

I. INTRODUCTION

A. PROJECT OVERVIEW

ICEIDA's Water and Sanitation (WATSAN) programme in Malawi dates to formative discussions held in 2004 when a proposal was put forward by Malawi representatives to a visiting delegation representing the Icelandic International Development Agency (ICEIDA) regarding possible support to facilitate a reduction in water and sanitation related diseases. Further collaborative deliberations in 2004 and 2005 resulted in the successful preparation and funding of the formal Project Document (PD) "**Water and Sanitation Project in Monkey Bay Health Zone, Mangochi District, Malawi Project Description Document March 2007- Dec 2010**" with an estimated budget of US\$ 3,275,500, inclusive of a matching contribution from the Government of Malawi (GoM) amounting to US\$ 546,000. From an operational perspective, WATSAN has specifically targeted the Traditional Authority (TA) Nankumba within the Mangochi District, hence the derivation of the acronym WASNAN for "Water & Sanitation Nankumba District".

The **overall development objective** of WATSAN is to assist the GoM to achieve its National development goal of economic growth as laid down in the Malawi Growth and Development Strategy (MGDS). It is considered that the National MGDS goal of economic growth is linked directly to well protected and managed water resources, encompassing the reduction of water and sanitation related diseases. The WATSAN program is expected to contribute to improved health standards and an increase in the quality of life of the most vulnerable part of the population, while simultaneously being responsive to global Millennium Development Goals (MDGs).

The **specific objectives** of the WATSAN Project Document (PD) are to:

1. Increase the number of functioning boreholes in the Monkey Bay Health Zone;
2. Build capacity among staff at district level on Water and Sanitation and the communities on Community Maintenance of boreholes and pumps by offering training;
3. Increase knowledge and information about hygiene and sanitation among the target group;
4. Increase numbers of shallow wells in the target area and improving shallow well protection;
5. Put to good use two natural springs in Mvunguti Village before the end of 2007, and build a well-functioning Community Based Management (CBM) system there;
6. Improve the CBM practices of the various water resources by offering training courses for the target group; and
7. Promote networking and a functional coordination, monitoring and reporting system between stakeholders.

The **expected outputs** of WATSAN are:

1. Up to 100 new boreholes be drilled and functional, 50 boreholes repaired and civil works on or around those areas done according to national standards by end of 2010;
2. Adequate and properly trained Water Point Committees be established and qualified to maintain boreholes and pumps (committees capable of Community Based Maintenance and repair work);
3. Adequate and properly trained committees on hygiene and sanitation are trained to train and sensitize the target group;
4. Up to 300 shallow wells are protected at household level on a self help basis;
5. Two natural springs are protected and improved for supply of safe drinking water on a community participatory basis;
6. To train committees and leaders in Community Based Management; and

7. A functioning system is put in place regarding, “Planning, coordination, monitoring, information sharing and reporting system” between stakeholders through the District Executive Committee (DEC) and District Assembly (DA).

The stated **focus** of the WATSAN project is “...on improving hygiene among the target group, increasing the sanitation facilities and providing access to potable water supplies. In that way the Project is going to have an impact on the health status of the population together with agricultural and economical productivity. It is envisaged that at the end of the project period there will be great improvement in sanitation and access to safe drinking water within a maximum radius of 500m from the inhabitants’ homes in over 20,000 households (90%) in the Monkey Bay Health Zone.”

The **target group** for this project is “...the people in the communities of the T/A Nankumba area, known as Monkey Bay Health Zone. The Monkey Bay Health Zone includes four health care centres as well as Monkey Bay Community Hospital.”

B. JUSTIFICATION

At the time the PD was being formulated in 2004-2005, it was recognized that more than 52% of the population of Malawi (12.5 million persons) lived below the income poverty line and of these 22.4% lived in extreme poverty. Health indicators had shown that life expectancy in Malawi dropped from 41.8 years in 1970-75 to 39.6 years in 2000-05.

The Government of Malawi (GoM) consolidated its National priorities into the 2005 Malawi Growth and Development Strategy (MGDS) that has a singular focus aimed toward economic growth, and acknowledged that the goal of economic growth is linked directly to well protected and managed water resources, encompassing the reduction of water and sanitation related diseases. Amongst MGDS priorities identified in 2005, water and sanitation was ranked the second most important (B. Gondwe: pers. commun.) to effectively address the National goal of economic growth. In the MGDS the **overall goals** of the Government are to:

- Ensure that water resources are well protected and managed in order to reduce manufacturing cost and increase ability to engage in different forms of manufacturing that require water; and
- Reduce water borne diseases.

