseases and boost public health. This is the kind of investment in development that lasts.

The fulcrum of this strategy was community-led total sanitation (CLTS). CLTS is a collective behavior change methodology that invokes feelings of shame and disgust to improve the overall health of a community by visually demonstrating the proximity of fecal matter to water resources. The goal of CLTS programs is to certify villages as "open defecation free."

At the heart of CLTS lies the recognition that merely providing toilets does not guarantee their use, nor result in improved sanitation and hygiene. Earlier approaches to sanitation had prescribed high initial standards and offered subsidies as an incentive. But this often led to uneven adoption, problems with long-term sustainability, and only partial use. Open defecation and the cycle of fecal-oral contamination continued to spread disease.

SWSS invested in community mobilization instead of hardware and shifted the focus from toilet construction for individual households to the creation of open defecation free villages. By raising awareness of the reality that everyone is at risk of disease if even a minority continues to defecate in the open, CLTS triggers the community's desire for change, propels them into action, and encourages innovation, mutual support, and appropriate local solutions. This leads to greater ownership and sustainability.

It Takes a Village

To foster this feeling of ownership, CLTS requires the involvement of the communities. "You have to first establish trust and an understanding of the community and how it functions," said Dr. Christopher McGahey, senior associate at SWSS implementing partner Tetra Tech ARD. This level of trust can take months, even years to establish, which is time that the project did not have. To address this challenge, SWSS turned to one of its USAID health program partners, Management Sciences for Health, which already had a decade-long track record of success working with Afghan communities and had established a network of NGOs.

By working through this network, SWSS engaged community members in the planning, design, and implementation of the CLTS approach. SWSS trained 682 Afghan facilitators to bring CLTS to communities and 3,960 community leaders to promote hygiene. "We were ensuring ownership and sustainability at the community level," said Dr. Gul Afghan Saleh, senior program manager for energy and water at USAID/Afghanistan. Involving the Afghans every step of the way, SWSS ensured that CLTS lessons appealed to local customs, attitudes, and values and resonated with villagers. Shahla, a student from Laghman province, said that her religion helped her see the value of CLTS, "Islam is a complete religion that advises all humans to wash hands with clean water and soap, as long as there are millions of germs living in the environment."

To ensure that communities become open defecation free, women were brought into the forefront and trained in health and hygiene promotion. "Hygiene and sanitation without the involvement of women cannot be achieved in any society," said Bimal Chapagain, former director of sustainable health outcomes for the SWSS project. They participated in what Dr. McGahey called "mother-to-mother peer education programs" through the creation of Family Health Action Groups of local women, selected by their communities to be trained. They then taught other women in the community about health and hygiene practices. These women would in turn educate their families, leading to community-wide behavior changes. "My husband gathered other men to support their ladies and bring a healthy environment to the village," said Fatima, one of the participating women from Badakhshan province. A cycle of good hygiene was set into motion. Already, 394 communities have been certified open defecation free.

Tools for Change

Providing the infrastructure and tools to change behaviors related to sanitation was just half the formula for decreasing instances of diarrheal disease. There was still work to be done to ensure continuous access to safe drinking water across Afghanistan's rural countryside. The new water infrastructure brought clean water to 511,150 Afghans, but SWSS had to ensure the sustainability of these gains. Since an estimated 30 to 50 percent of all water points in Afghanistan are not functional after two years due to maintenance or construction issues, communities would have to be equipped with new tools to ensure maintenance of the wells over the long term.

EASING THE BURDEN: New wells, like this one in Kharwar District, Logar province, provide easy access to clean water in insecure communities like never before.

Photo Credit: USAID/SWSS

SWSS addressed this by training locals selected by their communities to repair broken hand-pump wells. Local councils oversaw the compensation of the hand-pump mechanics based on community standards, thus creating a livelihood for dozens of previously unemployed people. Each mechanic is now responsible for maintaining specific wells. One mechanic from Kandahar province, Mohammed, expressed a desire to keep building upon his newfound knowledge. "I'm hoping to gain all the knowledge and expertise needed for the proper maintenance of wells," he said. Malak, a mechanic from Parwan province, said he was so happy with his new profession that he wanted to spread the wealth, "I trained my two brothers in this same field, and now each of them can make enough money to support their families."

"MY HUSBAND GATHERED OTHER MEN TO SUPPORT THEIR LADIES AND BRING A HEALTHY ENVIRONMENT TO THE VILLAGE"

As an added assurance that the wells remain operational, SWSS empowered citizens with a well-monitoring tool called Watertracker. The project trained select community members to report on each well's functionality by calling a hotline using a unique identification number for each water point. To report a problem, a villager enters the well's number and follows two simple prompts. Callers are able to leave longer, more detailed messages about the problem that they are facing.

Once a community member concludes his or her report, the information is transferred to the Watertracker website with all new data and changes instantaneously reflected. The website was developed using the Ushahidi platform, an open source information management software that facilitates data crowd sourcing and mapping. Each water point is color-coded to indicate its functioning status. Detailed well information, such as the technical specifications, project history, community contact information, and the recorded voice messages left by community members are stored on dedicated, searchable pages for each water point constructed during the project. According to Nicola Armacost, managing director of SWSS partner Arc Finance, the data available on Watertracker tells "the story of the well from both an engineering and community perspective."

Using the regular phones that community members already own, Watertracker enables SWSS to track the status of its wells, while also providing further assistance to

TAKING CHARGE: From mapping well locations to constructing the actual wells, community members are involved every step of the way, taking their futures into their own hands.
Photo Credit: USAID/SWSS

PEER EDUCATION PROGRAM: Women attend an event for promoting better hygiene practices and behavior in the Naw Joy community.
Photo Credit: Dr. Mohammad, WASH Coordinator for SWSS

communities. After a call comes in, a technical associate for Watertracker follows up with the communities to get more information and help facilitate a resolution. This could require activating the contractor's warranty so that the design and construction of the well can be tweaked, finding a replacement for an absent well caretaker, or assisting communities in working out financing mechanisms to pay for part replacements.

Soon, Watertracker will be entirely in the hands of Afghans. Ownership of Watertracker will be transitioned to the Afghanistan Ministry of Rural Rehabilitation and Development, and so far, 1,131 Afghans have been trained to support the Watertracker system, including 994 well-caretakers and 137 mechanics.

Lasting Change

In Afghanistan, villagers have begun to experience the fruits of their labor. "Clean water has decreased the level of diarrheal diseases and enhanced the economic status of local residents," said Sayed Wali of Nangarhar province. One of his neighbors, Qari Atiqulla, agreed and said, "This project was the dream of local residents, which has turned into a reality."

While SWSS ends in September 2012, the work of the villagers has only just begun. It won't be easy, but they have proven that they are up for the challenge. Families have mobilized to build themselves latrines. Community members are working hard to keep their wells functioning. Jamaluddin from Laghman province echoed the sentiments of many with newfound purpose when he said, "Now, this is our responsibility."

Global Waters Editors

FOR MORE INFORMATION, VISIT:

USAID/Afghanistan SWSS

USAID/Afghanistan on Facebook

USAID/Afghanistan on Twitter

Read Previous Global Waters article on CLTS

A Look at the Ushahidi Platform

USAID Global Water Magazine – Watertracker – June 2012

Watertracker, a component of USAID/Afghanistan's Sustainable Water Supply and Sanitation (SWSS) project, is one program that has begun using Ushahidi's platform to support sustainable development. Instead of relying on text messages to report information, as other deployments of Ushahidi had done, the developers found another means of efficiently reaching their targets. "We realized that an integral part of a long-term program like this one is to determine the right vehicle to receive information," said Rob Baker, an independent developer for Ushahidi. Because

TECHNOLOGICAL ADVANCEMENTS: The Watertracker platform allows users to view the status of wells around Afghanistan, identifying waterpoints that require maintenance and those that have been serviced.

Photo Credit: Arc Finance

Watertracker is targeted to rural communities that might have limited literacy and access, using voice recognition technology turned out to be a more efficient and locally appropriate means of reporting malfunctioning wells, rather than relying on texts.

When trained community members call in, their responses to a voice-activated menu provide SWSS with structured information to report broken wells to the appropriate contractor for repair. While the software infrastructure for the voice-recognition system was time consuming to develop, Mr. Baker said, "By relying on structured information, taking literacy rates into account, and working with a local partner to understand their capacity to respond, overall it's a more sustainable solution." Because the project was so successful, Watertracker's management will be transferred from SWSS to the Afghan Ministry of Rural Rehabilitation and Development and will ultimately incorporate nearly 100,000 wells throughout the country.

USAID 2011 Safeguarding the World's Water – SWSS Cover Photo and Section

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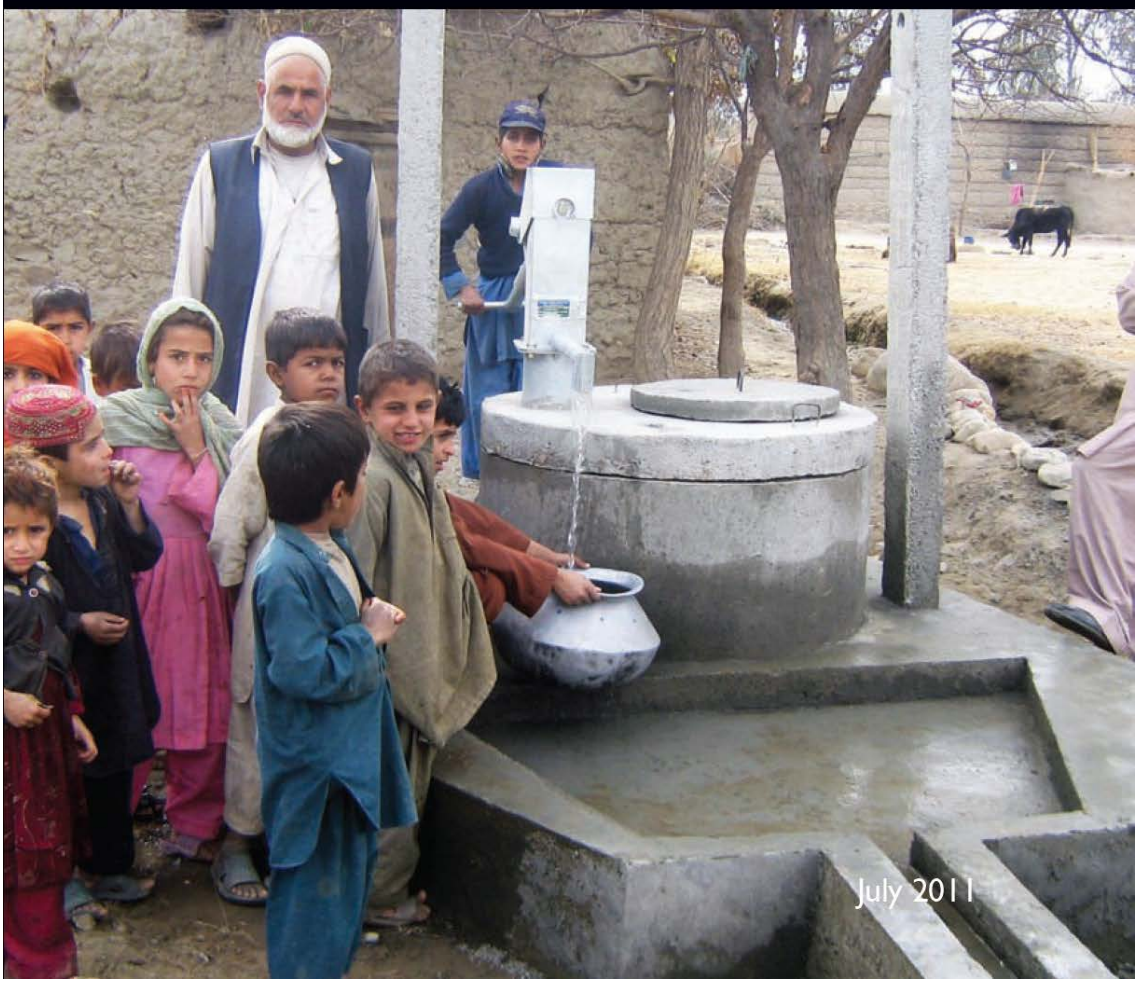
USAID 50 ANNIVERSARY

Safeguarding the World's Water

2011 Report on USAID Fiscal Year 2010 Water Sector Activities



Cover Photo Credit: Abdul Hameed Khalid, M&E Specialist, Nangarhar Regional Office, USAID's Afghan SWSS Project.

Community children collect drinking water from a well with a hand pump constructed by USAID's Afghan SWSS Project in Shinwar District, Nangarhar Province.

Afghan Water Supply and Sanitation Project Delivers First-Year Results

Launched in October 2009, the Afghan Sustainable Water Supply and Sanitation (SWSS) Project partners with other NGOs, community organizations, and provincial reconstruction teams (PRT) to design, install, and operate sustainable potable water systems and hygiene promotion mechanisms. Another activity is to mobilize communities to end open defecation using community-led total sanitation (CLTS) interventions led by SWSS-trained facilitators and hygiene promoters.

These interventions raise awareness of collective hygiene behaviors and result in community members improving their household latrines.

In poor communities, SWSS is expanding access to potable water supply and sanitation services and decreasing the incidence of water-related diseases through household hygiene interventions. Beyond the provision of basic WSSH services, SWSS boosts community awareness of the need for water conservation and watershed protection in relation to potable water supply.

The SWSS approach encompasses:

- Providing technical assistance for installing and maintaining clean water delivery systems with communities
- Executing an extensive parallel health and hygiene education program that engages beneficiaries in resolving their own water, sanitation, and hygiene challenges
- Mobilizing innovative forms of capital that expand the engagement of the small-scale private sector in providing WSSH goods and services

In each of these endeavors, SWSS also seeks to support capacity building, community empowerment, demand creation, innovative financing and entrepreneurship, gender mainstreaming, and environmental improvement.

An 11-year-old Afghan girl fills a teapot from a new village well.

Between the project's inception in October 2009 and early 2011, SWSS achieved the following results:

- 750 improved water wells constructed serving 127,700 people
- CLTS programs serving 37,919 people, with 5,417 household latrines built or improved
- Active programs in 22 of 35 provinces
- Six ongoing provincial CLTS programs
- Three community piped water schemes contracted and under construction

New Safe Drinking Water Project in Tajikistan

Access to clean water in Tajikistan is among the lowest in the world. According to the WHO, 42 percent of the population is without clean water, and only 20 percent of Tajiks consume water from a modern, centralized water treatment and distribution system. Up to 60 percent of intestinal diseases in the country are waterborne. To address these problems, USAID launched the Tajikistan Safe Drinking Water Project (TSDWP) in FY 2010. TSDWP works with communities (both local governments and citizens) to increase access to sustainable potable water supply in households in competitively selected rural communities by 1) improving community capacity for health promotion, 2) supporting communities in building water supply infrastructure, 3) involving the community in operating and managing the infrastructure, and 4) providing intensive training in health and hygiene. TSDWP also builds the capacity of local health workers and community leaders to promote improved hygiene behaviors, such as proper handwashing by schoolchildren, improved water storage, and use of affordable POU water treatment methods in homes, villages, and schools.

In the first year of TSDWP's operation, eight partner communities began construction of water supply infra-

Example of Branding Plaque Fastened to Each SWSS Project Water Supply

Link to "USAID – Committed to a Water Secure Future" Video (highlighting SWSS)

http://www.youtube.com/watch?v=u2r1KZTxLQQ

SWSS Success Story – Bamyan Piped Water System

USAID | AFGHANISTAN
FROM THE AMERICAN PEOPLE

SUCCESS STORY

Communities in Bamyan construct potable water system

Regular maintenance of new water systems ensure sustainability of water access

Photo: USAID/SWSS

A USAID funded water reservoir under construction in the community of Paytab Laghman in Bamyan Province. May 7, 2012.

"We collect 50 AFN from each household for the operational and maintenance costs of our water system to ensure its sustainability." said, Abdul Aziz, the water system maintenance manager.

U.S. Agency for International Development
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The central Afghan province of Bamyan has been a strategically placed cross road since antiquity when Silk Road caravans crisscrossed the region for trading between the Roman Empire, China and South Asia.

The inhabitants of Bamyan Province have had limited access to clean drinking water and normally people collect surface water from rivers located far from residential areas and carry the contaminated water back to their homes with donkeys. The lack of access to clean drinking water has cause significant public health challenges resulting in the high prevalence of water-borne diseases. To address this situation, the government of Afghanistan and the USAID-funded Afghan Sustainable Water Supply & Sanitation (SWSS) project are working together with communities to provide sustainable access to potable water.

In February 2011, the SWSS project completed the design of a pipe scheme project for the community of Paytab Laghman in Bamyan town. The construction of the piped water system began on July 5, 2011. Now, the project is 80% complete and is projected to complete by May, 30 2012. The piped water system will provide potable water to approximately 450 households with 3,150 residents. The newly construction pipe scheme will shorten distances that community members are forced to travel to collect water and will enable most community member to have access to safe water for the first time.

According a village water system maintenance manager, Abdul Aziz, from a nearby community, "we collect 50 AFN from each household for operation and maintenance costs of our water system to ensure its sustainability." The community of Paytab Lagman is learning from Adul Aziz on how they will manage community contributions to ensure sustainable operation and maintenance of their new water system. Beyond considering operations and maintenance the community is looking forward to clean water. Community member, Tila Mohammad, said "We are thankful to USAID for the SWSS Project providing safe drinking water to our families so that our children are no longer affected by diarrhea caused by contaminated water."

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SUCCESS STORY
Shura-led Pump Mechanic Initiative

Hand Pump Mechanics are trained by USAID and paid by local leaders to ensure sustainability of newly constructed wells.

Photo: USAID/SWSS

A newly trained mechanic is fixing a non-functioning hand pump with community support in Paktia Province.

"We learned and understood all the skills required for the proper well maintenance," Mohammad Omer said. "Our core job is to monitor and properly maintain hand pumps. With the support of communities, we will keep new infrastructure functioning."

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The people of Afghanistan have long suffered from extremely limited access to safe drinking water and hygienic sanitation. In support of the new government, many donors are investing in water supply and sanitation across the geographically diverse country. Significant funding has been spent and thousands of hand pumps, piped water schemes, and latrines have been constructed. However, lack of sustainability and community involvement in their maintenance remains a significant challenge to ensuring the long-term value of these infrastructure investments.

The Afghan Sustainable Water Supply and Sanitation (SWSS) project is a three-year USAID activity that works with communities to build consensus for action to ensure sustainability of rural water and sanitation investments. Recently, SWSS launched a District Hand Pump Mechanic Initiative to involve communities in the maintenance of newly constructed wells. The Initiative is training and equipping community-selected residents to take the responsibility for the sustainability of newly constructed wells with hand pumps. Mohammad Omer, a resident of Qarghayee District of Laghman Province, was trained to take responsibility for the maintenance of 25 hand pumps recently constructed in Aziz Khan Kas community, where he lives. "We learned and understood all skills required for the proper well maintenance," Mohammad Omer said. "Our core job is to monitor and properly maintain hand pumps. With the support of communities, we will keep new infrastructure functioning."

After receiving training and equipment from the District Hand Pump Mechanic Initiative, the remuneration of the pump mechanics is organized by local *shuras* in line with local customs. Currently, more than 30 mechanics have been trained and equipped with tool kits and are responsible for the maintenance of nearly 1,000 wells in various communities in Kapisa, Parwan, Nangarhar, Laghman, Ghazni, Paktia and Kunar Provinces of Afghanistan.

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SUCCESS STORY
2,240 People Use New Water System

New piped water system fulfills a basic need for residents of Zamankor

Photo: USAID/SWSS

Young girl collecting a glass of drink ing water from newly constructed tap in the community of Zamankor in Anaba District of Panjshir Province.

'Now that the system has been constructed, it's the responsibility of the community to play a positive role in its long-term maintenance. The maintenance of the project is just as important as its construction', said Abdul Rahman Kabiri, Panjshir Deputy Governor.

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In the rugged mountainous Anaba District of Panjshir Province, most residents live in mud houses and suffer from lack of access to safe drinking water. The residents of the district typically collect water from unprotected springs located far from their home and in the high mountains.

To address this development challenge, the USAID-funded Afghan Sustainable Water Supply and Sanitation (SWSS) project conducted a comprehensive district assessment before constructing a new piped water system to bring safe drinking water closer to the residents of Zamankor village. The new piped water system utilizes and protects the Koir Spring located above the community. The construction of the water system included the laying of nearly 3 kilometers of pipe, the building of a 40 cubic meter water storage tank, and installing 21 community tap stands. The new water system is now providing safe water to more than 2,240 people.

The inauguration ceremony for the system was attended by both community members and provincial authorities. At the ceremony, Abdul Rahman Kabiri, Panjshir Deputy Governor thanked USAID's SWSS project and encouraged the community to take up the challenge of maintaining the new water system that was designed to provide a long term solution for the community's safe water needs. He said, 'Now that the system has been constructed, it's the responsibility of the community to play a positive role in its long-term maintenance. The maintenance of the project is just as important as its construction.' The Zamankor system is one of many that USAID and the Afghan Ministry of Rural Rehabilitation and Development are building in villages across Panjshir Province.

USAID's SWSS project work to increase access to potable water supply and sanitation services in poor communities, decrease the prevalence of water related diseases through household hygiene interventions and improve the sustainable management of potable water quality and quantity in project assisted communities throughout Afghanistan.

SWSS Success Story – Global Hand Washing Day 2011

USAID | AFGHANISTAN
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SUCCESS STORY

52,798 Afghan Students & Teachers attend GHWD

Students participate in Global Hand Washing Day to promote hygiene and sanitation.

Faizabad, Badakhshan Province

Sari Jugal School students participated in Global Hand Washing Day (GHWD) and show their hands washed with clean water and soap.

"I am very happy learning about personal hygiene. I will convey all these health messages to my family, as well as my friends and neighbors." said Shahla, a student participant.

Global Hand Washing Day (GHWD) is celebrated worldwide every year on October 15th. In Afghanistan, the Ministries of Public Health, Rural Rehabilitation and Development, Education, USAID and other donor agencies play a key role in facilitating the event, in which school students learn about the importance of hand washing and hygiene.

This year USAID through its Afghan Sustainable Water Supply and Sanitation (SWSS) Project supported GHWD by organizing events in schools in Nangarhar, Laghman, Logar, Kapisa, Parwan, Bamyan, Takhar, Badakhshan, Panjshir and Baghlan Provinces. 50,600 students, 1,512 teachers and 686 guests attended the celebration event. During the ceremony, all attendees washed their hands with clean water and soap, and USAID/SWSS project facilitators oriented students on the significance and importance of hand washing and general hygiene to their health. USAID works in boys' and girls' schools to directly promote health messages, as students play a vital role in disseminating them within their families and communities. Provincial authorities, who were present at the ceremonies, highlighted the importance of hand washing from both religious and health perspectives. Students presented their own writings and poems on the value of hand washing, and Abdul Salaam Payman, from Kishem District, Badakhshan Province spoke on the importance of GHWD and the essential role of the family in prevention of illnesses transmitted via contaminated hands. He stated that 'Washing hands with clean water and soap is an easy preventive way to stay healthy." Local authorities praised USAID's efforts for facilitating health promotion within Afghan communities. Shahla, a student participant, said "Islam taught us to wash our hands. As long as there are millions of germs living in the environment, the only way to prevent and remove these germs is to wash our hands at critical times. I am very happy learning about personal hygiene. I will convey all these health messages to my family, as well as my friends and neighbors."

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CLTS Presentation to USAID/Washington Sanitation Working Group – May 2011

TETRA TECH ARD

USAID Afghan SWSS
Community-led Total Sanitation Program

Christopher McGahey
chris.mcgahey@tetratech.com

25 May 2011

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FROM THE AMERICAN PEOPLE

Better Habits : Healthier Villages

USAID's Total Sanitation Project in Rural Afghanistan

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The Project

Sustainable Water Supply and Sanitation Project (SWSS)

- 3-year, $52 million program
- 1-year contracting with 2 option years
- Currently, option year 1 – end September 2011
- Two additional implementing partners

MSH MANAGEMENT SCIENCES for HEALTH

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The Vision

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Objectives

- Increase community access to rural potable water supply and sanitation
- Decrease the prevalence of water-related diseases through community, household and institutional hygiene interventions
- Improve sustainable management of potable water in rural communities

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The Reality

SWSS Approaches

- Flexible Approach (PNF driven)
  - Social mobilization & hygiene promotion (security permitting)
  - Construction of public latrines, wells, pipe schemes
- Community Development Approach
  - CLTS leads to household latrine construction
  - Mobilization and hygiene promotion
  - Public latrines, wells and pipe schemes

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The Gamble

Why CLTS will work in Afghanistan

- Conventional subsidy-based latrine promotion is unable to deliver. Instead of promoting self reliance, communities demand more and more subsidies

  CLTS promotes zero-subsidy latrines

- Shame and disgust, honor, and privacy are part of Afghan culture and value systems are such that these are strong motivational triggers

  Shame and disgust are strong motivational "triggers" used in CLTS

- Expecting Afghan communities to help themselves – even in the current dynamic environment – is not asking too much: A household sanitary latrine can be constructed almost for free; and when free construction is not possible, local masons and entrepreneurs can develop and market low-cost products

In CLTS, communities decide and act and are recognized for their achievement

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The Win

1st ODF Village in Afghanistan!

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The Scale

- Year One:
  17 districts, 85 communities
- Year Two:
  34 districts, 170 communities

Afghan Sustainable Water Supply and Sanitation (SWSS) Project
Community-led Total Sanitation (CLTS) Provinces

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The Communities

Community Development Approach (CLTS)

- Use of MoPH's existing health delivery mechanism
- Basic Package of Health Services
- Train and supervise the NGO facilitators, CHSs, CHWs and Family Health Action Groups
- CLTS and hygiene promotion result in improved health & demand for sanitation and water
- On going monitoring and supervision

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The Steps

- Pre-Triggering
- Triggering
- Post-Triggering
- Mobilization for community construction of latrines
- Hygiene Education
- Verification and Certification
- Awarding communities Open Defecation Free (ODF) status

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The Pre-Trigger

- Trained facilitators go to a village and request an appointment with the community to discuss their health related issues
- Cultural requirements in Afghanistan demand male and female facilitators to meet with men and women of the community separately

Pre-triggering session in M. Hussain village of Badakhshan Province

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The Trigger

- Triggering is a facilitated process with community members to analyze their sanitation status, the causes of their poor sanitation, and possible solutions
- It encourages them to make decisions on how to immediately take action to improve conditions

The Whole Community

Women's participation is both important and achievable

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The Social Challenge

The results of triggering are often mixed, rarely able to achieve immediate consensus on the need for every household to build and use a latrine to avoid OD.

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The Social Support

The team of facilitators meets frequently with community leaders and CLTS committee members to review the progress made since the previous meeting and decide what to do next

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The Latrines

Households are mobilized by the community leadership and CLTS committee to construct new latrines or improve existing ones, as well as ensure that all family members use the improved latrines.

Newly constructed latrine in Khosti Qushlaq

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The Debate

Definition of Improved Latrine

- Existing latrines made usable by being made washable and cleanable
- No visible feces in and around the structure
- Pit hole closed with a strong cover
- Ventilation pipe attached (when possible)
- Door or privacy curtain and a fixed roof exist
- Fly-proof screen in windows
- Easily accessible to everyone in the family
- Soap and water easily available for hand washing

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The Closer

- Eradication of open defecation practices is further re-enforced through:
  - Hygiene education training for community elders, Mullah Imams, and teachers
  - Establishment of Family Health Action Groups
  - Use of IEC materials
  - Dissemination of hygiene and sanitation messages to students

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The Certification

- Internal verification
- External verification
- No human excreta found
- Every house has a hygienic latrine being used
- If found ODF by external verification, then ODF certification is recommended

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The Ceremony

Community members of Khusti Qushlaq in Takhar Province wait for their community to be the first certified ODF in their province

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The Scorecard at 1 Year

As of April 2011	Achievements	People Served
Trained on CLTS Facilitation	471	-
ODF Communities	85	125,000 plus
New Latrines Constructed	2,258	16,000 plus
Improved latrines	7,702	55,000 plus

Estimated Cost:
$1,300,000 NGO subcontracts or est. $15,000 per ODF community

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The End

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The Things to Do

Why Have We Succeeded?

- Dedicated staff for a single goal: achieving ODF and promoting hygiene. Communicating same message over and over
- Early and continual community mobilization involving local religious and other leaders, teachers, activists, and CDCs/Shuras
- Acknowledging trust in NGOs but pushing them under a clear time-bound contract
- FHAGs formed with a focus on personal and community hygiene
- Local technology and designs decided by the community
- Continued follow-up and coordination with line ministries
- Use of appropriate IEC materials
- Selection of favorable communities
- Linking with Basic Package of Health Services

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The Long Run

How Have We Built Toward Sustainability?

- MRRD has made policy commitment to CLTS – Year 3 SWSS will provide training and collaboration with our Provincial WASH Coordinators
- Early and continual involvement of local leaders – expected to continue support
- FHAGs/CHWs/CHSs expected to continue their support without funding
- Currently rethinking role of rewards for ODF status
- Risks
  - SWSS is a target-oriented push to satisfy the client
  - Weak health system with no systematic mechanisms for hygiene promotion
  - No realistic on-going mechanisms for follow-up by MRRD and/or MOPH
  - Current interest is dependent on current funding

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SWSS Presentation to USAID/Washington Infrastructure Workshop – December 2012

USAID | AFGHANISTAN
FROM THE AMERICAN PEOPLE

The Afghan Sustainable Water Supply & Sanitation (SWSS) Project

December 14, 2012

Implemented by:

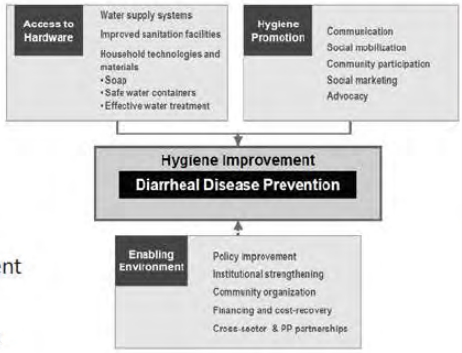
TETRA TECH

arcfinance

MSH MANAGEMENT SCIENCES for HEALTH

USAID's Integrated Approach

The Hygiene Improvement (HIP) Framework



SWSS Objectives

- Increase access to potable water supply and sanitation
- Decrease water-related diseases through household and community hygiene
- Improve the sustainable management of investments
- Support local government's role in decision-making and oversight

Flexible and Community Development Approaches

SWSS Activity Locations

- 27 of 34 Provinces
- USG priority districts

SWSS Duration and Budget

- 3 Year Project: 10/2009 to 9/2012
- Total Budget: $43, 314,114

Safe Water Achievements

Final Results by RC	Community Wells	Piped Water Systems	Total People Served
East	2,477	35	517,475
West	184	0	32,200
South	82	0	14,350
Southwest	0	0	0
North	268	2	51,700
Total	3,011	37	615,725

Sanitation & Hygiene

- Community Led Total Sanitation (CLTS)
- Basic hygiene promotion at household level
- 17 District-level CLTS and hygiene promotion across 6 Provinces

Improving Hygiene Practices

- Linking health & hygiene messaging
- Community Health Workers & Family Health Actions Groups to promote:
  - Hand washing
  - Use of clean sanitation facilities
  - Safe water transport

What is CLTS?

- A zero subsidy approach for the expansion of household sanitation.
- A facilitated process to enlighten communities on their negative sanitation habits and behaviors.
- Uses a methodology to shock, disgust, and shame communities into fully understanding their poor sanitation status
- Includes mobilization process for community action.
- With the goal being to create Open Defecation Free (ODF) communities.

Sanitation Achievements

Final Results by RC	CLTS Training	Hygiene Training	New and Improved Latrines	ODF Communities	Beneficiaries from Improved Sanitation
East	356	2,807	12,165	214	85,155
West	0	0	0	0	0
South	0	58	0	0	0
Southwest	0	34	0	0	0
North	326	1267	29,964	397	209,748
Total	682	4,166	42,129	611	294,903

Focus on Sustainability

- Working through *Shura*/CDC local government authorities
- Community Engagement and Empowerment
- Adaptation of Government Implementation Standards
- Capacity Building & Technical Trainings
- Community assigned care takers & hand pump mechanics
- 150 hand pump mechanics trained by SWSS
- Monthly income of hand pump-mechanics typically between $150 and $250

Community Mobilization & Ownership

- Community participation in planning & construction supervision
- Worked through *Shuras*
- Community appointed caretakers
- Official handovers to community
- Long term sustainability is dependent on community participation, buy-in and ownership

Watertraker.af

A web-based mapping tool that facilitates enhanced M&E, and community support through mobile field reporting

Based on:

- Online Mapping Portal
- Mobile phone Interactive Voice Response system (Roshan)

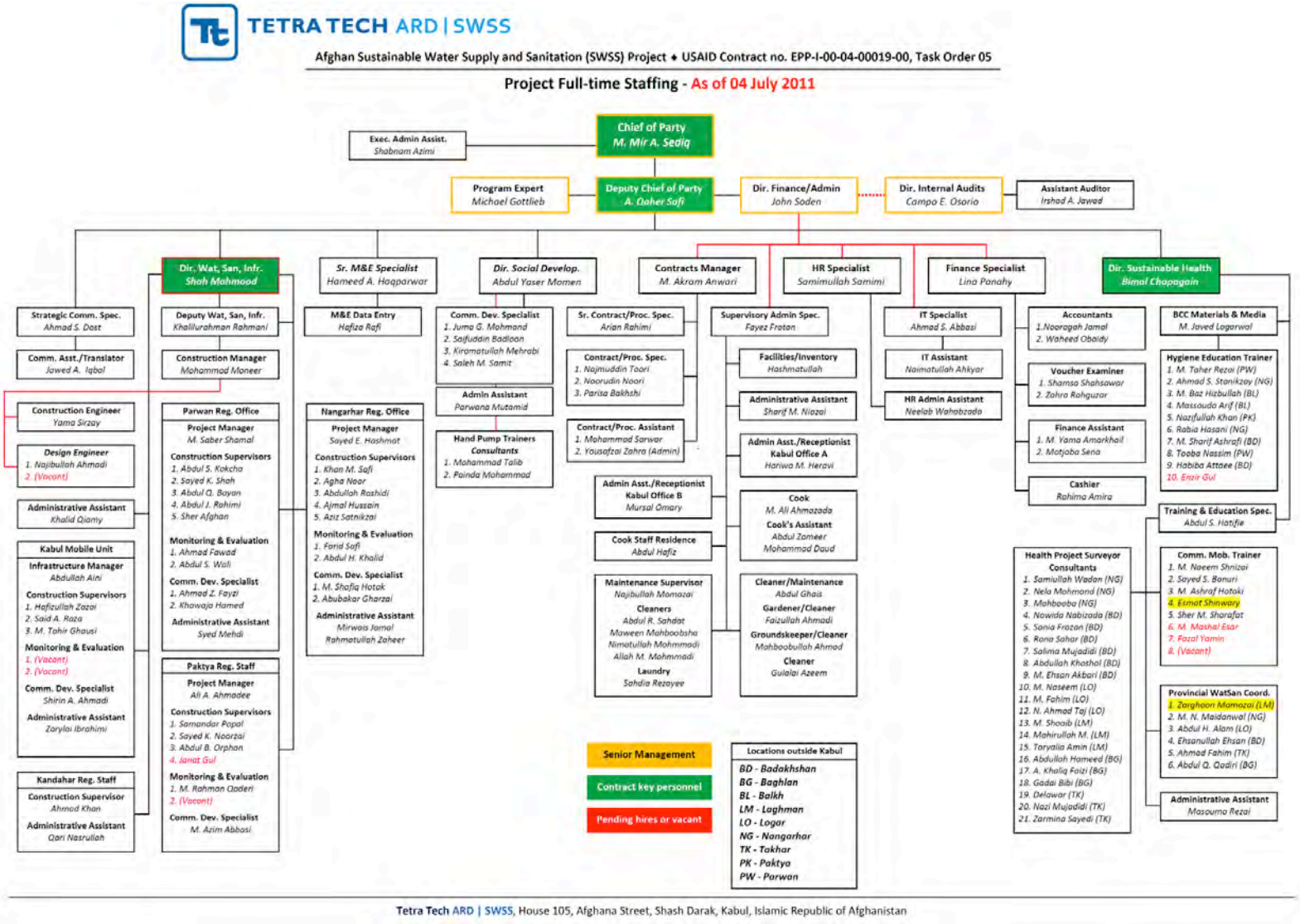
WASH Impacts & Gender

- Family Health Action Groups (FHAGs)
- Culturally sensitive approaches to working with women are critical
- Working with women is key to sustainable improvements in household hygiene

Challenges & Constraints

- Security and access to project locations
- PNF Prioritization and Community Dev. Approach
- Revising targets to be in line with budget realities
- PRT expectations and appropriate technology
- Increased costs due to security
- Y3 Budget reduced by 60%

ANNEX B. STAFFING



ANNEX C – MRRD MEMORANDUM OF UNDERSTANDING

MEMORANDUM OF UNDERSTANDING

Between

The Ministry of Rural Rehabilitation and Development of the Islamic Republic of Afghanistan (MRRD)

and

The United States Agency for International Development (USAID)

for Sustainable Water Supply and Sanitation

1. Purpose

USAID and the MRRD (the "Participants") wish to cooperate in a mutual effort to support sustainable water supply and sanitation activities. Accordingly, the Participants have concluded this Memorandum of Understanding (MOU) to set forth their understanding with respect to their undertakings in support of this purpose, and to clarify coordination and information sharing mechanisms between the MRRD (including its provincial offices) and USAID.

2. Background

In line with Afghanistan National Priority Programs, USAID's Afghan Sustainable Water Supply and Sanitation project ("SWSS" or the "Project") implemented by ARD, Inc. (the "Implementing Partner") assists the Government of the Islamic Republic of Afghanistan ("GIRoA") in increasing access to potable water supply and sanitation services in poor communities, decreasing the incidence of water-related diseases through household hygiene interventions, improving the sustainable management of potable water quality and quantity in Project-assisted communities, training beneficiaries in water system maintenance and hygiene practices, and boosting community awareness of the need for water conservation and watershed protection in relation to potable water supply. To achieve these objectives, SWSS encompasses a range of water and sanitation activities including (A) technical assistance, (B) the installation and maintenance of clean water delivery systems for communities and (C) implementing an extensive parallel health and hygiene promotion program for targeted beneficiaries. The three-year deliverable of the Project is to build and/or repair up to 10,000 water points, 50,000 latrines and 50 water supply pipe schemes in SWSS' areas of operation. The estimated completion date for the Project is September 2012.

The Project supports Provincial Reconstruction Teams and other key stakeholders nationwide, with a particular focus on the East and South, to install and operate sustainable potable water systems, sanitation facilities and hygiene education. Activities should focus primarily on rural areas, but activities for urban and peri-urban areas may also be considered. The project will be initially implemented in winter-friendly provinces until weather conditions permit extension of the program coverage to all areas where need is identified to be the greatest.

3. Undertakings of the Parties

A. USAID

USAID recognizes that the MRRD has a policy and implementation guidelines for implementing rural water supply, sanitation and hygiene promotion. USAID intends to advise its Implementing Partner to:

i. prepare, organize, supervise and monitor all aspects of Project planning, design and implementation (technical, quality, etcetera) in accordance with the official guidelines of MRRD;
ii. work closely with the Community Development Councils (CDCs) throughout the duration of the Project;
iii. provide MRRD with the Project's work plan for information and comment;
iv. coordinate Project implementation with other organizations (governmental and non-governmental) and stakeholders working in the same area;
v. prioritize the designed projects/ requests provided by MRRD;
vi. provide all Project specific information including location and timelines of individual projects to MRRD; and
vii. strengthen community capacity to operate and maintain potable water supply systems (including watershed management as appropriate) and sanitation facilities; and
viii. seek mechanisms to align this program with the objectives of the Kabul Conference and explore options to put this assisstance on-budget.

B. MRRD

In the event USAID furnishes the assistance described herein, MRRD intends to:

i. make MRRD facilities available for use by Implementing Partner staff in provinces where USAID intends to fund SWSS project activities. Such office space is intended to facilitate:
   - coordination of the Project with local MRRD representatives and
   - technical support, mentoring and on-the-job training of MRRD staff on: Project site selection procedures, application of participatory methods, planning procedures, developing time-lines and making realistic and SMART (Specific, Measurable, Acceptable, Realistic and Time bound) plans;
ii. issue letters of introduction for the Implementing Partner in support of Project activities to Governors or other provincial and district government representatives;
iii. provide the Implementing Partner with any available information on the responsibility of subcontractors in the area;
iv. provide a list of priority projects in areas severely affected by the shortage of drinking water and sanitation;
v. assist the Implementing Partner in surveying and implementing projects;
vi. provide the Implementing Partner with MRRD Water and Sanitation Guidelines;
vii. facilitate the handover of projects to local communities upon their completion;

viii. encourage the local population to participate in construction and maintenance of water systems and sanitation facilities and assist communities in performing regular maintenance of the improved water and sanitation assets; and

ix. monitor Project activities and report back to USAID and the Implementing Partner on observed irregularities and shortcomings of activities.

4. General Provisions

A. Coordination and Consultation

The Participants shall provide each other with such information as may be necessary to facilitate the provision of the assistance hereunder and to evaluate the effectiveness of the assistance. The participants should meet periodically to review assistance hereunder and otherwise share relevant information. Should a dispute or difference arise between USAID and/or the Implementing Partner and the MRRD on Project implementation, USAID and MRRD representatives at both central and local levels should hold discussions to resolve such issues.

B. Effect of the MOU

This MOU does not constitute a legal obligation or binding agreement or effect an obligation of funds by USAID or the U.S. Government, and it does not contemplate a transfer of funds from USAID to GIRoA or assumption of liability by USAID. USAID will obligate and disburse funds and carry out operations pursuant to this MOU in accordance with applicable laws and regulations of the United States Government.

C. Third Party Instruments and the Availability of Funds

Assistance and undertakings of USAID pursuant to this MOU are subject to the availability of funds and to further agreement between USAID and other public and private parties regarding provision of such assistance. This MOU in no way supersedes any binding instrument (contract or assistance agreement) USAID has or intends to enter into implementation of this MOU. In the case of any conflict between the terms of any such binding instrument and the terms of this MOU, the terms of the other instrument will prevail. No third party may claim rights under any such binding instrument as a third party beneficiary even though they may benefit from the assistance provided under such instrument.

D. Modifications

This MOU may only be amended through written agreement of the Participants. Any Participant may terminate this MOU by giving the other Participant thirty (30) days written notice.

E. Effective Date and Termination

This MOU will be effective as of the date of the last Participant's signature of the MOU, as indicated on the signature page hereto, and will remain in effect until terminated or September 29, 2012, the anticipated completion date of the Project.

F. Authorized Representatives

The Participants will be represented by those holding or acting in the offices held by the signatories to this MOU. Each Participant may, by written notice to the others, identify additional representatives authorized to represent that Participant for all purposes other than executing formal amendments to this MOU.

G. Language

This MOU was prepared in two original copies in the English language, which is the governing language of this document.

IN WITNESS WHEREOF, MRRD and USAID, each acting through its duly authorized representative, have caused this MOU to be signed in their names.