The **key MGDS strategies** in order to achieve these goals are to:

- Empower national authorities to manage water resources using Integrated Water Resources Management approach and establish good monitoring system;
- Improve the quality of surface and ground water;
- Improve sustainable access to water supply and sanitation so that among others, every Malawian has access to potable water within a maximum distance of 500m; and
- Integrate rural water supply and participatory hygiene and sanitation transformation.

Further emphasizing the role of Water and Sanitation as a key feature to address the MGDS, the GoM Cabinet is currently reviewing and gazetting a National Sanitation Policy (NSP) to advance the National commitments of poverty reduction and economic prosperity. The NSP represents the first ever coherent sanitation policy for the Republic and provides policy guidance toward a cross-sectoral approach to this fundamental issue. The NSP recognizes that the Water and Sanitation sector “...transforms the lives of people across all the Millennium Development Goals (MDGs).”

In short, the ICEIDA-sponsored WATSAN program is more on target today than when originally conceived in 2004 with regards to the GoM National goal of economic growth through initiatives to

improve human health standards and increase the quality of life of the most vulnerable part of the population.

C. INSTITUTIONAL COORDINATION

The Ministry of Irrigation and Water Development (MIWD) has the primary responsibility in behalf of the GoM for implementing the WATSAN project in affiliation with ICEIDA. The coordination of the various stakeholders of the project is at the District level and specifically the responsibility of the Mangochi District Director of Planning and Development (DPD) of the Local Government, who concurrently is the Chairperson for the District Water, Environment and Sanitation Taskforce (WEST). Other members of WEST include the District Water Coordinator, the Assistant Environmental Health Officer, the District Community Development Officer, and the District Environmental Officer. The roles and functions of WEST for community-based water and sanitation projects are to:

- Promote community identification of demand driven projects;
- Provide staff members to implement the project;
- Plan and co-ordinate of the activities of the Water and Sanitation Project Sector;
- Train of Government Field Officers, Village Health and Water Committees, village communities and artisans on specific issues of water and sanitation;
- Supervise project implementation and monitor project progress; and
- Meet quarterly to discuss progress and make recommendations for improvement.

At the National level, the sector is coordinated by the Water and Environmental Sanitation (WES) Aid Coordination Sub-Group.

II. REVIEW

A. EXTERNAL REVIEW

An external mid-term review was conducted in March 2009 for the Water and Sanitation Project (WATSAN) sponsored by the Icelandic International Development Agency's (ICEIDA) in Monkey Bay Health Zone, Mangochi District, Malawi. Specifically, ICEIDA in affiliation with the Government of Malawi (GoM), principally represented by the Ministry of Irrigation & Water Development (MIWD), initiated the WATSAN program in 2007 based on cooperative planning activities dating to 2004. Activities of the cooperative WATSAN program have subsequently focused upon the TA Nankumba within the Mangochi District.

The mid-term Review is a component of the overall WATSAN Monitoring & Evaluation (M&E) protocol as called for in the PD. The Terms of Reference (TOR) for the external review were to

- a. Evaluate the status and progress of WATSAN/WASNAN between ICEIDA and GoM; and
- b. Make recommendations regarding the next phase of the project.

Work tasks were to include

1. A review of the Project Document (PD) as well as progress reports, final reports, stakeholder reports, and annual Work Plans;
2. A review of minutes of the Project Supervisory Board (PSB), Project Steering Committee (PSC), and Project Implementation Unit (PIU);

3. Interviews with representatives of the PSB, PSC, PIU, Mangochi District representatives, Chief and leaders of the TA Nankumba, village elders, Water Point Committees (WPCs), WATSAN Field Workers, and other stakeholders (Appendix 1);
4. Visits and on-site inspection of installed facilities and demonstration projects; and
5. Materials related to the internal M&E process (Appendix 2).

The review was conducted by Professor Emeritus Charles H. Hocutt, Walvis Bay, Namibia. Prof. Hocutt specializes in Integrated Water Resources Management (IWRM) and has over 25 years development experience within sub-Saharan Africa.