Ministry of Rural Rehabilitation and Development

H.E. Jarullah Mansoori
Minister

Date: Oct. 30, 2010

United States Agency for International Development

Robert Hellyer
Deputy Mission Director

Date: Oct. 30, 2010

Ambassador E. Anthony Wayne
U.S. Deputy Ambassador

Date: Oct. 30, 2010

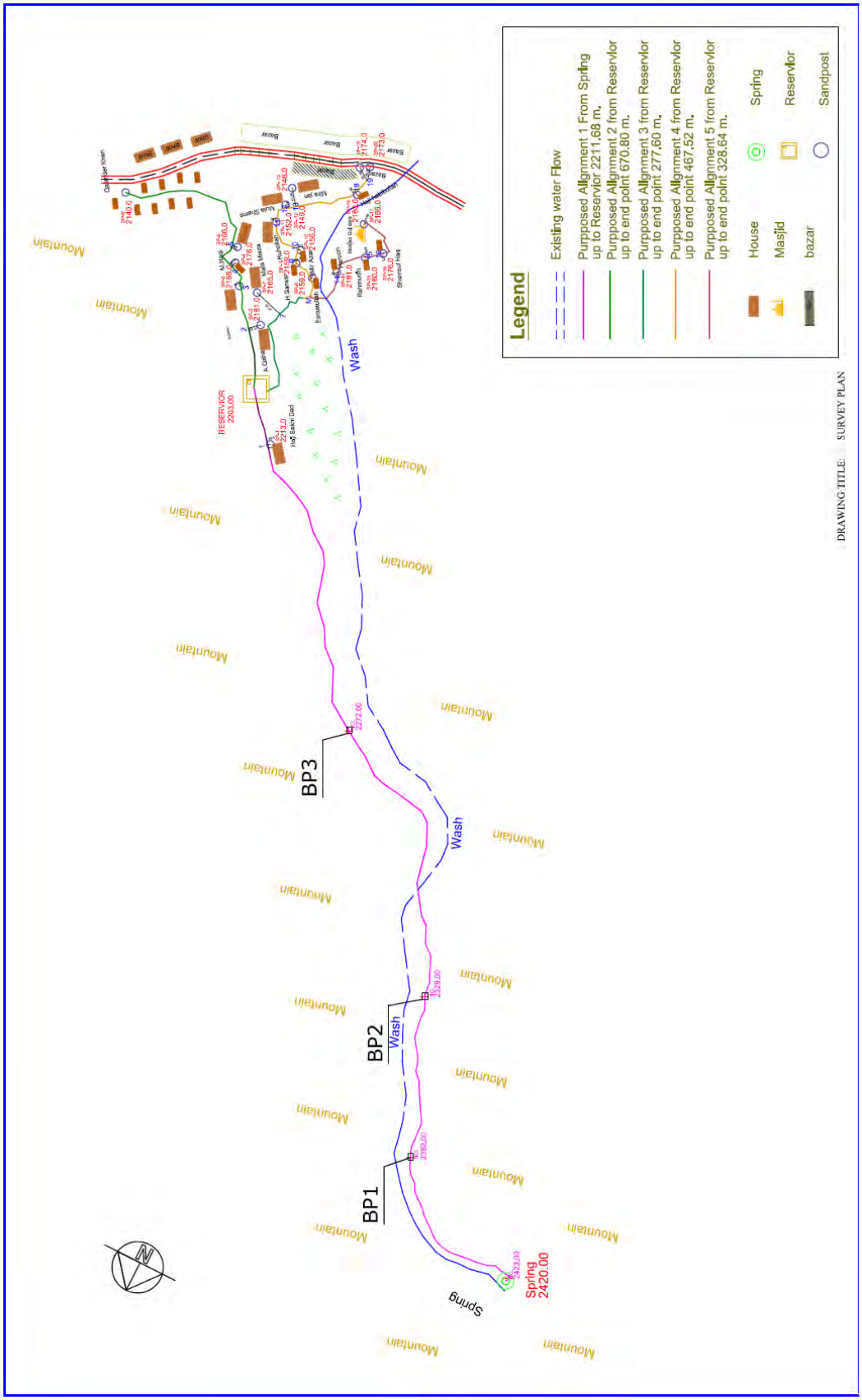
ANNEX D. WRITTEN PROJECT DELIVERABLES

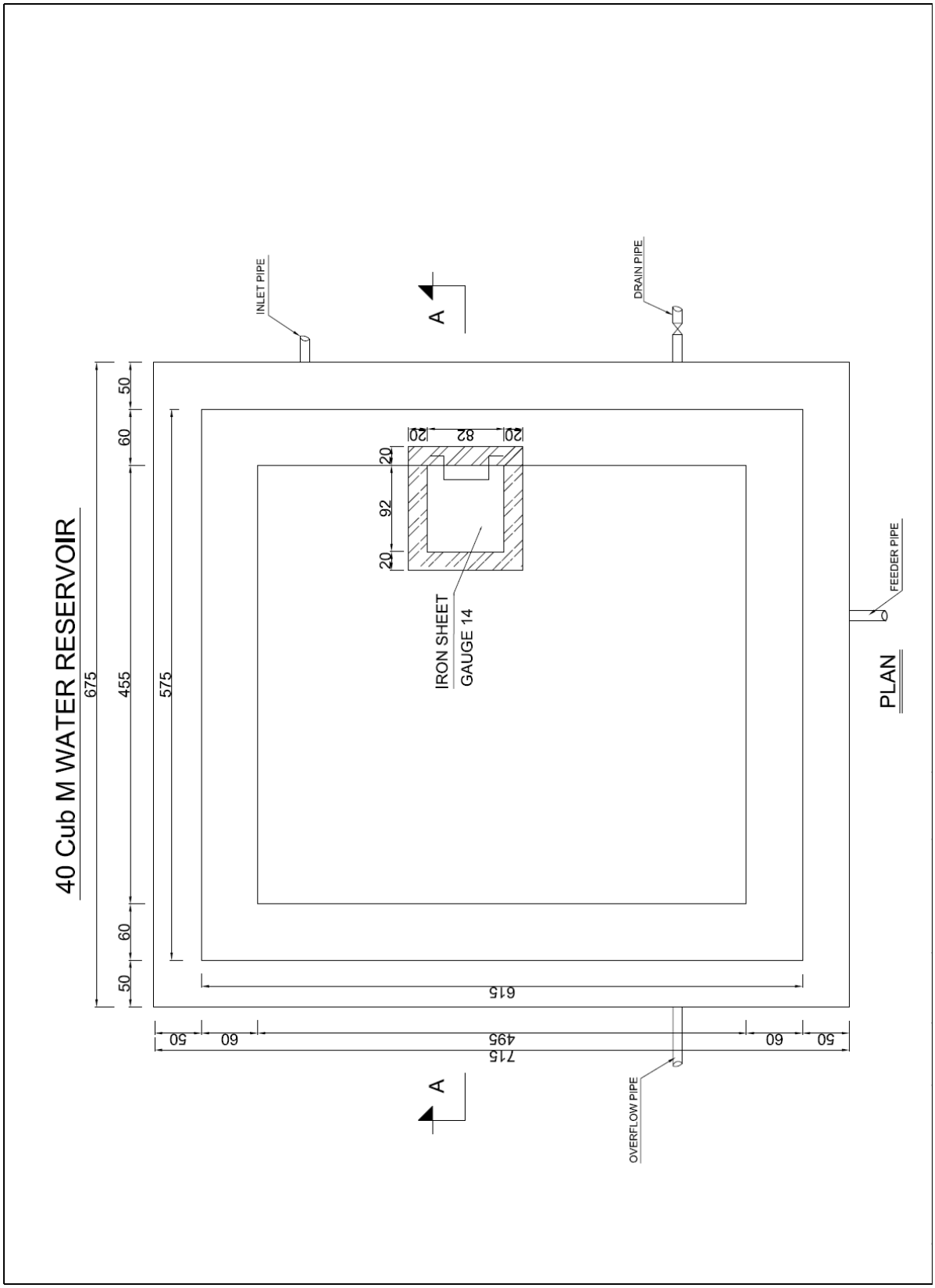
1) 3 Annual Work Plans
2) Security Plan
3) Branding and Marking Plan
4) Baseline Analysis Report
5) CLTS Community Baseline Report
6) Performance Management Plan
7) Hygiene Behavior Change Strategy
8) Outreach and Awareness Strategy
9) Sanitation and Latrines Options Manual
10) Contracts Tracker/Monthly Construction Schedule
11) Construction Database/Watertracker
12) 27 Monthly Reports
13) 11 Quarterly Reports
14) Strategy to Increase Market Products
15) 30 Success Stories

ANNEX E. EXAMPLES OF ENGINEERED DESIGN DOCUMENTS

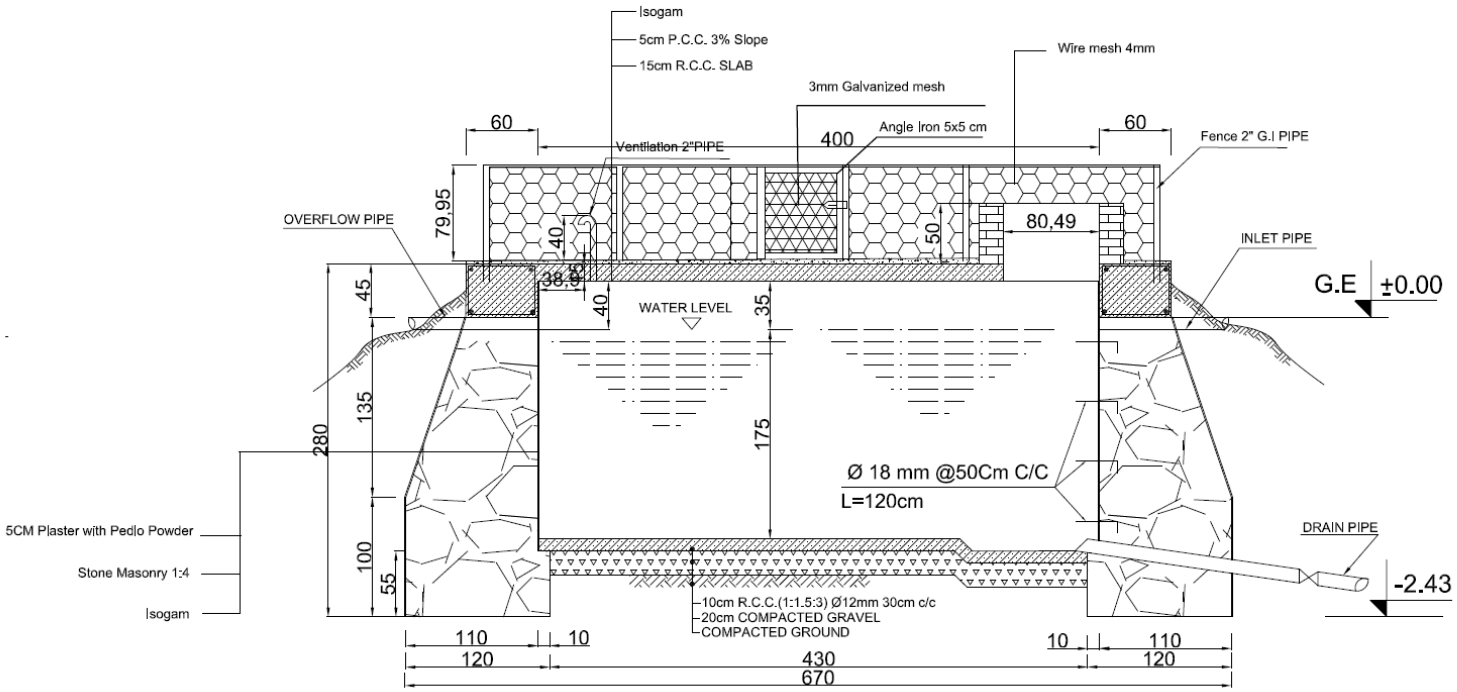
- *Typical Pipe Water System Design*
- *Typical Well Log*
- *Typical Public Latrine Design*

Typical Pipe Water System Design




40 Cub M WATER RESERVOIR
675
50
60
455
60
50
575
615
715
50
60
495
60
50
INLET PIPE
A
A
DRAIN PIPE
OVERFLOW PIPE
FEEDER PIPE
20
82
20
20
92
20
IRON SHEET
GAUGE 14
PLAN

40 Cub M WATER RESERVOIR



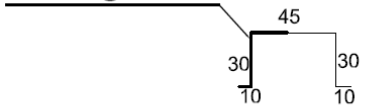
SECTION A–A

NOTE:

-ALL DIMENSIONS ARE IN CENTIMETER.
-MAXIMUM AGGRIGATE SIZE FOR (1:1.5:3) WORK IS 2.5cm AND FOR (1:2:4) IS 3.5cm
-SAND AND GRAVEL MUST BE CLEAN.
-POINTING SHOULD BE CARRIED OUT WITH (1:3) AND STONE MASONRY WITH (1:4) CEMENT +SAND MORTAR.
-ALL CONCRETE AND MASONRY SHOULD BE WATERED THREE TIMES AT LEAST FOR THREE WEEKS.
-EXPOSED CONCRETE SURFACES TO BE STEEL TROWELLED OR FAIR FACED.

- FILLING AND BACKFILLING SHOULD BE WELL COMPACTED.
- STONES SHOULD BE FROM HARD TYPE . DO NOT USE RIVER STONES FOR MASONRY.
- ALL CONCRETE MUST BE VIBRATED.