B. REVIEW FINDINGS

1. Defining WATSAN and WASNAN

The acronyms “WATSAN” and “WASNAN” were initially confusing to the Reviewer, i.e., the TOR called for a review of the WASNAN project although the original PD had reference to the “Water and Sanitation Project”, but with no mention of WASNAN. As far as could be determined, the acronym WASNAN was first used in PIU minutes of 12.05.08, but perhaps occurred at an earlier date in emails, reports or other communications. The acronym WASNAN evolved in reference to “water and sanitation” in the TA Nankumba.

Therefore, for the sake of clarity, the Review has defined WATSAN as the ICEIDA-sponsored *programme* for all projects concerning water and sanitation in Malawi, both current and future. WASNAN in the TA Nankumba of the Mangochi District is one such *project*. These definitions allow for the potential expansion, monitoring and evaluation of other ICEIDA-sponsored activities in the water and sanitation sector elsewhere in Malawi under WATSAN, and other potential sub-activities of water and sanitation within the TA Nankumba under WASNAN.

2. Perceived value of WATSAN/WASNAN

The Review of WATSAN/WASNAN was met with enthusiasm at every level of participation and cooperation: GoM/Ministry, Regional, District, Traditional Authority, and village. The Reviewer was given assurances that the Honorable Minister of Irrigation & Water Development and the Permanent Secretary were both well aware of this ICEIDA-sponsored program and unconditionally supported it, each having previously visited TA Nankumba to review progress. It was found that administrative and personal “ownership” is amazingly complete given the high level of oversight and coordination required over a broad segment of governance and society. Even when critical comment was offered by stakeholders, it was consistently of a constructive nature, usually punctuated by words (to paraphrase) “...We are interested only in success!”

Scheduled visits to field demonstration sites and meetings with the TA and villagers were also instructive. The villagers were well organized into Water Point Committee’s (WPCs) and proud of their participation in WASNAN, demonstrating effective grass roots training, monitoring and management. All facilities were clean and as hygienic as one could expect. Some with non-WASNAN latrines volunteered that they would follow the WASNAN models during future latrine building. This enthusiasm was further amplified when the Reviewer paid an unscheduled stop on the day of departure from Monkey Bay with villagers again visibly displaying their enthusiasm for their “own” WASNAN facilities that were well maintained.

It was stated more than once by GoM representatives that there is interest in expanding WATSAN out of the TA Nankumba.

3. Governance of WATSAN: Project Supervisory Board (PSB)

The Project Supervisory Board (PSB) functions at the highest level of governance of WATSAN and provides institutional support and overall guidance to the smooth functioning of the program. The PSB is currently comprised of the Director of Water Supply within the MIWD and the ICEIDA Country Director (CD). Although the original PD called for a broader multi-sectoral participation in WATSAN, this goal has not been achieved thus far although the need is recognized (see PSB Minutes 03.10.2008). The PSB is scheduled to meet twice annually, or as needed. The PSB met twice in the latter half of 2008 and is awaiting the outcomes of this report before meeting again.

As originally conceived in the PD, the PSB was intended to be multi-sectoral with membership potentially including representation from the Ministries of Health (MOH); Economic Planning & Development; Gender & Child Welfare; and Local Government. This is a matter best left to the current PSB to debate; however, the spirit of the PD is correct in recognizing that WATSAN cuts across the line functions of many ministries. As indicated below, there is every reason to include MOH on the PSB, while new inroads with the Ministry of Agriculture & Food Security (MAFS) can be achieved through cooperative demonstration projects.

4. Management and Coordination

a. Project Steering Committee (PSC).- The PSC membership of the WASNAN project is comprised of the District Commissioner - Mangochi, WEST committee members, the Regional Water officer – Blantyre, and the ICEIDA Project Manager. The PSC is “...responsible for monitoring both the general progress of the Project and the overall implementation of the activities and making suggestions for corrective measures for Project cycle management.” The PSC is scheduled to meet quarterly each year, and indeed met twice in the latter half of 2008.

The “District” complexion of the PSC membership strongly reflects the GoM policy of “decentralization.” Thus, active planning, project monitoring and evaluation by the PSC are, and will remain, critical components to the success of WASNAN. Routine communication (outside of scheduled meetings) between the Project Manager, based in Monkey Bay, and the District representatives, based in Mangochi, is vital to “ownership” and continued smooth functioning of WASNAN.