Ø 18 mm @ STAIRS



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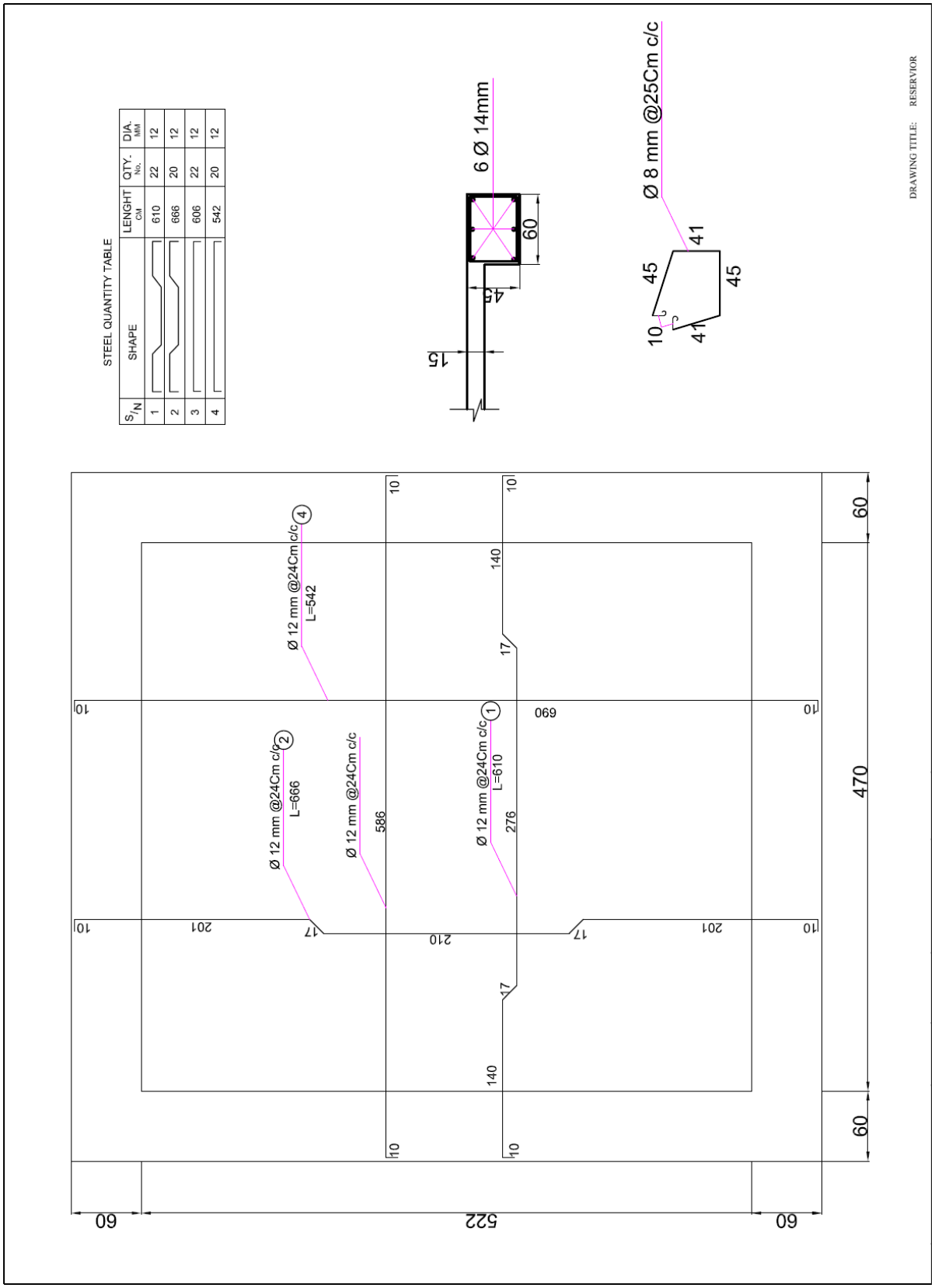
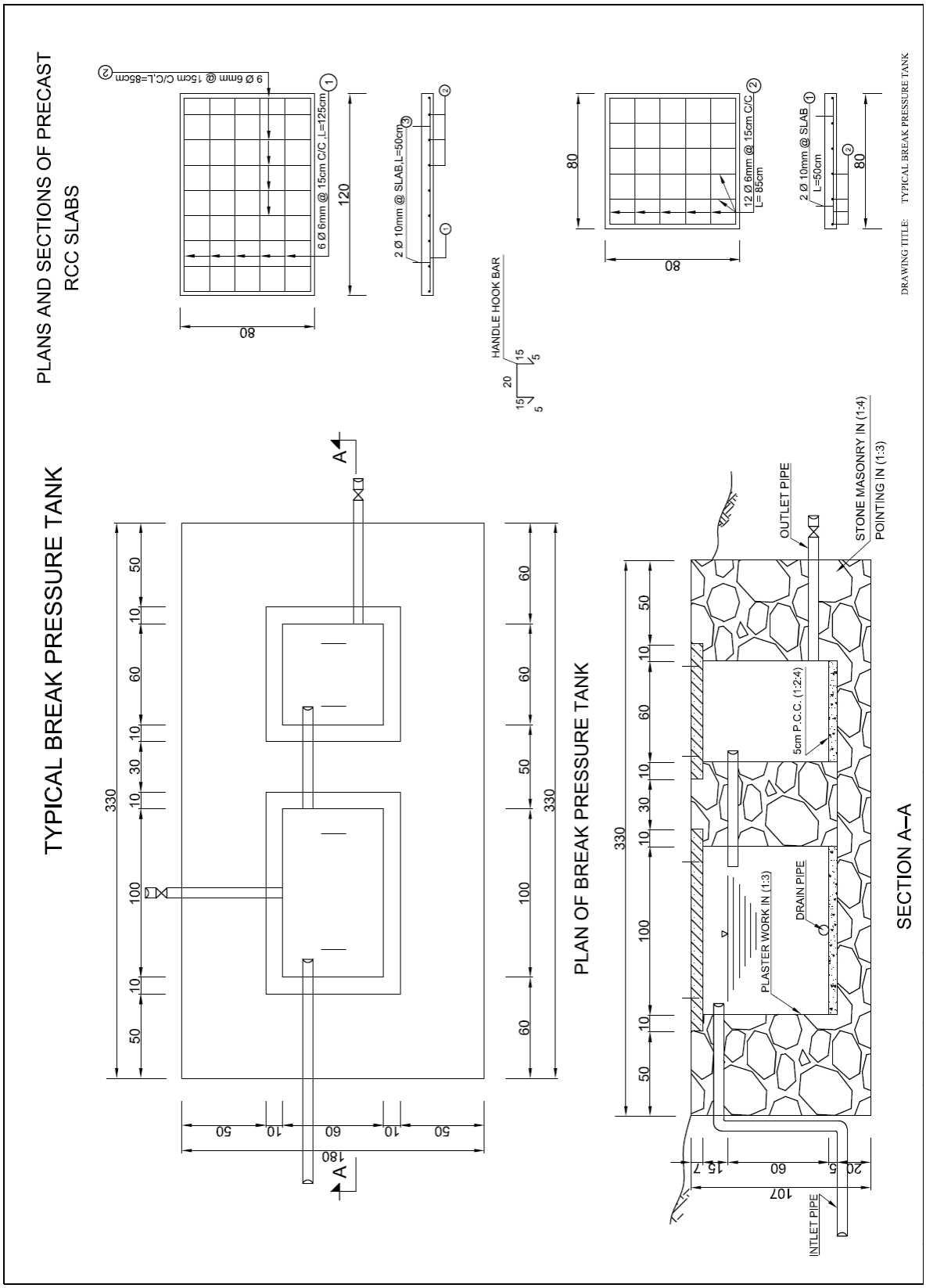
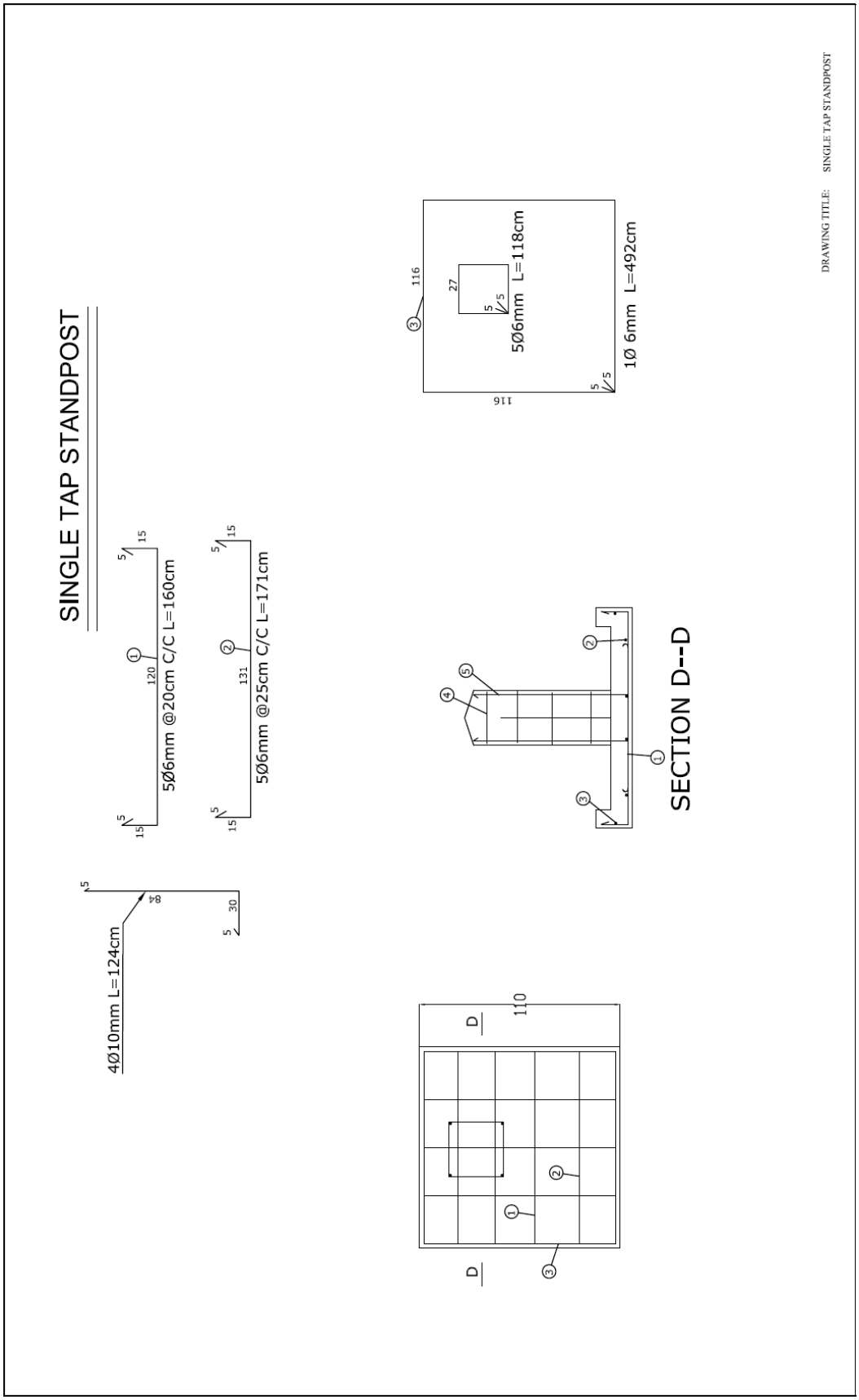
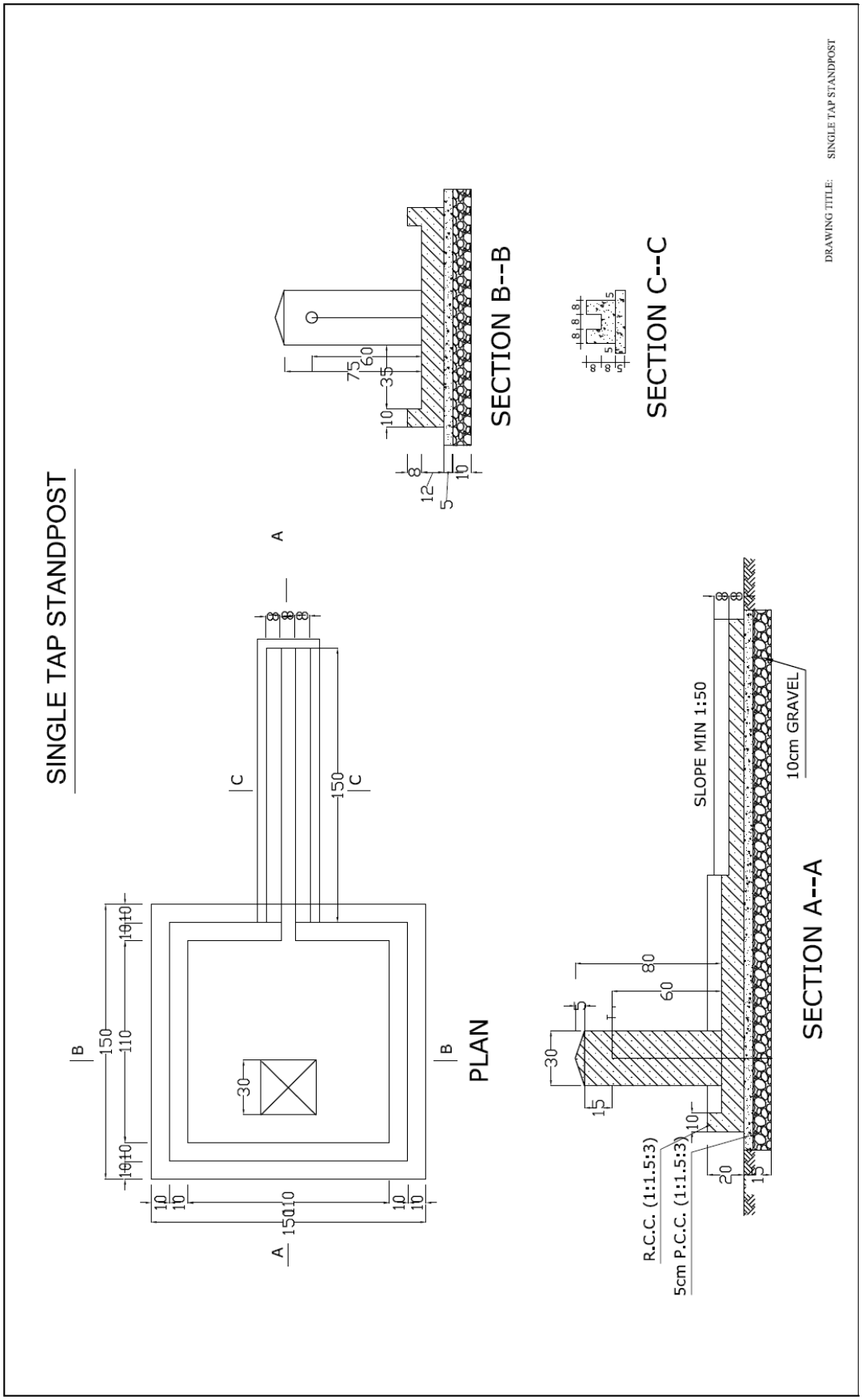
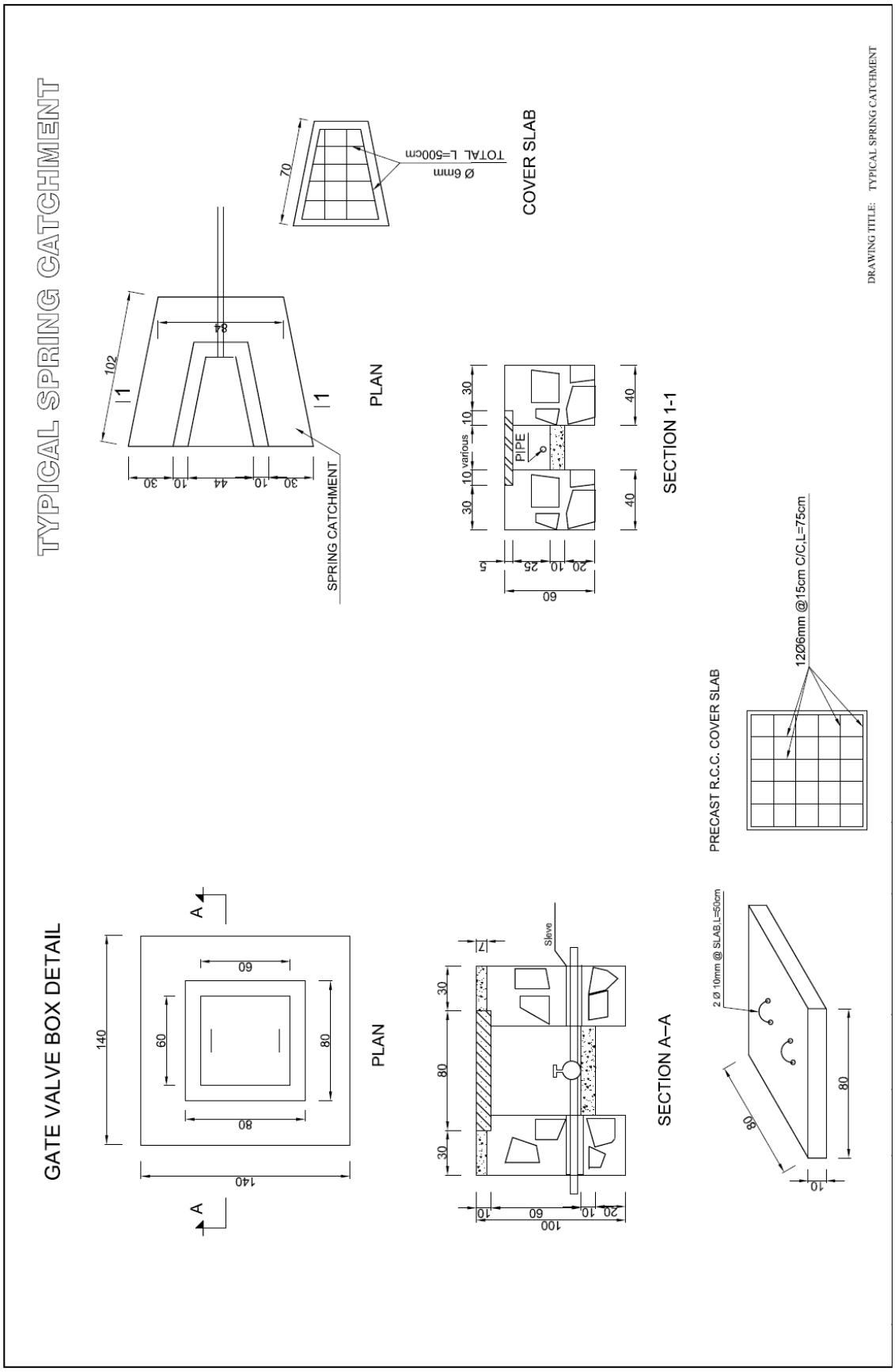

STEEL QUANTITY TABLE
S/N
SHAPE
LENGHT CM
QTY. No.
DIA. MM
1 610 22 12
2 666 20 12
3 606 22 12
4 542 20 12
6 Ø 14mm
Ø 8 mm @25Cm c/c
Ø 12 mm @24Cm c/c
L=542
L=666
L=610
586
276
690
140
17
210
201
10
60
470
522
15
45
41
DRAWING TITLE: RESERVIOR

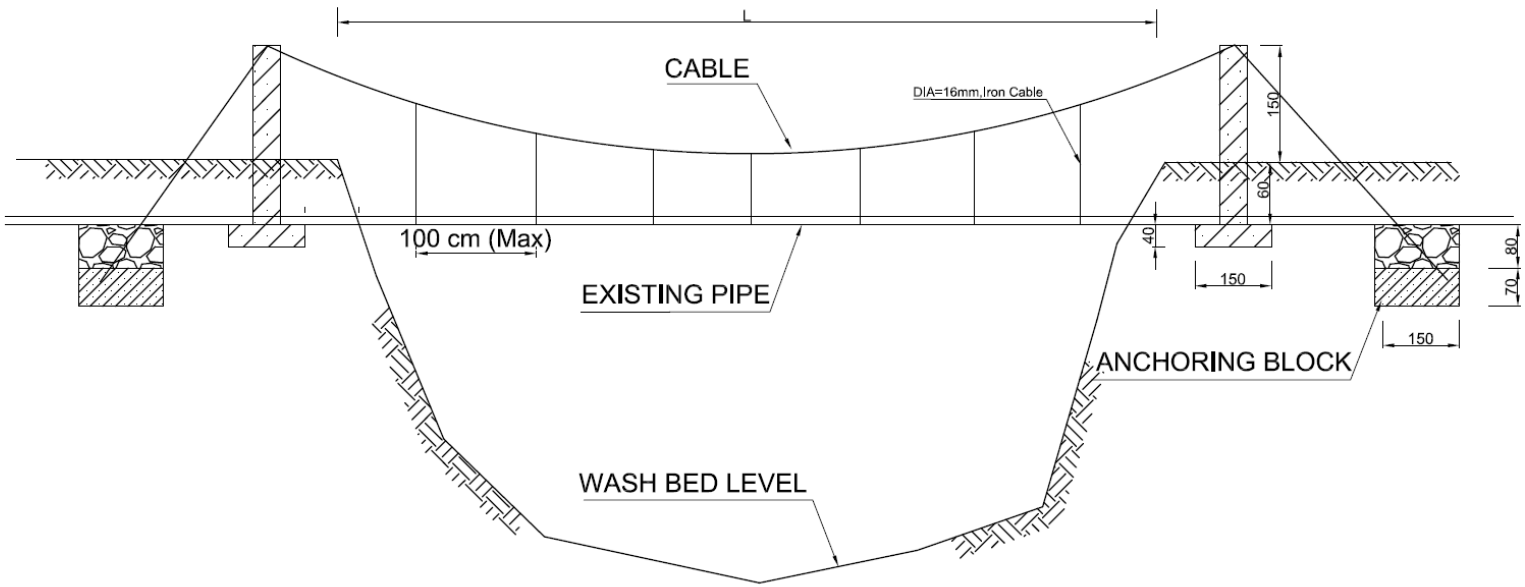

TYPICAL BREAK PRESSURE TANK
PLANS AND SECTIONS OF PRECAST RCC SLABS
9 Ø 6mm @ 15cm C/C.L=85cm
6 Ø 6mm @ 15cm C/C. L=125cm
2 Ø 10mm @ SLAB.L=50cm
HANDLE HOOK BAR
12 Ø 6mm @ 15cm C/C L= 85cm
2 Ø 10mm @ SLAB L=50cm
DRAWING TITLE: TYPICAL BREAK PRESSURE TANK
PLAN OF BREAK PRESSURE TANK
SECTION A–A
OUTLET PIPE
STONE MASONRY IN (1:4)
POINTING IN (1:3)
5cm P.C.C. (1:2:4)
PLASTER WORK IN (1:3)
DRAIN PIPE
INTLET PIPE


SINGLE TAP STANDPOST
5Ø6mm @20cm C/C L=160cm
5Ø6mm @25cm C/C L=171cm
4Ø10mm L=124cm
SECTION D--D
5Ø6mm L=118cm
1Ø 6mm L=492cm
DRAWING TITLE: SINGLE TAP STANDPOST


SINGLE TAP STANDPOST
PLAN
SECTION B--B
SECTION C--C
SECTION A--A
SLOPE MIN 1:50
10cm GRAVEL
R.C.C. (1:1.5:3)
5cm P.C.C. (1:1.5:3)
DRAWING TITLE: SINGLE TAP STANDPOST

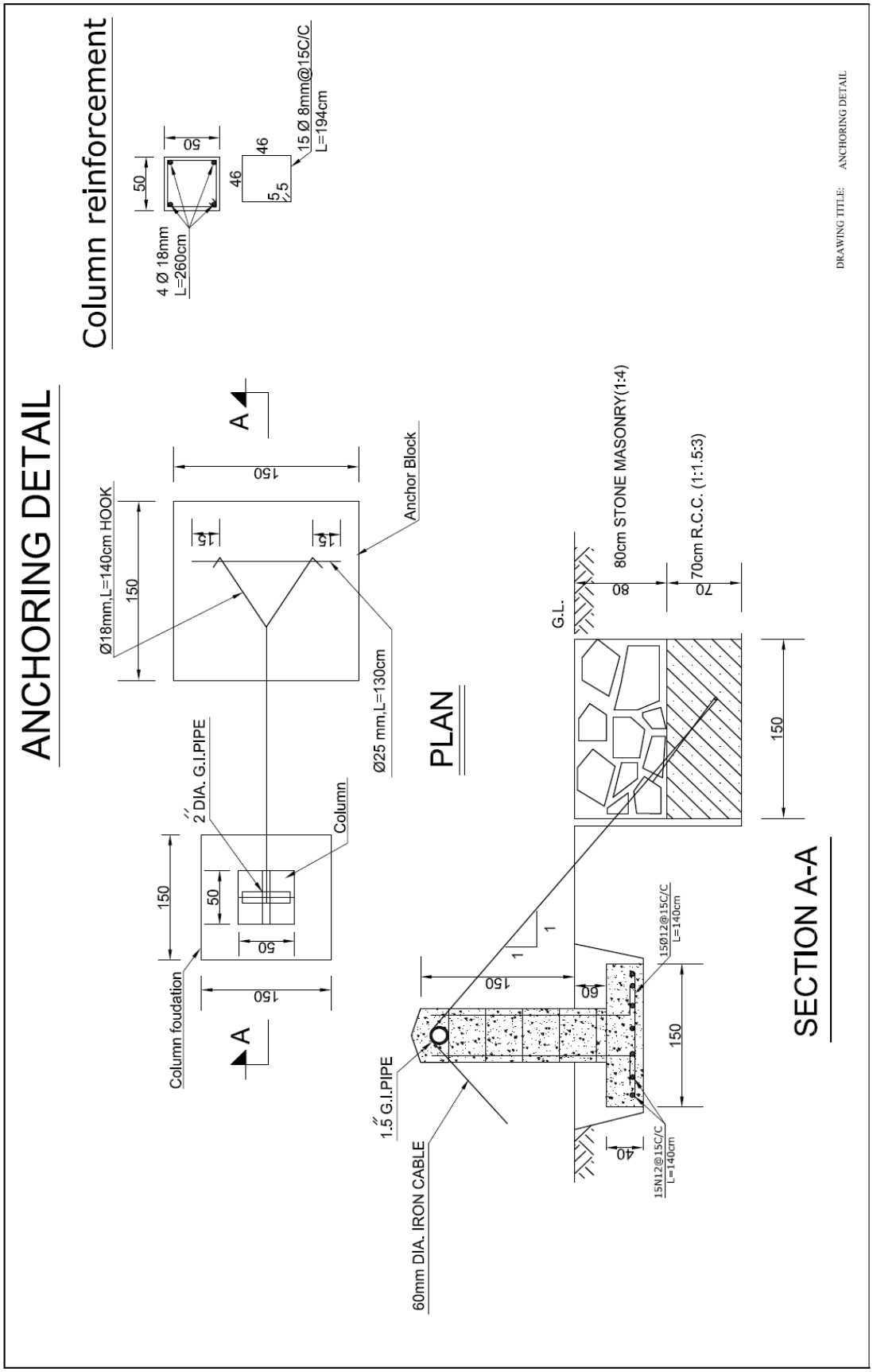

TYPICAL SPRING CATCHMENT
SPRING CATCHMENT
PLAN
COVER SLAB
Ø 6mm
TOTAL L=500cm
SECTION 1-1
PIPE
PRECAST R.C.C. COVER SLAB
12Ø6mm @15cm C/C,L=75cm
GATE VALVE BOX DETAIL
PLAN
SECTION A–A
Sleve
2 Ø 10mm @ SLAB,L=50cm
DRAWING TITLE: TYPICAL SPRING CATCHMENT

SUSPENSION PIPE-CROSSING DETAIL



NOTE:
ALL DIMENSSIONS ARE IN CENTEMETER.
WIDTH OF CROSSING 20–60m.

DRAWING TITLE: SUSPENSION PIPE-CROSSING DETAIL


ANCHORING DETAIL
Column reinforcement
4 Ø 18mm
L=260cm
50
50
46
46
5
5
15 Ø 8mm@15C/C
L=194cm
A
A
150
150
Ø18mm,L=140cm HOOK
150
15
15
Anchor Block
Ø25 mm,L=130cm
PLAN
2" DIA. G.I.PIPE
Column
150
50
50
150
Column foudation
G.L.
80cm STONE MASONRY(1:4)
70cm R.C.C. (1:1.5:3)
80
70
150
1
1
150
60
15Ø12@15C/C
L=140cm
150
1.5" G.I.PIPE
60mm DIA. IRON CABLE
40
15N12@15C/C
L=140cm
SECTION A-A
DRAWING TITLE: ANCHORING DETAIL

Typical Well Log

TETRA TECH ARD | SWSS

Afghan Sustainable Water Supply and Sanitation (SWSS) Project

Well Completion Report And Hydro Geological -Technical Description
ARD/SWSS- #198

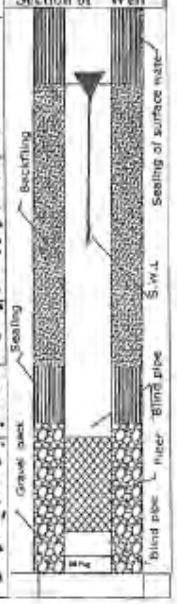
Project Name: 41 Bore wells

Province: Baghlan	District: Baghlan markazi	Community: Mulayan	Village: Dara Khil
Donor Agency: USAID	I P: Tetra Tech/ARD/SWSS-198	Co I P: YZCC	Beneficiaries: 10 famili
Well caretaker: M.Yosef	Well Location: Opposite M. Yosef House		Mechanic Name: Akhtar
Longitude(E): 68.46877	Latitude(N): 36.19609	Spare part shop: Available in Kondos Hamidi Shop	
Well #: a7	Well type: Bore well	Well start date 04.03.2012	Well completion date: 29.03.2012
Hand pump Type: Index	Hand pump Manufactured company: Al-Kowsar Company		Hand Pump #: 07
Chlorination: Yes	Arsenic: No		Water test: No / Date upon completion of Project

S/N	Well Data	
1	Well Depth	40 m
2	Static Water Level	4 m
3	Pump Depth	38 m
4	Well Diameter	13 inch
5	Type & Diameter of Casing	PVC Royal 4 inches
6	Type & Diameter of filter	PVC Royal 4 inches
7	Interval of casing	(0-30),(38-40)
7	Length of Casing	32 m
8	Length of filter	8 m
9	Size of filter slot	1 mm
10	Size and type of filter gravel	(2-8) mm
11	Draw Down	10 cm/h
12	Discharge of well Lit/Sec	0. 70 liter/sec
13	Discharge of water pump L/Sec	1 liter/sec
14	Work hours of water pump	10 Hours

Depth (m)	Thickness (m)	Litho logy: Description	Litho logy: Section
40m	9	Clay	
	11	Clay+ Sand	
	5	Gravel	
	5	sand	
	10	Gravel+Sand	

Geo technical Section of Well



Comment:

Representative of Sub Contractor:
Name: Engineer M. alam
Signature and stamp:
Date:

Representative of CDC:
Name: Abdul Latif
Signature and stamp:
Date:

Regional Construction Supervisor
Name:Engineer Hafizullah (Qazi)
Signature:
Date: 13-may-2012

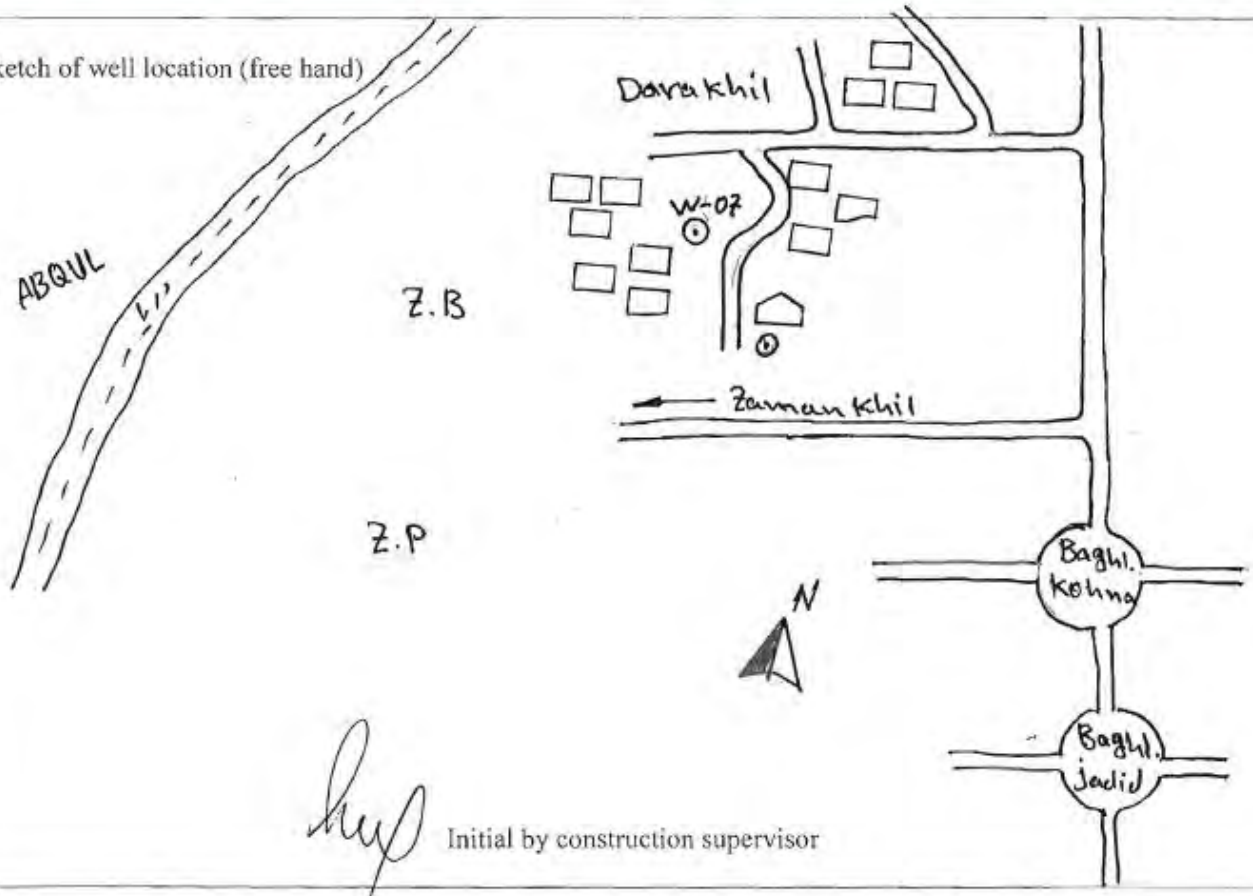
Regional PM
Name: Eng:Yama(Shirzi)
Signature & date:
14.may.2012

Well-No: (07) P-198

(a) Photos before starting the well drilling or during

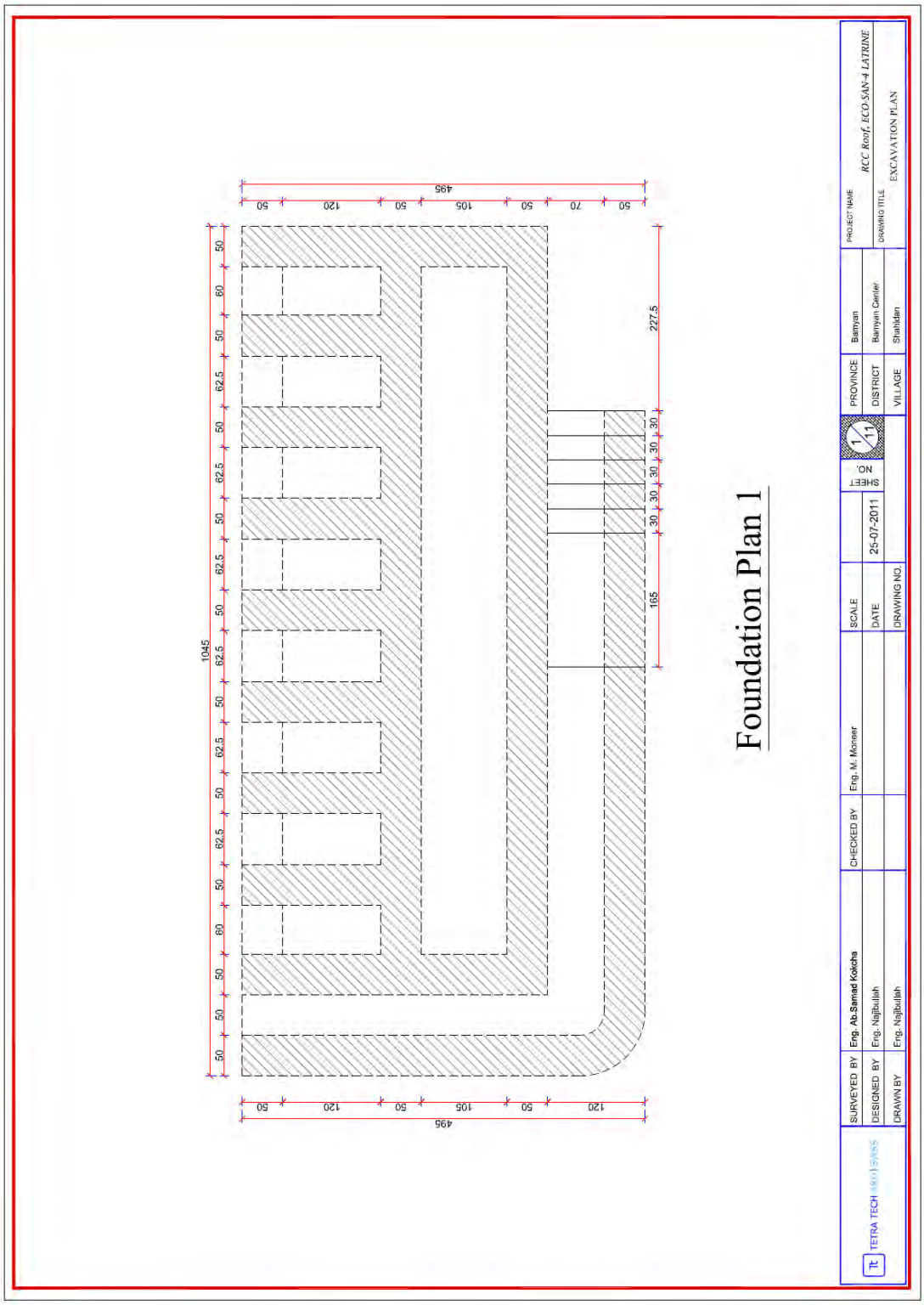
(b) Photos after completion of the well

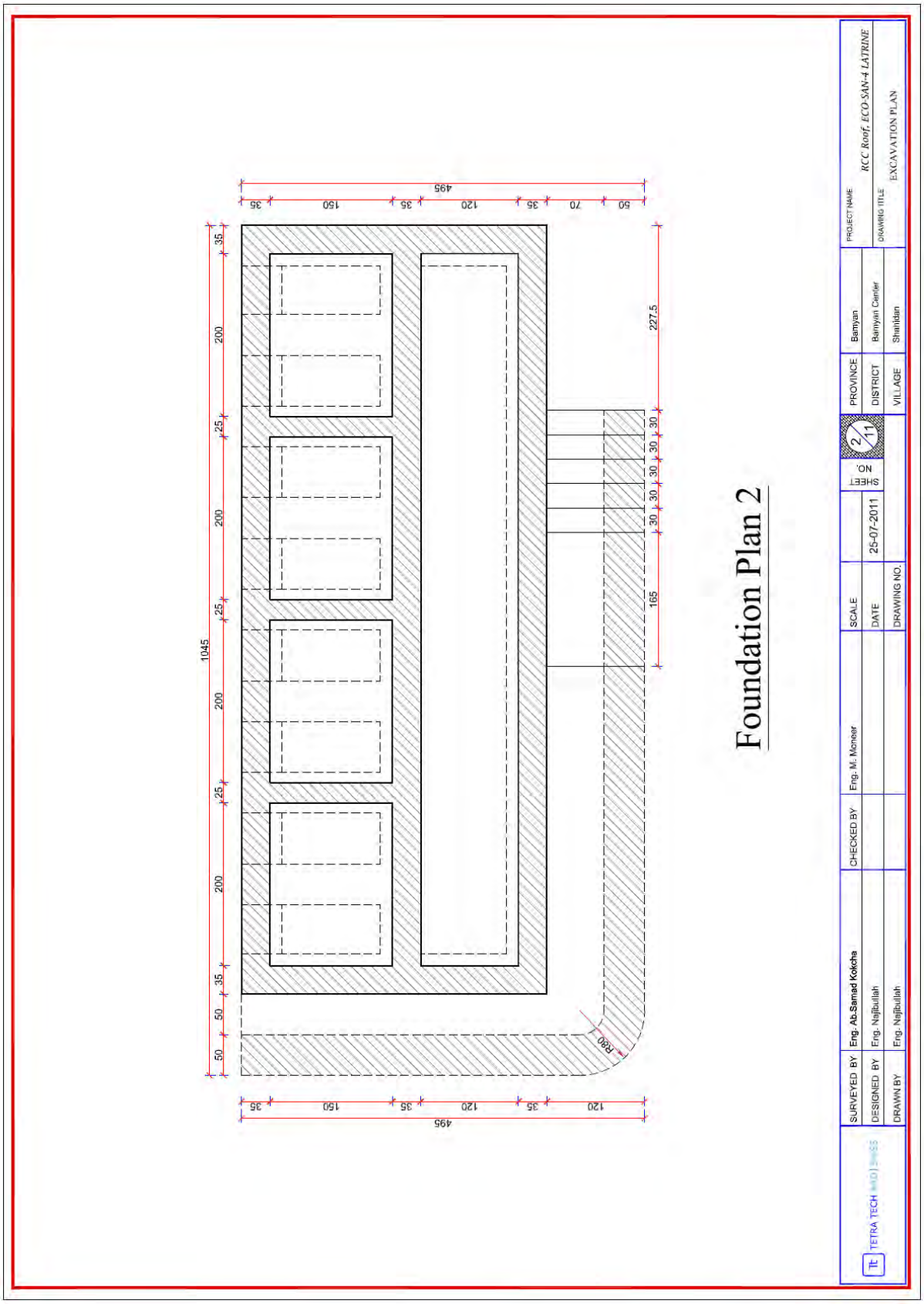
Sketch of well location (free hand)