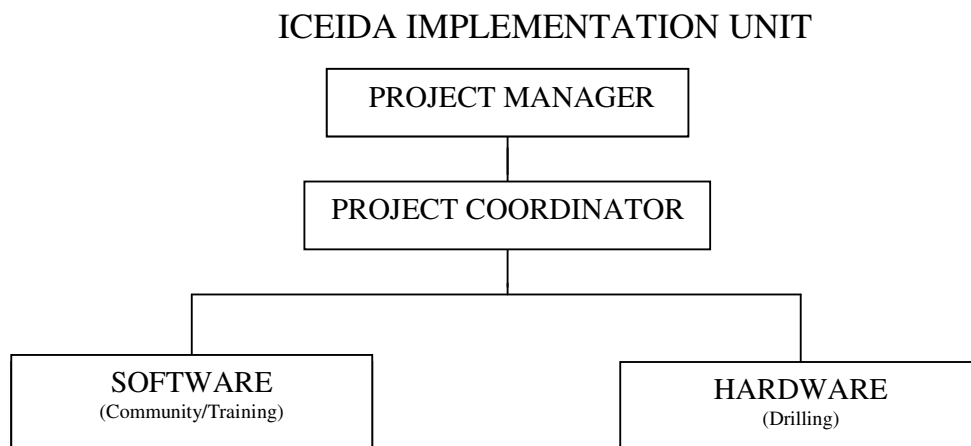
b. Project Implementation Unit (PIU).- The PIU is “...responsible for the day-to-day management of the Project and the implementation of all Project activities.” The PIU is scheduled to meet monthly, or on an “as needed” basis. Under the current Terms of Reference (TOR) the PIU membership overlaps with the PSC, being comprised of (a) the District Director of Planning and Development – Mangochi; (b) Desk Officer for Water; (c) Desk Officer for Health; (d) ICEIDA Project Manager; and (e) ICEIDA Project Coordinator (see Annex 18.6, p. 48 of the PD). This TOR and membership are, however, at odds with Section 11.1 of the PD (p. 27) and require immediate attention to precisely define membership and responsibilities, eventually to be vetted by the PSC and approved by the PSB.

c. Project Manager (PM).- The PM is in his first year in the position. The perception of the Review is that the management style of the PM is goal driven, direct and “to the point,” and well received by his GoM and ICEIDA colleagues. Notably, both the PSB and the PSC have each met twice since the arrival of the PM; that is unlikely to be a coincidence.