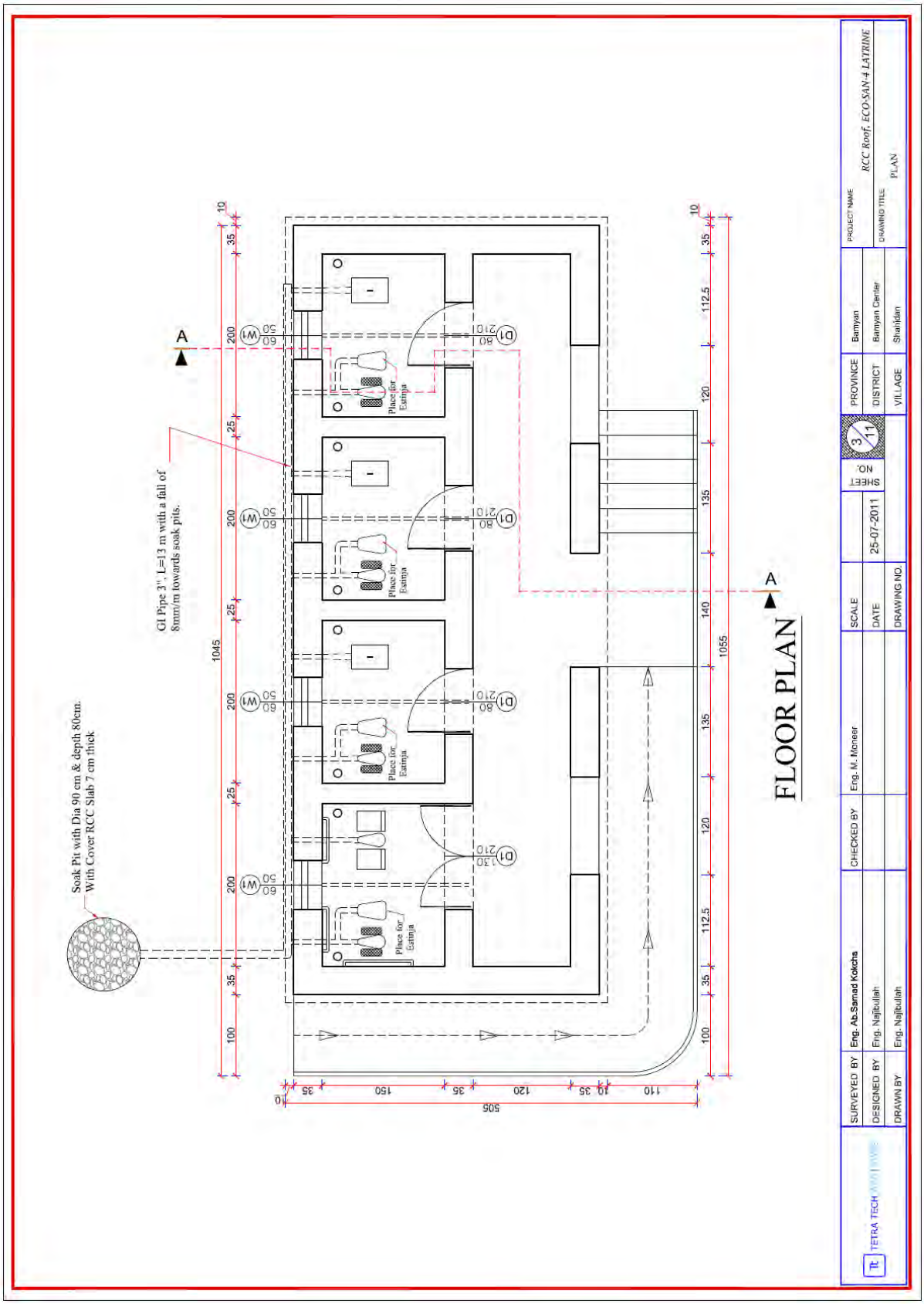


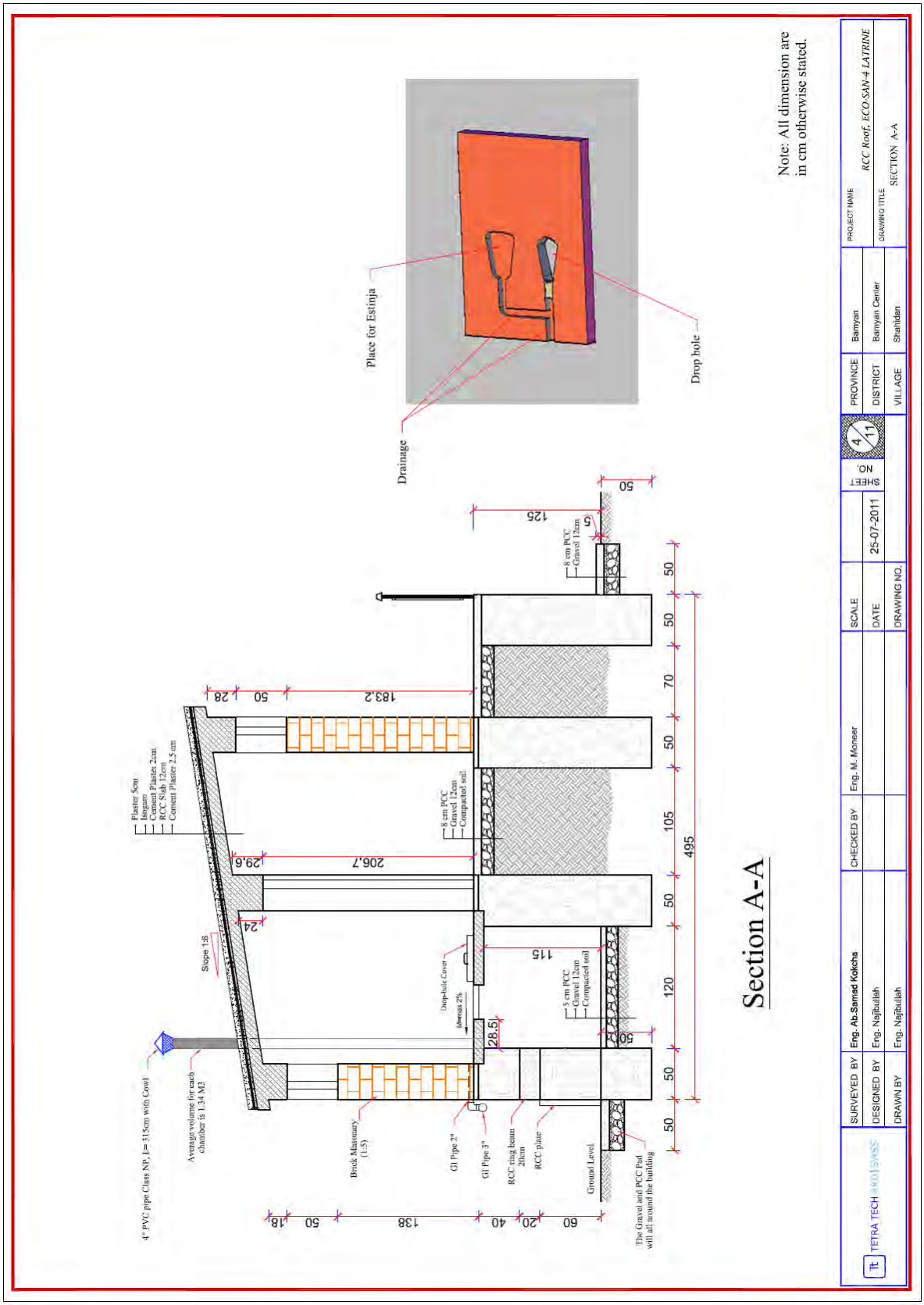
Initial by construction supervisor

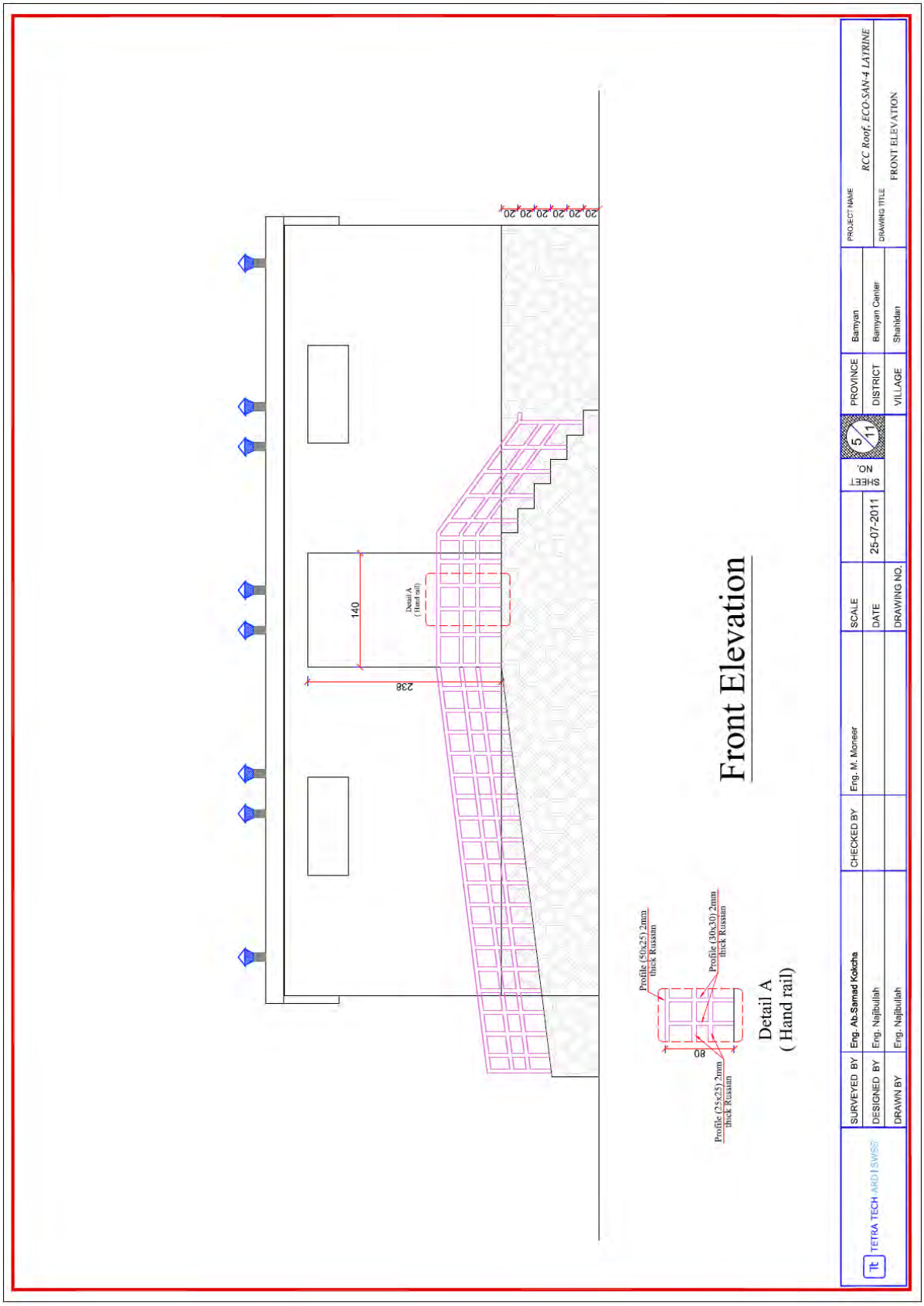
Typical Public Latrine Design

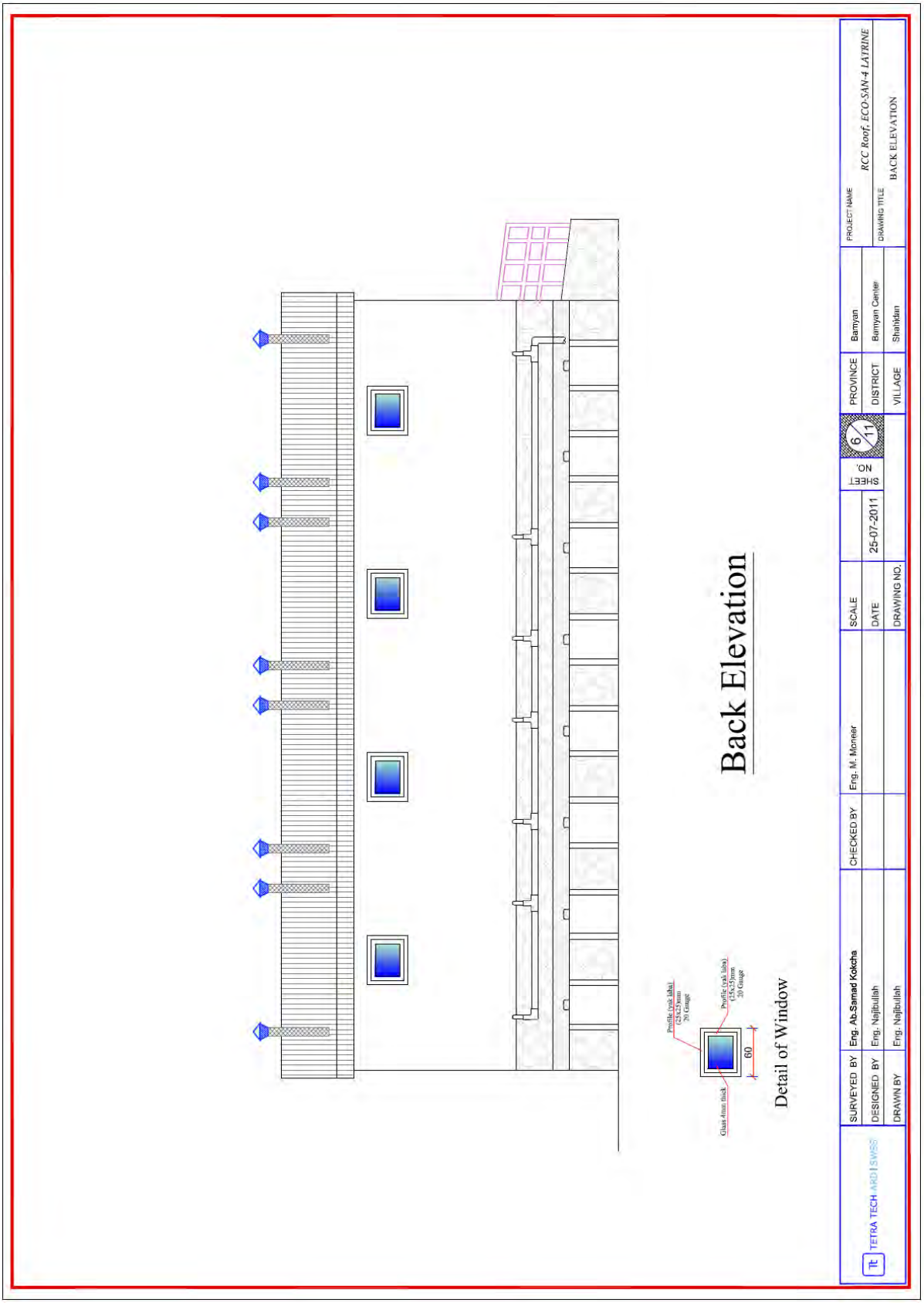


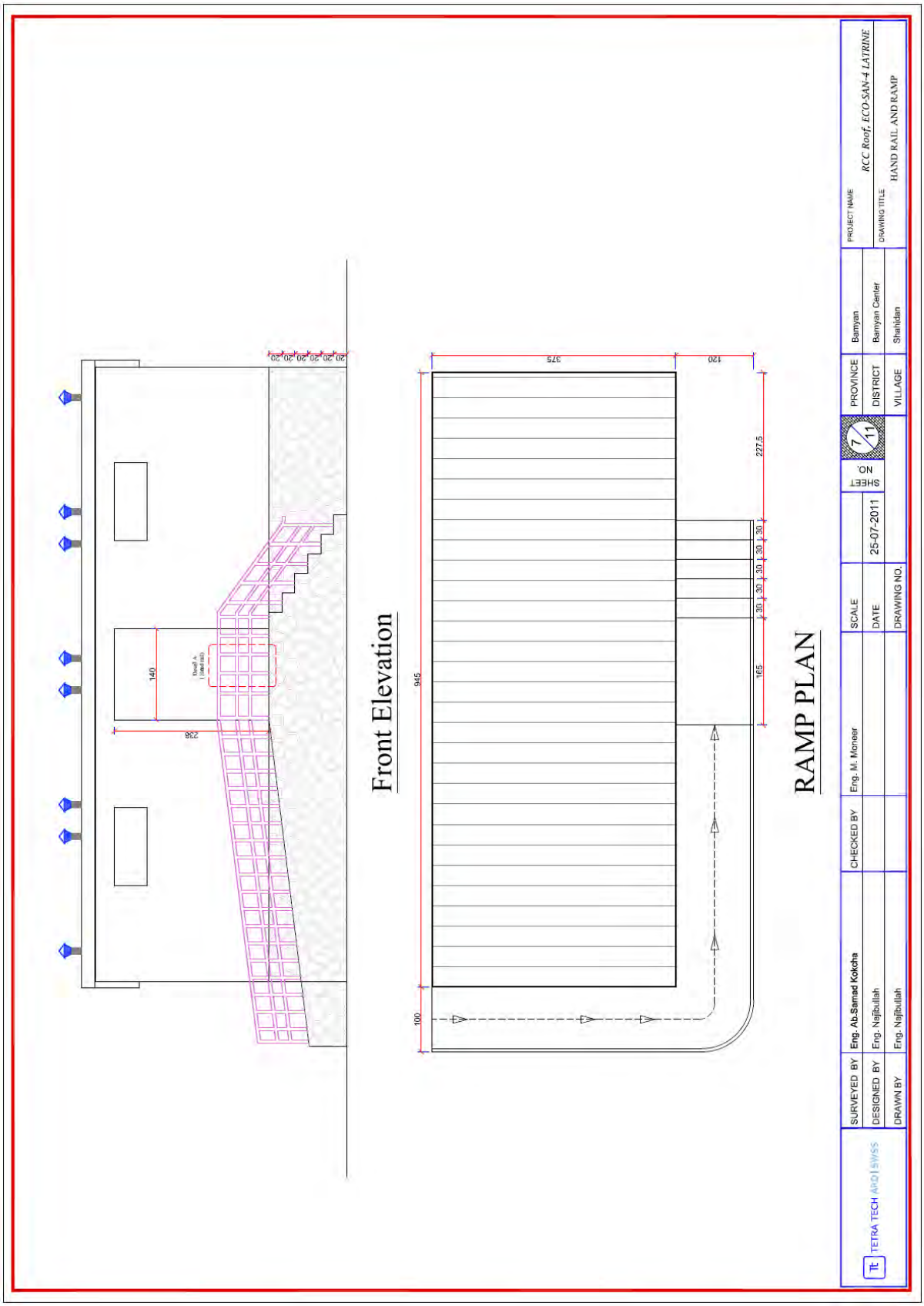

Foundation Plan 2
495
35
150
35
120
35
70
50
1045
227.5
165
R80
PROJECT NAME
RCC Roof, ECO-SAN-4 LATRINE
DRAWING TITLE
EXCAVATION PLAN
PROVINCE
Bamyan
DISTRICT
Bamyan Center
VILLAGE
Shahidan
SHEET NO.
2/11
SCALE
DATE
25-07-2011
DRAWING NO.
CHECKED BY
Eng. M. Moneer
SURVEYED BY
Eng. Ab.Samad Kokcha
DESIGNED BY
Eng. Najibullah
DRAWN BY
Eng. Najibullah
TETRA TECH

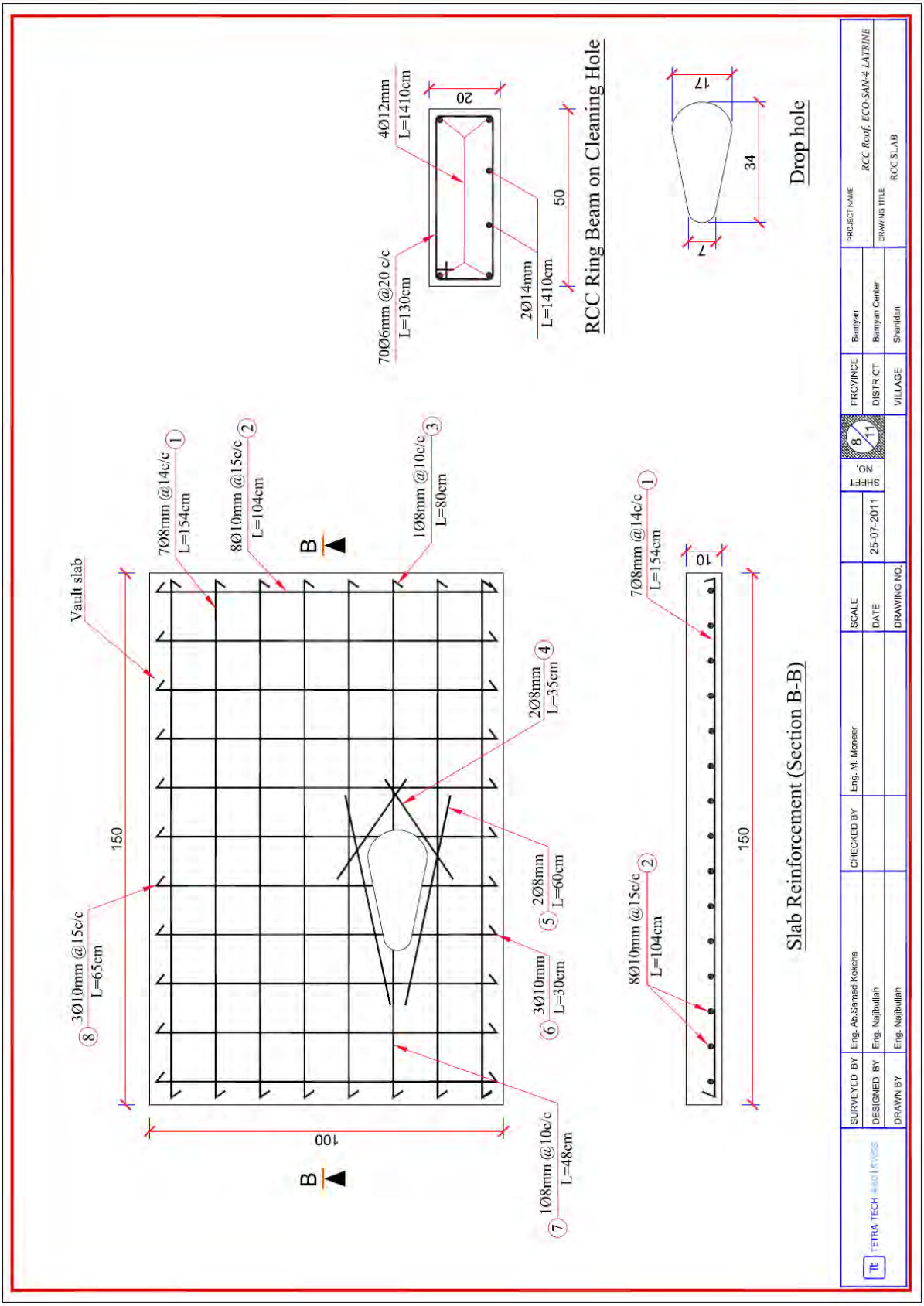

FLOOR PLAN
Soak Pit with Dia 90 cm & depth 80cm.
With Cover RCC Slab 7 cm thick
GI Pipe 3", L=13 m with a fall of
8mm/m towards soak pits.
Place for Estinja
A
A
1045
1055
505
SURVEYED BY
Eng. Ab.Samad Kokcha
DESIGNED BY
Eng. Najibullah
DRAWN BY
Eng. Najibullah
CHECKED BY
Eng. M. Moneer
SCALE
DATE
25-07-2011
DRAWING NO.
SHEET NO.
3/11
PROVINCE
Bamyan
DISTRICT
Bamyan Center
VILLAGE
Shahidan
PROJECT NAME
RCC Roof, ECO-SAN-4 LATRINE
DRAWING TITLE
PLAN
TETRA TECH

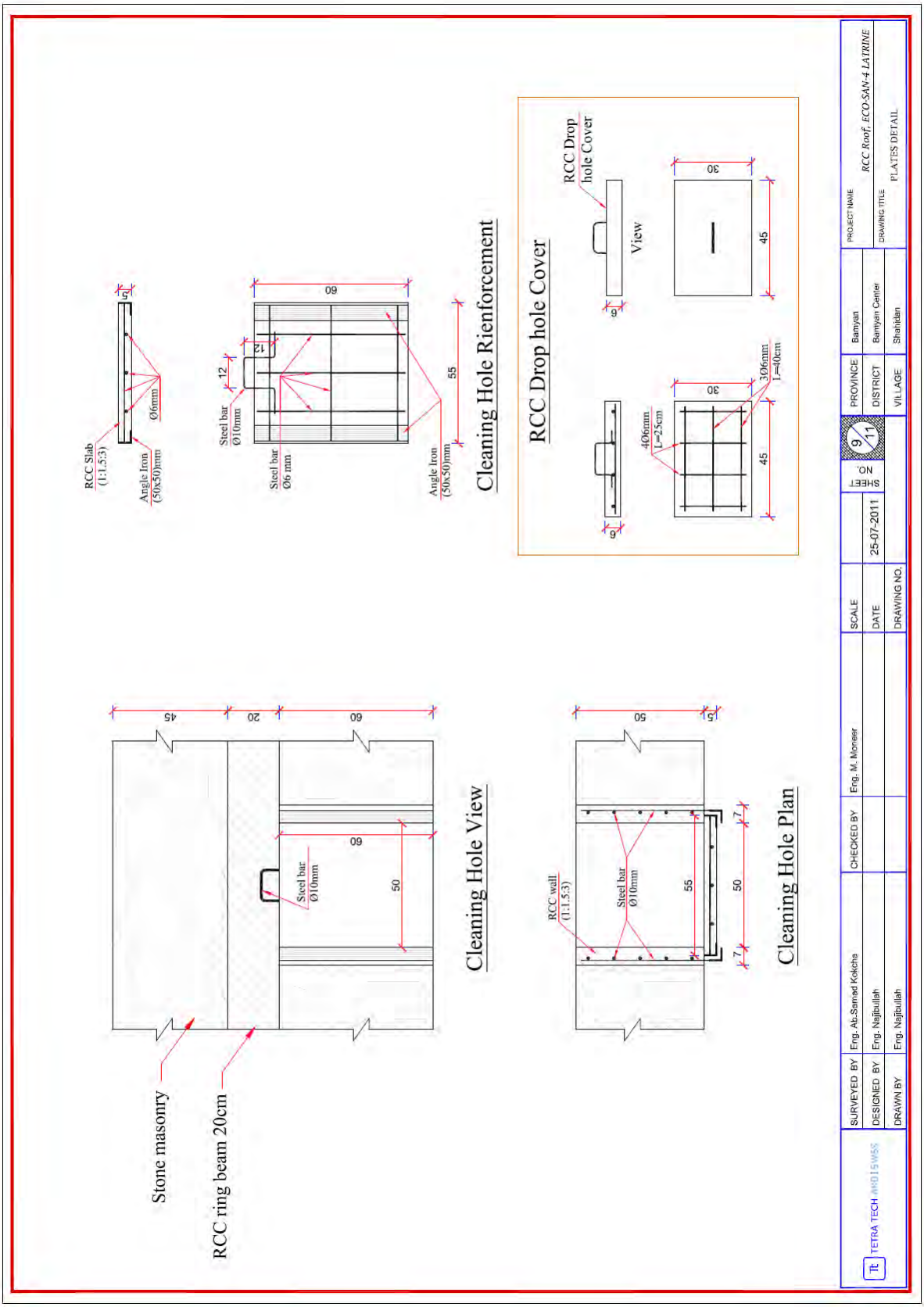

Section A-A
Note: All dimension are in cm otherwise stated.
Place for Estinja
Drainage
Drop hole
4" PVC pipe Class NP, L= 315cm with Cowl
Average volume for each chamber is 1.34 M3
Slope 1:8
Plaster 5cm
Isogam
Cement Plaster 2cm
RCC Slab 12cm
Cement Plaster 2.5 cm
Brick Masonary (1:5)
GI Pipe 2"
GI Pipe 3"
RCC ring beam 20cm
RCC plate
Ground Level
The Gravel and PCC Pad will all around the building
Drop-hole Cover
Mmax 2%
5 cm PCC
Gravel 12cm
Compacted soil
8 cm PCC
Gravel 12cm
Compacted soil
8 cm PCC
Gravel 12cm
28.5
115
206.7
29.6
183.2
28
50
125
495
18
138
40
20
60
70
105
120
SURVEYED BY
Eng. Ab.Samad Kokcha
DESIGNED BY
Eng. Najibullah
DRAWN BY
Eng. Najibullah
CHECKED BY
Eng. M. Moneer
SCALE
DATE
25-07-2011
DRAWING NO.
SHEET NO.
4/11
PROVINCE
Bamyan
DISTRICT
Bamyan Center
VILLAGE
Shahidan
PROJECT NAME
RCC Roof, ECO-SAN-4 LATRINE
DRAWING TITLE
SECTION A-A
TETRA TECH

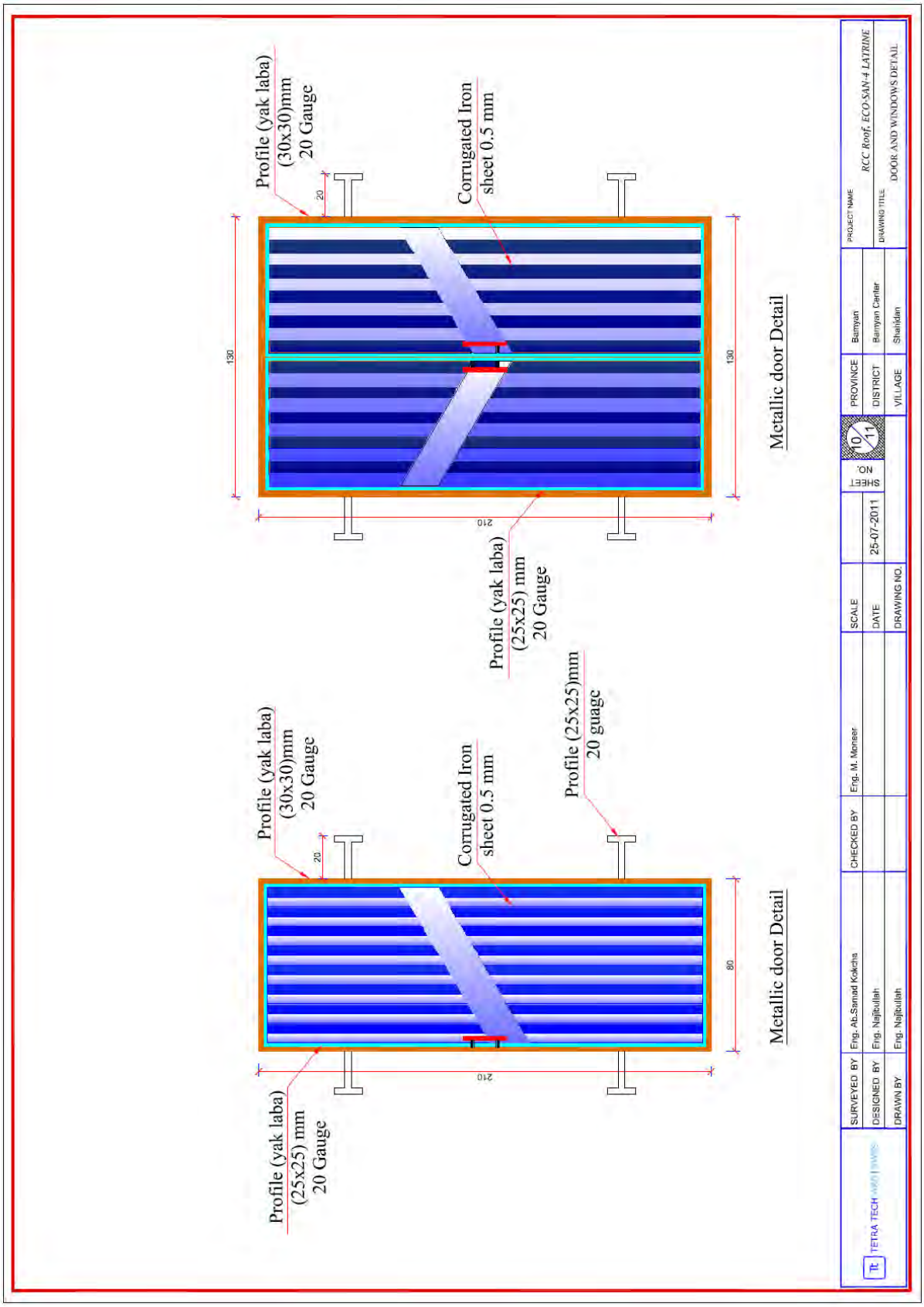

20 20 20 20 20 20
140
238
Detail A
(Hand rail)
Front Elevation
Profile (50x25) 2mm thick Russian
Profile (30x30) 2mm thick Russian
Profile (25x25) 2mm thick Russian
80
Detail A
(Hand rail)
TETRA TECH ARD | SWSS
SURVEYED BY
Eng. Ab.Samad Kokcha
DESIGNED BY
Eng. Najibullah
DRAWN BY
Eng. Najibullah
CHECKED BY
Eng. M. Moneer
SCALE
DATE
25-07-2011
DRAWING NO.
SHEET NO.
5
11
PROVINCE
Bamyan
DISTRICT
Bamyan Center
VILLAGE
Shahidan
PROJECT NAME
RCC Roof, ECO-SAN-4 LATRINE
DRAWING TITLE
FRONT ELEVATION

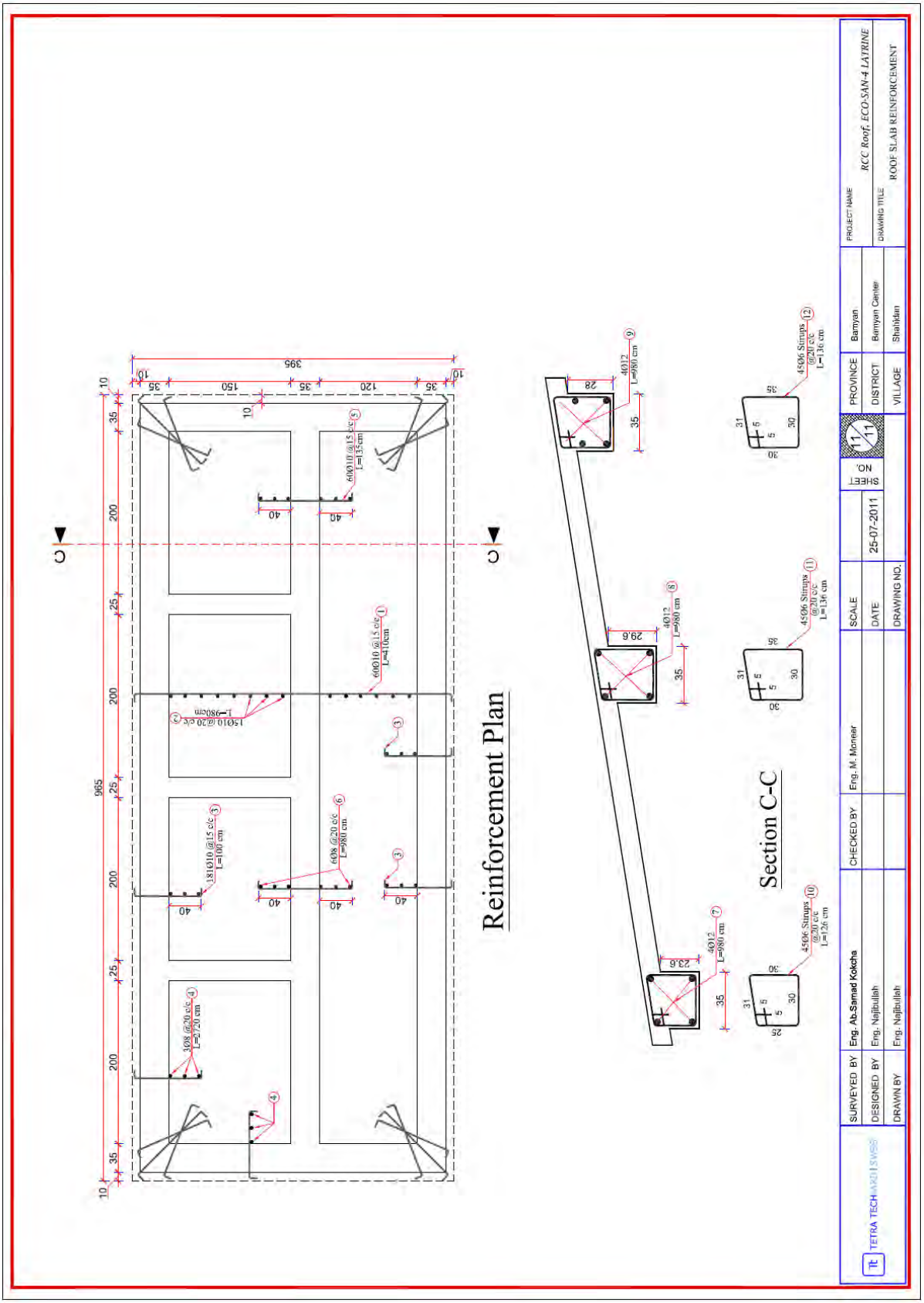

Back Elevation
Detail of Window
Profile (yak laba) (25x25)mm 20 Gauge
Profile (yak laba) (25x25)mm 20 Gauge
Glass 4mm thick
60
TETRA TECH ARD | SWSS
SURVEYED BY
Eng. Ab.Samad Kokcha
DESIGNED BY
Eng. Najibullah
DRAWN BY
Eng. Najibullah
CHECKED BY
Eng. M. Moneer
SCALE
DATE
25-07-2011
DRAWING NO.
SHEET NO.
6/11
PROVINCE
Bamyan
DISTRICT
Bamyan Center
VILLAGE
Shahidan
PROJECT NAME
RCC Roof, ECO-SAN-4 LATRINE
DRAWING TITLE
BACK ELEVATION


Front Elevation
RAMP PLAN
375
120
945
100
227.5
165
140
238
PROJECT NAME
RCC Roof, ECO-SAN-4 LATRINE
DRAWING TITLE
HAND RAIL AND RAMP
PROVINCE
Bamyan
DISTRICT
Bamyan Center
VILLAGE
Shahidan
SHEET NO.
7/11
SCALE
DATE
25-07-2011
DRAWING NO.
CHECKED BY
Eng. M. Moneer
SURVEYED BY
Eng. Ab.Samad Kokcha
DESIGNED BY
Eng. Najibullah
DRAWN BY
Eng. Najibullah
TETRA TECH ARD | SWSS


Vault slab
7Ø8mm @14c/c
L=154cm
8Ø10mm @15c/c
L=104cm
1Ø8mm @10c/c
L=80cm
B
B
2Ø8mm
L=35cm
2Ø8mm
L=60cm
3Ø10mm
L=30cm
1Ø8mm @10c/c
L=48cm
3Ø10mm @15c/c
L=65cm
150
100
Slab Reinforcement (Section B-B)
7Ø8mm @14c/c
L=154cm
8Ø10mm @15c/c
L=104cm
10
150
4Ø12mm
L=1410cm
20
70Ø6mm @20 c/c
L=130cm
2Ø14mm
L=1410cm
50
RCC Ring Beam on Cleaning Hole
17
34
7
Drop hole
TETRA TECH
SURVEYED BY
Eng. Ab.Samad Kokcha
DESIGNED BY
Eng. Najibullah
DRAWN BY
Eng. Najibullah
CHECKED BY
Eng. M. Moneer
SCALE
DATE
25-07-2011
DRAWING NO.
SHEET NO.
8
11
PROVINCE
Bamyan
DISTRICT
Bamyan Center
VILLAGE
Sharidan
PROJECT NAME
RCC Roof, ECO-SAN-4 LATRINE
DRAWING TITLE
RCC SLAB


RCC Slab (1:1.5:3)
Angle Iron (50x50)mm
Ø6mm
5
Steel bar Ø10mm
Steel bar Ø6 mm
Angle Iron (50x50)mm
60
12
12
55
Cleaning Hole Rienforcement
RCC Drop hole Cover
RCC Drop hole Cover
View
6
6
30
30
45
45
406mm L=25cm
306mm L=40cm
Stone masonry
RCC ring beam 20cm
45
20
60
60
50
Steel bar Ø10mm
Cleaning Hole View
RCC wall (1:1.5:3)
Steel bar Ø10mm
50
5
55
50
7
7
Cleaning Hole Plan
PROJECT NAME
RCC Roof, ECO-SAN-4 LATRINE
DRAWING TITLE
PLATES DETAIL
PROVINCE
Bamyan
DISTRICT
Bamyan Center
VILLAGE
Shahidan
SHEET NO.
9/11
SCALE
DATE
25-07-2011
DRAWING NO.
CHECKED BY
Eng. M. Moneer
SURVEYED BY
Eng. Ab.Samad Kokcha
DESIGNED BY
Eng. Najbullah
DRAWN BY
Eng. Najbullah
TETRA TECH AKDI SWSS


Profile (yak laba)
(30x30)mm
20 Gauge
Corrugated Iron
sheet 0.5 mm
20
130
130
210
Profile (yak laba)
(25x25) mm
20 Gauge
Metallic door Detail
Profile (yak laba)
(30x30)mm
20 Gauge
Corrugated Iron
sheet 0.5 mm
Profile (25x25)mm
20 guage
20
80
210
Profile (yak laba)
(25x25) mm
20 Gauge
Metallic door Detail
TETRA TECH
SURVEYED BY
Eng. Ab.Samad Kakcha
DESIGNED BY
Eng. Najibullah
DRAWN BY
Eng. Najibullah
CHECKED BY
Eng. M. Monsef
SCALE
DATE
25-07-2011
DRAWING NO.
SHEET NO.
10
11
PROVINCE
Bamyan
DISTRICT
Bamyan Center
VILLAGE
Shahidan
PROJECT NAME
RCC Roof, ECO-SAN-4 LATRINE
DRAWING TITLE
DOOR AND WINDOWS DETAIL

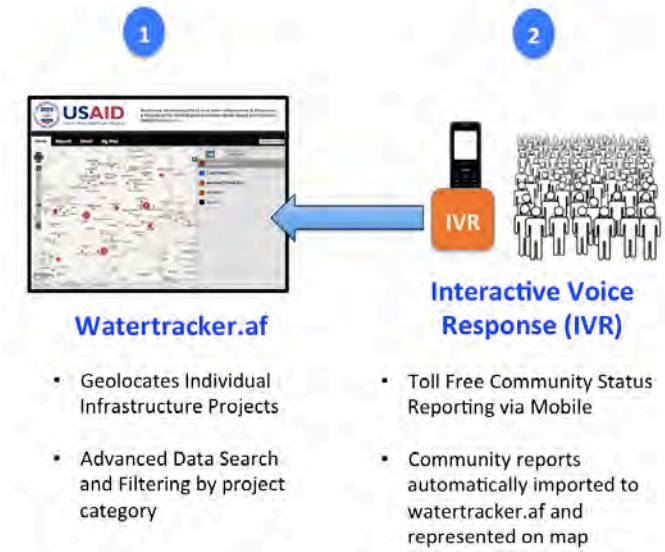

Reinforcement Plan
Section C-C
PROJECT NAME
RCC Roof, ECO-SAN-4 LATRINE
DRAWING TITLE
ROOF SLAB REINFORCEMENT
PROVINCE
Bamyan
DISTRICT
Bamyan Center
VILLAGE
Shahidan
SHEET NO.
SCALE
DATE
25-07-2011
DRAWING NO.
CHECKED BY
Eng. M. Moneer
SURVEYED BY
Eng. Ab.Samad Kokcha
DESIGNED BY
Eng. Najibullah
DRAWN BY
Eng. Najibullah
TETRA TECH

ANNEX F. WATERTRACKER COMPONENT SUMMARY

Watertracker consists of two integrated components: (1) *Watertracker.af*, a website that organizes, stores, and geolocates project data; and (2) an interactive voice response (IVR) system that can be accessed by mobile phone subscribers in rural areas via a five-digit, toll free number (Figure F-1).

The Watertracker.af website was developed with a functionally enhanced version of the *Ushahidi* 2.1 platform that incorporates several custom plug-ins that were developed specifically for the application.[1] The website is designed to improve project monitoring and evaluation across the SWSS organization by providing a data interface that is both intuitive and easy-to-use yet capable of executing complex searches and data filtering conducive to advanced analysis. As a cloud-based web application, Watertracker.af is built to achieve a high degree of scalability, resource efficiency, information transferability, and device and location independence. In other words, anyone with Internet access and permission of MRRD can utilize watertracker.af at any time, and can, with a simple cut and paste of site links, share or co-view data with colleagues within or outside of the SWSS organization.

Figure F-1: The Two Integrated Components of Watertracker



Watertracker.af's administrative and data management architecture was designed to maximize efficiency and ease of use, and to minimize training requirements, time, and the likelihood of error. Baseline project data for all water points, including GPS locations and technical data, was entered into a simple, formatted Master Excel file, and uploaded to the site with the click of a mouse. Any revisions made to the file over time—i.e. new or corrected data—are automatically and immediately identified with each subsequent upload, and the changes are instantaneously applied to the site.

Watertracker's development basis in an open-source platform presents powerful long-term advantages in the form of benefits captured from future innovation. As Ushahidi's global network of developers continues to improve the platform and introduce new functions, Watertracker could, in parallel, continue to evolve and incorporate new features that steadily increase its value. At the same time, the different

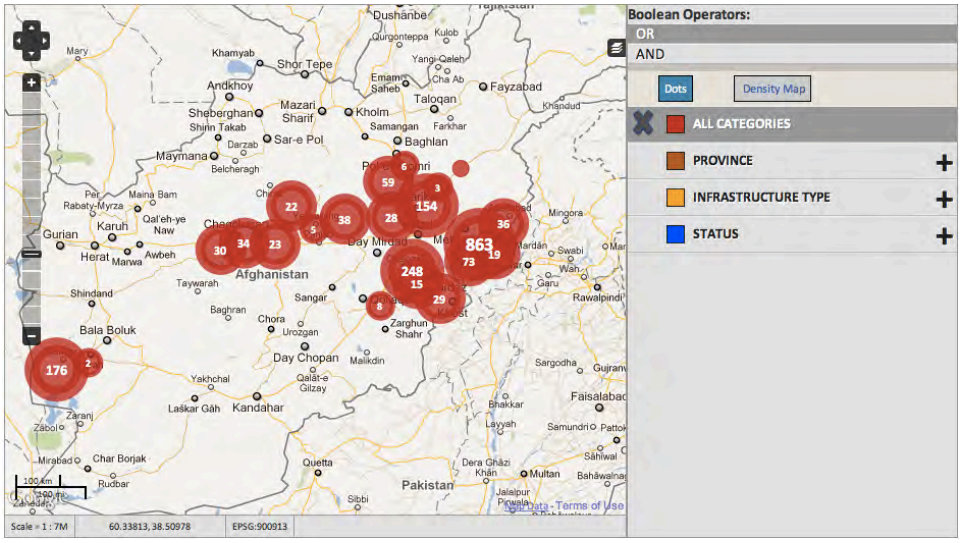
[1] Ushahidi is an open-source data collection, visualization, and geolocation software platform most commonly used by organizations for the purposes of tracking and responding to events during the course of humanitarian crises. The software aggregates and organizes incoming data sent by individual witnesses to distribute via SMS, email, or web postings onto a map or timeline.

public, but non-open-source platforms that Ushahidi integrates will also, no doubt, continue to change dynamically and therefore create new opportunities for Watertracker value enhancement.[2]

The following section includes descriptions of Watertracker's key functions and components.

F-1 WATERTRACKER.AF

F-1.1 Main Map and Category Filter



The *Main Map*, located on the site's homepage, enables users to locate, view, and filter project water points in a variety of different ways. The default setting displays all water points by location that have been incorporated into the system via the Master Excel file in aggregate clusters at 1:7M scale. Clusters aggregate on the basis of gross proximity, and their diameter and marker number correspond to the volume of projects that constitute them. A scale bar on the left margin of the map can be zoomed up and down to higher and lower elevations. The visualization options for the map can be set at normal, satellite, and physical settings by the user.

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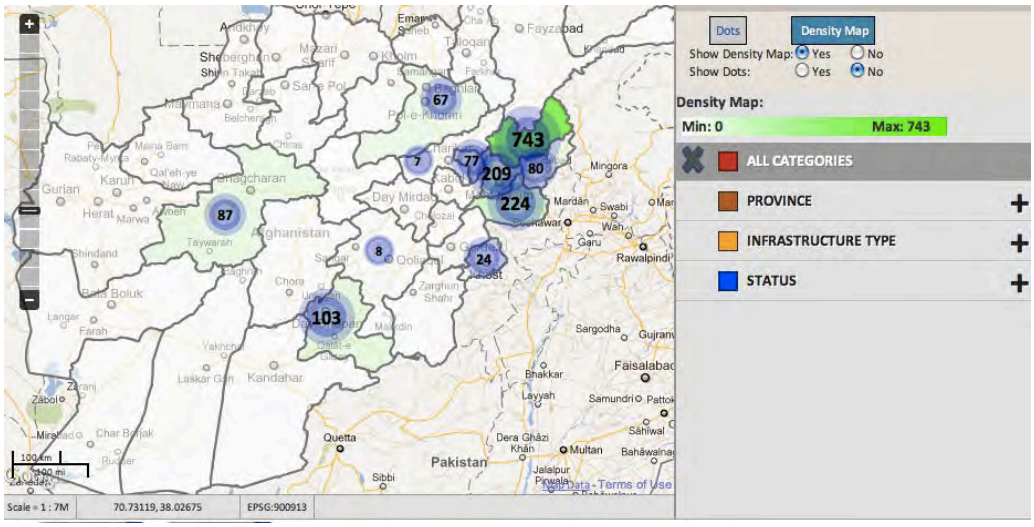
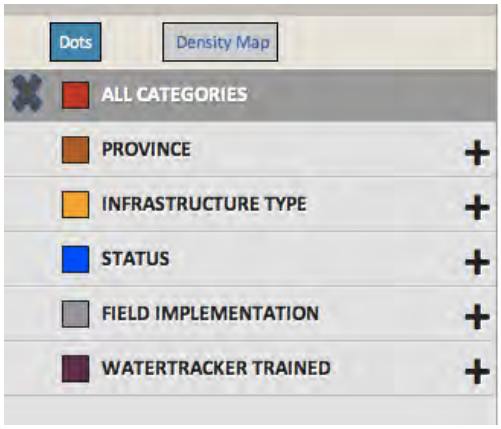
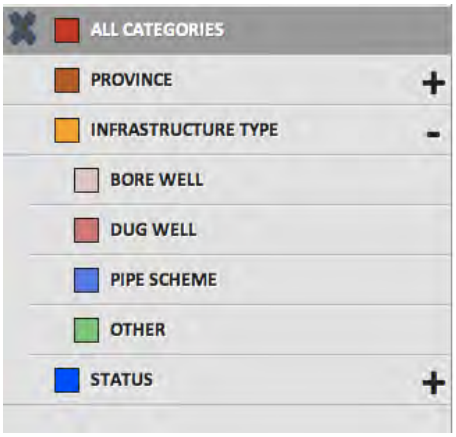
2 An example of this has already occurred during the course of Watertracker's development: the satellite imagery for Afghanistan available on Google Maps improved its minimum elevation scale to 100 meters from 200 meters, making closer, more detailed viewing of project sites possible.



Selecting the *density map* setting defines the borders of each province, and tallies the number of water points located within them (black numerals). As the relative volume of water points located within an individual province increases, the base color (green) of that province will become darker.

The *Category Filter*, located directly to the right of the Main Map, enables users to geo-filter groups of water points by specific categories, or sets of defined characteristics, using a series of drop-down menus.





Watertracker.af's filter categories include *infrastructure type* (Bore Well, Pipe Scheme, etc.), *province*, *field implementation* (Completed or Ongoing), *functioning status* (Functioning, Malfunctioning, or Failed), and *Watertracker Trained* (Yes or No). Users have the ability to select multiple categories at once within the filter to narrow their search—for example, "all completed bore wells in Khost and Kunar that are malfunctioning" or "all pipe schemes in Panjshir that are still in progress, or ongoing." Once filtered, the map will represent the set of projects that match this query.