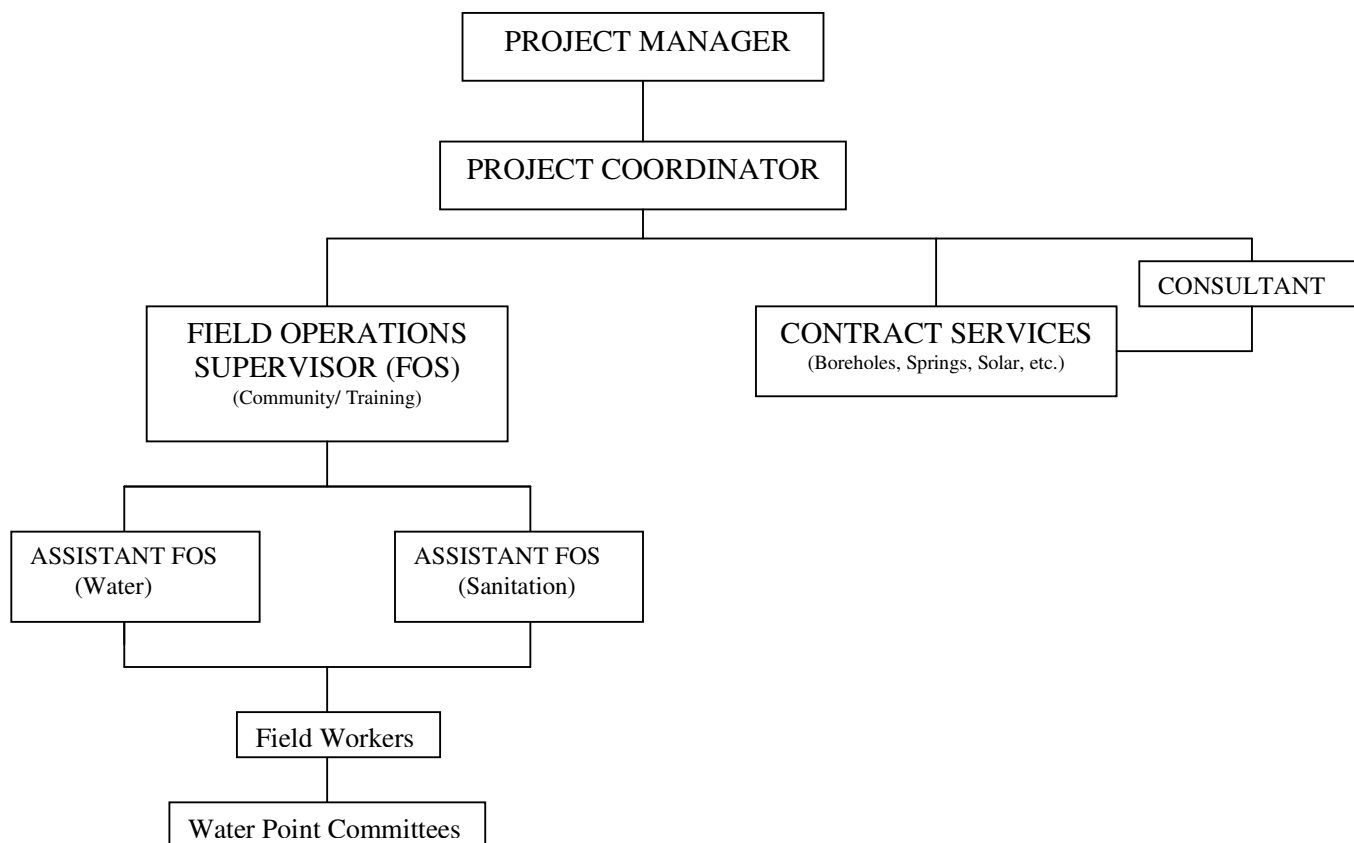
The Review did not clarify the length of appointment of the PM, but for the sake of program continuity it would be prudent to retain the PM in position through the terminal date of WATSAN/WASNAN, i.e., 31 December 2010.

d. Project Coordinator (PC).- The PC is serving in an “acting” capacity. Given the success of the project thus far, the overall value and need for day-to-day coordination, and the supporting role that a PC offers to the PM, it is advisable to correct this situation as soon as practical.

e. ICEIDA Implementation Unit (IIU).- Annex 18.7 of the PD (p.49) presents an organogram of the IIU at project inception. To summarize, the IIU previously had the form of



The IIU has now evolved to the form of



This enhanced division of labor of the IIU relates to the need to review and formally revise the membership and TOR of the PIU (see Section II.B.4.b, above) to include the Field Operations Supervisor (FOS) and the two Assistant FOS in (1) Water and (2) Sanitation, respectively. Certainly, the PIU is not comprised of “...all staff employed for the Project” (Section 11.1.c of the PD, p. 27) and it is inadequate to simply say that (to paraphrase from PIU minutes of 3 December 2008) “...at the next PIU meeting Jonas Salim should be present.”

The two Assistant FOS’s were recruited directly from the trained FWs. With the additional responsibilities of the FOS and the two Assistant FOS’s, it is advisable to provide them access to short courses in project planning, monitoring & evaluation, and data handling & interpretation.

f. Desk Officer MIWD participation.- The Assistant District Water Officer (ASDO), Mangochi District, is appreciated by all as playing a yeoman’s role in WASNAN and serving as a constructive member on the PIU in behalf of the MIWD. To further strengthen District participation in WASNAN and enhance its sustainability, it is prudent that the ASDO mentor at least two other MIWD staff in WASNAN procedures.

g. Field Workers (FW).- At the time of the Review, 19 Field Workers were directly employed by WASNAN to supplement the available staff of the MIWD to provide training and logistical support at the village level, specifically to the Water Point Committees (WPCs). Discussions were held with five FWs during the Review, leaving the impression that WASNAN is on solid ground if these five were reflective of the quality and dedication of the remaining 14 FWs! Certainly the recruitment process of FWs and “training of the trainers” appear to be very effective.