F-1.2 Individual Water Point Profiles

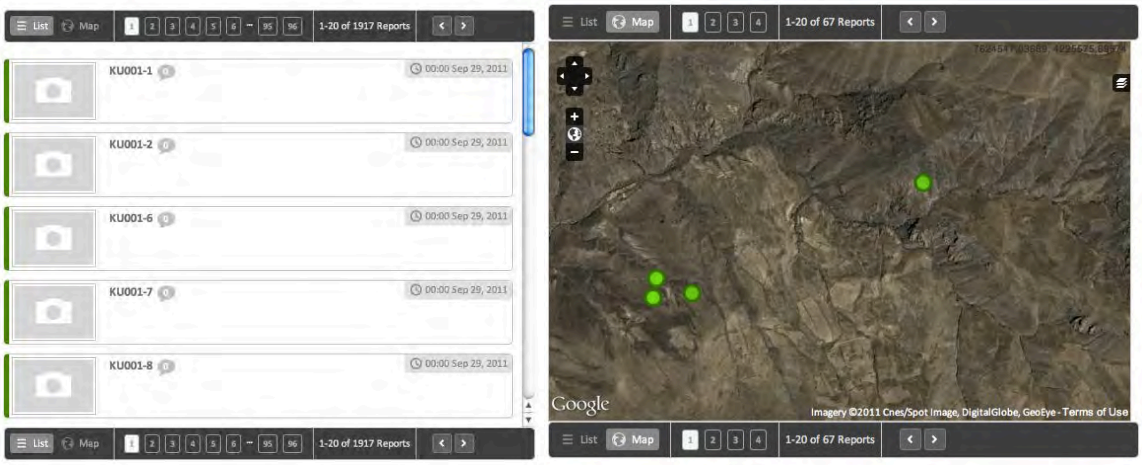
An *Individual Water Point Profile* containing detailed geographical, technical, and historical details about a specific water point is generated for all water points that have been uploaded into the system via the Master Excel file.

Profile pages can be accessed in a number of ways including via the info windows that pop up, from info windows for clusters or black numbers on the Main Map, via the site's advanced Search Dashboard on the reports page, or from the malfunctioning Well Hotlist on the bottom of the home page. Embedded on the top of each Individual Project Page is a *Short Map* that displays the location of the selected water point (red marker), as well as its proximity to the 100 water points that are nearest to it (yellow markers).

As with the Main Map, the Short Map can be scaled up and down, and toggled to different view settings (normal, satellite, and physical). In the image below, the Short Map is set to satellite view and scaled down to a 100-meter elevation, allowing for a close view of a water point's location within a community, the surrounding area, as well as its proximity to other water points.

F-1.3 The Advanced Search Dashboard

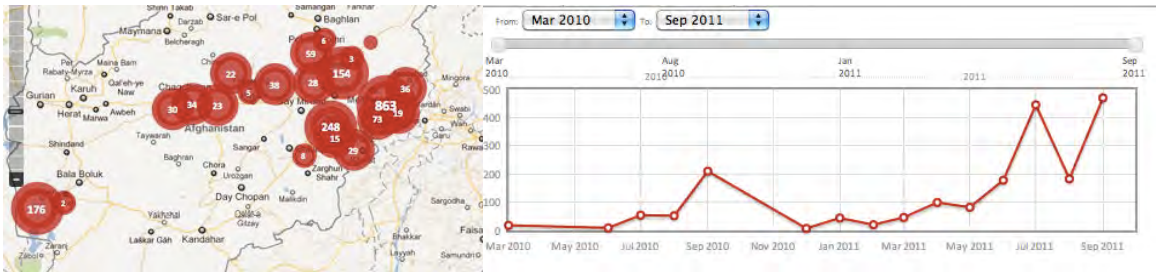
Watertracker users can execute narrow filtering of water points by very specific categories using the *Advanced Search Dashboard*, which is located on the site's reports page. Twenty-two separate categories, ranging from precise locational characteristics (e.g., district or village) to associated personnel contact information (e.g., contractor, CDC head, well mechanic names, and phone numbers) and technical specifications (e.g., pump depth, altitude, and brand) can be cross-filtered. All water points generated with a specific query are produced immediately to the right of the dashboard input either in the form of a sequential list (below, left), or as points on a map (below, right), depending upon the user's selection.



Embedded in a drop down menu within the Dashboard input is a small *Circumference Map*. This map allows users to select any specific position within the country (Afghanistan), and determine how many water points are located within a 1, 5, 10, 20, 50, or 100 kilometer radius of that position. Wells generated with this application are mapped or listed to the left of the dashboard input (as seen above). In this example, the Circumference Map is being used to filter for all water points located within 50 km of the town of Yakawlang.

F-1.4 Project Timeline

An interactive *Project Timeline* located directly below the Main Map on the home page allows users to rapidly determine the number of water points completed during the course of an entire project, or within specific time parameters set by the user via drop down date menus or an adjustable timeline bar. The timeline shows the total number of water points completed during each month within the selected parameter range, giving the user an immediate insight into the level of productivity that was achieved across different periods of the project. Timeline selections also trigger changes on the main map: only water points completed during the period defined by the selected parameters will be revealed. Below is an example of a Timeline – Main Map and corresponding 18-month period. The timeframe is adjustable to cover any desired time period.



F-2 WATERTRACKER INTERACTIVE VOICE RECOGNITION SERVICE

Watertracker enables rural communities to report directly via mobile phone on the working condition—"functioning" or "malfunctioning"—of the completed water points from which they benefit. An IVR was developed specifically for this purpose. IVR is an interactive information system commonly used for customer service applications through which callers interface with an automated audio menu of options by pressing specific keys on their keypad. The Watertracker system uses an IVR (as opposed to SMS) in order to avoid limitations imposed by low levels of literacy in the area of operation. Callers who are

subscribers to ROSHAN (Afghanistan's largest mobile phone operator and Watertracker IVR partner) call a free, five-digit number to access the service. Subscribers to other networks call a standard long number at their own cost.

The IVR menu's simple design maximizes convenience and user-friendliness, and minimizes time spent and the likelihood of error. The menu has three language options, Pashto, Dari, and English, and the system retains the caller's last setting as the default, thus eliminating the need (and time required) to reselect language in future calls. During training, conducted by the SWSS Project's field staff during project implementation, each well "caretaker" is provided with the short five-digit call-in number as well as a unique six-digit well identification (ID). At the beginning of the call, users are asked to enter their well ID. Following this initial step, IVR callers report yes or no responses concerning the following conditions:

1. If their well is functioning properly or malfunctioning
2. If their appointed well mechanic is aware of the problem
3. If their well mechanic is able to fix the problem.

A confirmation safety is built into the menu to reduce the possibility of error. After each entry, the menu recording repeats the prior selection and requests confirmation that it is correct.

Following the completion of the above questions, the caller is requested to leave a short message (maximum one minute) summarizing the condition that they are reporting, and what actions and/or challenges characterize the situation at present. Once the message is left, the call is completed. On average, a malfunctioning well report takes between one and two minutes to complete.

ANNEX G. TYPICAL WATER QUALITY ANALYSIS REPORT

DACAAR

WATER QUALITY ANALYSIS REPORT

Project	YZCC	Source	Tube well D-03	Analysis n.	220/2012
Province	Baglan	District	Baghlan-e Markazi	Village	Dara Khil
Latitude		Longitude		Sample date& time	29/04/12
				Sample collected by	Client

Physical parameters				WHO recc	WSG recc	
EC	1142	µS/cm		1500	3000	
TDS *	786	mg/l	0.688	1000	2000	* From Conductivity
ORP	233	mV				
Turbidity	1.1	NTU		5	5	< 1 for chlorination
pH	7.66			6.5 - 8	6.5 - 8	< 8 for chlorination
°T	18.2	°C		-	-	

Chemical determination

Spectrophotometer Palintest 8000

Anions		mg/l	conv	meV	WHO recc	EU recc	Comments
Total Alkalinity	(as $CaCO_3$)	580			-	-	
Alkalinity P	(as $CaCO_3$)	70			-	-	
Alkalinity M	(as $CaCO_3$)	590			-	-	
Bicarbonate	HCO^{3-}	450	0.01639	7.376	-	-	
Carbonate	CO_3^{2-}	140	0.03333	4.667	-	-	
Hydroxide	OH^-	0	0.05880	0.000	-	-	
Chloride	Cl^-	24.5	0.02820	0.691	250	-	Taste
Sulphate	SO_4^{2-}	92	0.02092	1.916	250	-	Taste
Sulphite (sulphatest)	SO_3^{2-}	3	0.02498	0.075	-	-	
Sulphide		0		0.000	-	-	
Fluoride	F^-	0.89	0.05263	0.047	1.5	0.5	Fluorosis
Nitrate	NO_3^-	5.16	0.01613	0.083	50	50	Blue baby syndrome
Nitrite (nitricol)	NO_2^-	0.004	0.02174	0.000	0.2 - 3	0.1	long - short term exposure
Phosphate	PO_4^{3-}	0.03	0.03159	0.001	-	-	
Boron	BO_3^-	0.22	0.02335	0.005	0.5	-	Testicular lesions
Bromine	Br^-	1.07	0.01251	0.013	-	-	

Cations		mg/l	conv	meV	WHO recc	EU recc	
Total Hardness	(as $CaCO_3$)	285			300	-	Taste and incrustation
Calcium Hardness	(as $CaCO_3$)	119			-	-	
Sodium	Na^+	194	0.04349	8.453	200	-	Taste
Potassium	K^+	16	0.02558	0.409	-	-	
Calcium	Ca^{2+}	48	0.0499	2.375	-	-	
Chromium	Cr^{6+}	0.01	0.05768	0.001	0.05	0.05	Carcinogenic
Magnesium	Mg^{2+}	44	0.08224	3.619	-	-	
Ammonia	NH_4^+	0.03	0.05543	0.002	1.5 - 35	0.5	Odour - taste residue
Manganese	Mn^{2+}	0	0.03641	0.000	0.4	0.05	> 0.1 affects taste and stains laundary
Copper	Cu^{2+}	0.46	0.03148	0.014	2	-	Taste
Aluminium	Al^{3+}	0	0.1113	0.000	-	-	
Total Iron	Fe^{2+} and Fe^{3+}	0.02	0.03581	0.001	0.3	5	Taste and odour
Arsenic	As^{3+} and As^{5+}	0			0.01	0.05	

Other components		mg/l	WHO recc	EU recc	
Silica	SiO_2	0.32	-	-	
Hydrogen Sulphurde	H_2S	0	0.100	-	Taste and odour
Chlorine	CL_2	0	0.2-0.5		

WET CENTRE DACAAR Water Quality Control

Bacteriological Determination

		WHO recc	SPHERE recc	
H_2S determination	Y/N	N	-	
Total Coliforms	Col/100 ml	0	-	(Incubation time: 24 hrs @ 37°)
Fecal coliforms (e-Coli)	0 Col/100 ml	0	0	(Incubation time: 24 hrs @ 44°)

Comments & recommendations

SAR 4.9

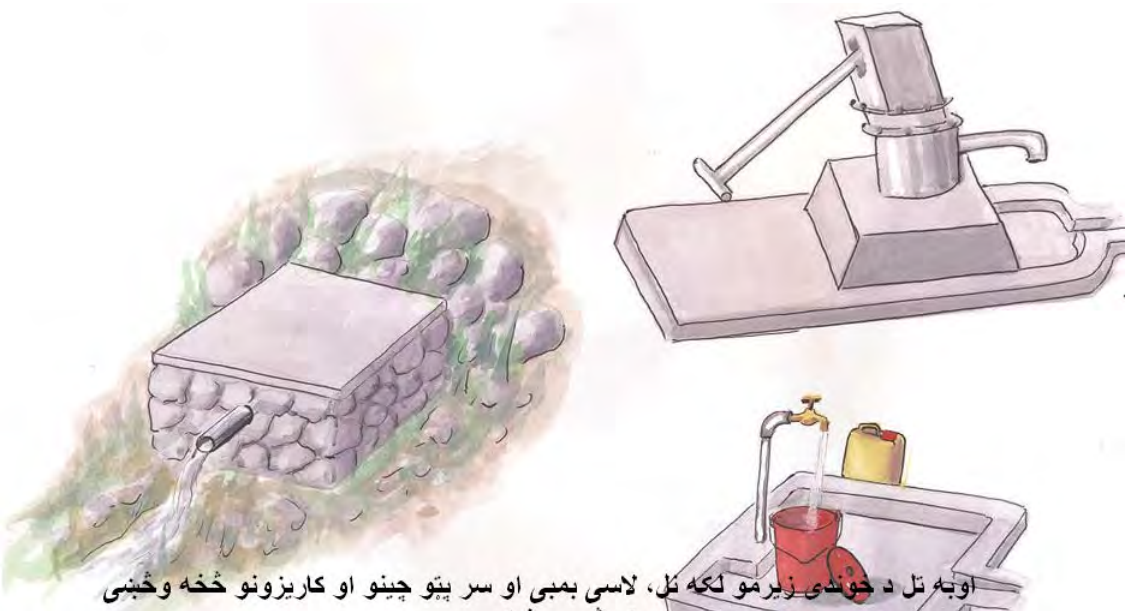
Bacteriological analysis is pure.

According to WHO recommendation in physical parameter and in chemical determination analysis results, the water is acceptable.

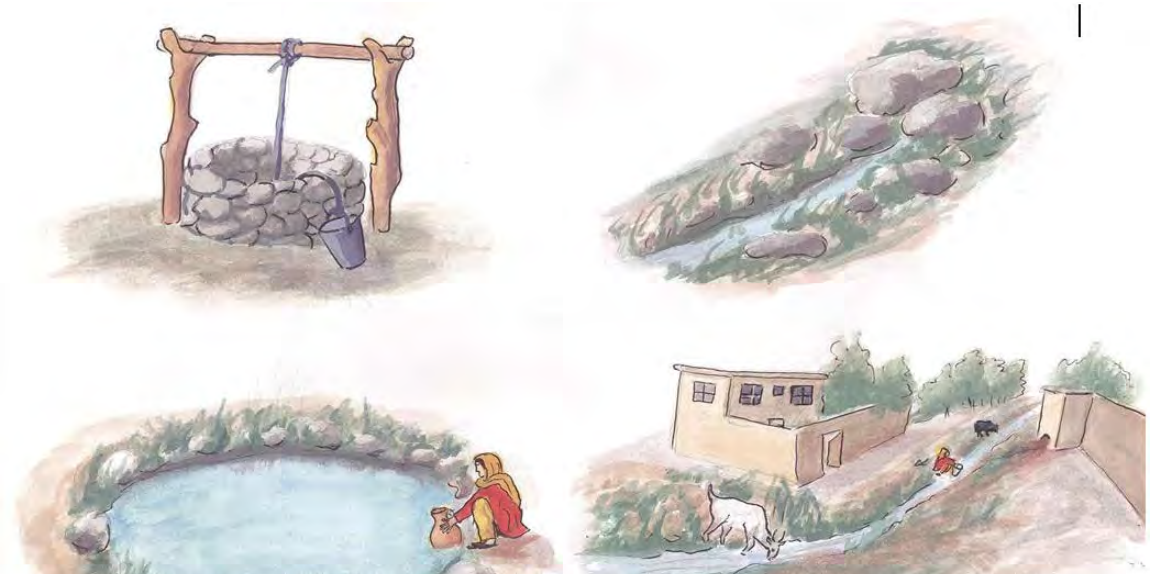
Signature

Date 02/05/2012

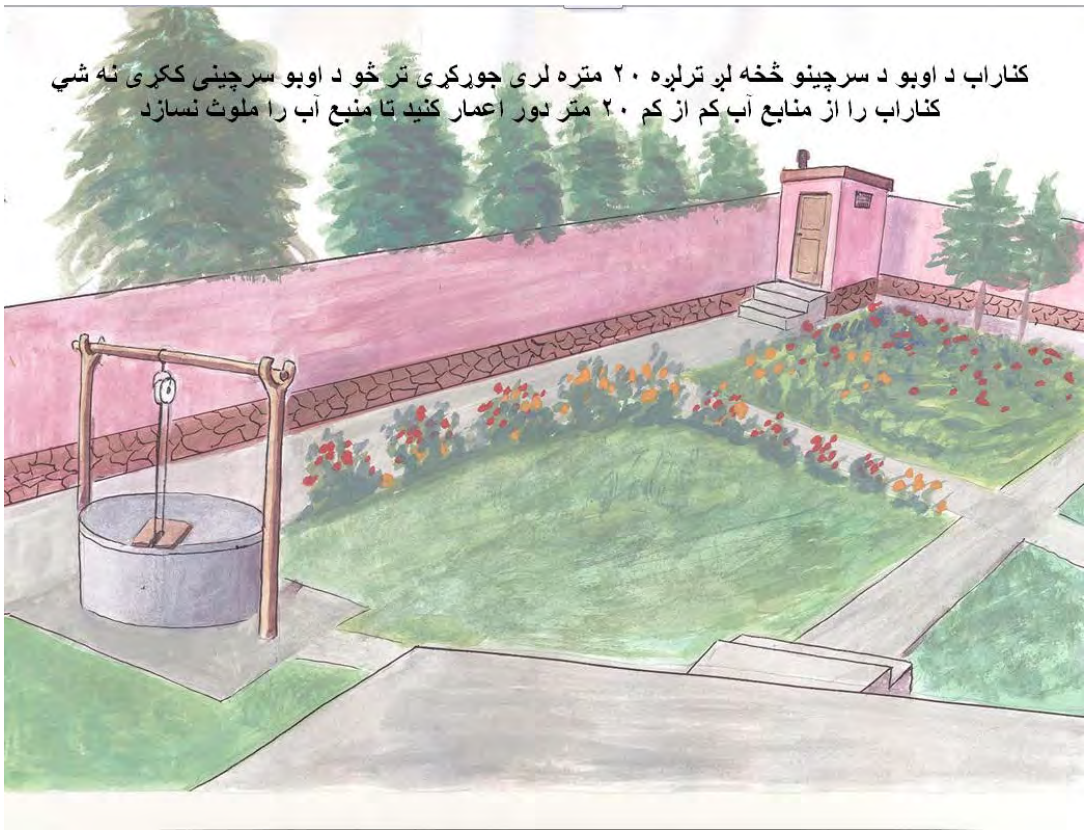
ANNEX H. REPRESENTATIVE IEC MATERIALS



اوبه نل د خوندی زیرمو لکه نل، لاسی بمبی او سر پټو چینو او کاریزونو څخه وڅښی
تر څو روغ اووسی
آب را همیشه از منابع مصؤن مانند نل, بمبه دستی و چشمه و کاریز سرپوشیده بنوشید تا صحتمند باشید



د نا پاکه او غیر صحی اوبو کارول لکه د خوړاوبه، دویالی اوبه، د سرلوڅو ځاګانو اوبه، چینو، کاریزونه ډنډونو او ولاړی اوبه تاسی ناروغه کوی
استفاده آب ناپاک و غیر صحی مانند آب دریا, جوی و منابع سرباز (چاه سرباز, چشمه, کاریز, حوض ها و آب های ایستاده) شما را مریض میسازد

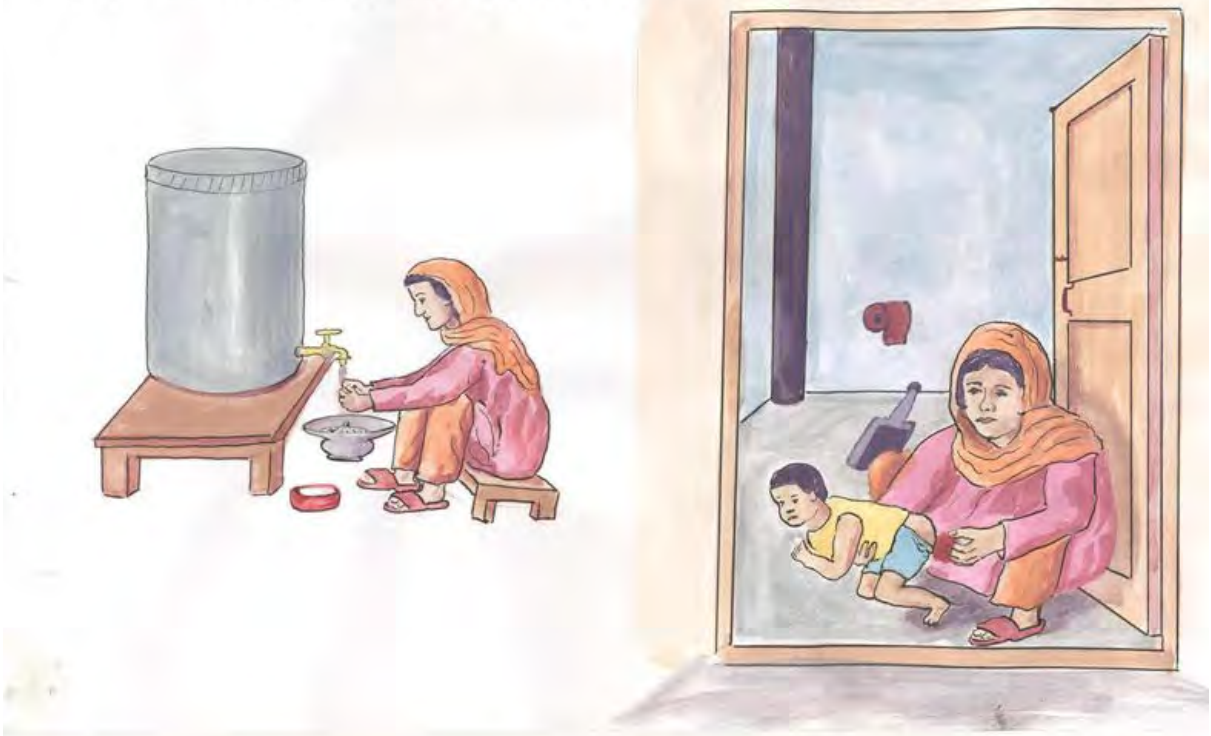

کناراب د اوبو د سرچینو څخه لږ ترلږه ۲۰ متره لرې جوړکړی تر څو د اوبو سرچینې ککړې نه شي
کناراب را از منابع آب کم از کم ۲۰ متر دور اعمار کنید تا منبع آب را ملوث نسازد

که غواړی چې ناروغه نه شی د کناراب مخ ومینځی او پاک یې ساتی
اگر میخواهید مریض نشوید، روی کناراب را شسته و پاک نگهدارید

رفع حاجت در فضأ باز باعث امراض گوناگون میگردد, پس از کناراب مصؤن استفاده نمایید تا مریض نشوید

د کناراب د استعمال او د ماشومانو د پاکولو څخه وروسته لاسونه په پاکو اوبو او صابون سره پریمینځی تر څو روغ اووسی

بعد از رفع حاجت و پاک کردن اطفال دست های تانرا با آب پاک و صابون بشویید تا صحتمند باشید



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