Whereas WASNAN would be ineffective without strong management and coordination from within its organizational structure, WASNAN's CBM-system would be similarly ineffective without the daily "hands on" training, monitoring and evaluation of the project by the FWs. The FWs are vital to the success of WASNAN and represent a valuable human resource to the GoM, thus leading to two specific questions: (1) How can the effectiveness of FWs be increased under the current WATSAN/ WASNAN umbrella, and (2) How is this human resource retained in the future and integrated into Ministerial line positions by the GoM?

In response to the first question, the WATSAN program has adhered to a policy of recruitment and training of FWs, premised upon the number of actual villages and households (HHs) that meet the criteria to participate in WASNAN. Based on the success of WASNAN, there is no reason to shift this policy, i.e., new FWs should continue to be recruited and trained following current policy as WATSAN implementation goals are expanded and achieved through Year 2010. FWs meet monthly to report progress, share experiences, and learn new technologies; however, perhaps these meetings can be used to build camaraderie by awarding "WATSAN Certificates" to those who have successfully completed training and/or by presenting merit awards to individuals based on their performance, initiative or constructive suggestions to program improvement. Travel by the Field Operation Supervisor (FOS), two Assistant FOS, and FWs is currently dependent upon 3 vehicles and 5 motorcycles. However, as geographic coverage (and distances) expand into 2009-2010, there seems adequate justification to add at least two additional motorcycles and 1 X 1-ton 4X4 single cab pickup to the available motor pool; the latter could be either through direct purchase and available to the program as a whole, or leased on an "as needed" basis during peak periods of demand. A purchased vehicle need not be new, only serviceable.

It has been recognized by WATSAN that there is redundancy of effort between the FWs and the HSAs of the Ministry of Health (MOH). This has led to a formal collaborative agreement (dated 28 November 2008) between WATSAN and MOH for joint training of FWs and HSAs to advance sanitation and human hygiene practices in the TA Nankumba. This is a very positive step promoting a stronger cross-sectoral approach to water and sanitation while strengthening the cadre of both FWs and HSAs. However, a fundamental question arises, i.e., how many more FWs are actually required in WASNAN with the influx of HSAs?

The noted agreement impinges upon the second concern voiced above, i.e., capacity retention of this invaluable human resource (FWs) and sustainability in a post-ICEIDA context. This concern is difficult to address in the Review as it involves a policy decision by the GoM. Further, the agreement indirectly points to other considerations such as (1) In terms of program sustainability in water and sanitation plus retention of this invaluable trained human resource, can the GOM find a ministerial "home" for the FWs? (2) If "yes", then does the MOH represent a better "home" for the FWs than the MIWD? (3) Is direct funding of FW positions by ICEIDA to either MOH or MIWD a suitable mechanism to support personnel retention of FWs and sustain WATSAN into the future? (4) If the answer to question 3 is "yes", then how will FW salaries be met in "post-ICEIDA days?"

Reinforcing these concerns, water and sanitation is a National priority as spelled out in the 2005 MGDS and the 2008 NSP. While the ICEIDA-sponsored WATSAN program is not acknowledged in word within the NSP, it nonetheless complements the spirit of the overall objectives of the NSP and can serve as a successful model of community based management (CBM) and cooperation to build the momentum linking water and sanitation as a planning, policy and budget priority at the National level in the promotion of economic development, poverty alleviation, and human health standards. The FWs are an integral part of success to the District WASNAN project and collectively represent a valuable asset to aid the Nation's program on water and sanitation (Also see II.C below).

5. Monitoring & Evaluation (M&E)

a. Internal.- Particularly since mid-2008, the top:down internal M&E process of WATSAN/WASNAN has continued to grow in effectiveness, with the PSB, PSC, and PIU meeting at more regular intervals than prior to mid-2008. Annual reports through 2008 and a Work Plan for 2009 have been prepared and vetted through the WASNAN administrative structure, with each being directly linked to the priorities/sub-priorities of the original PD, thus facilitating program review and forward planning. These actions have been complemented by meetings with the District Coordinating Team in the latter half of 2008 that reviewed WASNAN progress and future plans.

A focal point of the M&E process is the Borehole Users Project Agreement that the Village Headman and Chairperson of the village Water Point Committee must sign. The Agreement has a number of conditions and criteria that must be met before a borehole is installed or refurbished, and there is continued follow-up and monitoring after installation. The strength of the internal M&E process is exemplified by a number of reporting forms, listed below (but not necessarily in order of use); this reporting structure represents a well established and commendable M&E system ingrained in WATSAN at the community based management (CBM) level (Objective 6 of the PD):

- 1) Participatory Form: Household level hygiene and sanitation;
- 2) Health Education Report form;
- 3) Monthly Status Report of Water Points;
- 4) Overall Status Report by Month;
- 5) Borehole Monitoring Form;
- 6) List of WPC Members and Training Sessions Attended (by Village);
- 7) Household Dome Slab Registration Form (by Village);
- 8) VLOM Training Attendance List;
- 9) Field Worker's Weekly Work Plan; and
- 10) Field Worker's Monthly Progress Report – Details of Activities.

Taken collectively from top:down and bottom:up, there is every evidence that Objective 7 of the PD to “*Establish a functional coordination, monitoring and reporting system between stakeholders*” has been accomplished and will continue to evolve.

b. External.- This mid-program Review is a component of the original PD planning and is on schedule with project implementation. Another independent evaluation is scheduled in the PD to be held in late 2009, but it should be rescheduled for late 2010 to better coincide with the terminal date (31 December 2010) of this program cycle.

6. Progress

a. Infrastructure.- The TA Nankumba comprises 116 villages with 23,300 households and a population of approximately 110,000 persons. In terms of physical infrastructure, WATSAN's goals via the WASNAN project (Objectives 1-5 of the PD) are to

- provide 100 new boreholes,
- refurbish/repair 50 historical boreholes,
- improve 2 natural springs,
- construct 300 shallow wells, and
- have improved toilet facilities in 20,000 households (>80% in the TA Nankumba),

by the terminal date of the program, December 2010. The Final Report for 2008 indicates that these targets are being achieved, according to the following results:

- 56 new boreholes have been drilled (or 56% of the PD goal),
- 37 boreholes have been refurbished/repared (74% of the goal),
- 126 shallow wells have been constructed (42%) , and
- 2,163 improved pit latrines were constructed by October 2008, with another 2,904 pending completion by December 2008, totalling 5,067 (25%). WATSAN considers that an installed latrine is one covered with a dome slab, i.e., a latrine with a pit, walls and roof is *not* an installed latrine unless it is covered by a dome slab.

Additionally, 2 boreholes have been equipped with solar electric panels and pump.

The 2009 Work Plan calls for

- Identifying 25 new sites for boreholes,
- 150 shallow wells are constructed,
- 2 natural springs are replaced with boreholes or shallow wells, and
- 8,000 improved pit latrines are built.

Thus, all infrastructure goals of the PD are expected to be met to a level of >80% by the end of Year 2009, excluding pit latrine construction that will be about 65% of the original goal to have improved toilet facilities in 20,000 households.

b. Training.- The 2008 Annual Report indicated several training accomplishments related to the success of WASNAN:

- 130 WPCs were formed by 2008, with 103 WPCs trained;
- Refresher courses were offered to old WPCs;
- 19 FWs had been trained;
- Identification and training of 4 spare parts suppliers had occurred; and
- For shallow wells, 92 of 150 WPCs were formed, and 10 local artisans, 5 ring makers & 9 FWs trained in shallow well construction.

The objective to train 80 HSAs in hygiene and sanitation was not accomplished in 2008; however, an objective for 2009 is to train 112 HSAs & 2 FWs. Other objectives for 2009 are to

- Form and train 185 WPCs in dome slab construction and pit lining of Ecosan latrines;
- Form and train an additional 150 WPCs in shallow well construction; and
- Identify and train 15 new artisans and 6 ring makers for shallow well construction.

7. Matters to address.- Several matters were identified in the WATSAN Review that require attention.

a. Boreholes.- Remarkably, the borehole “sub-program” (defined here to include site selection, drilling, and repair/refurbishment) has moved forward with only cursory attention to a “Water Point Survey” prepared in 2005 by the MIWD for the Mangochi District - TA Nankumba. This survey is a 12-page catalog of an estimated 600 boreholes (and their coordinates) that have been historically drilled in TA Nankumba. Especially given the need for cost efficiency for WATSAN during the remainder of the program, 2009-2010, it is wise to consult the Survey with regards to future WASNAN interventions. For example, it usually is more cost effective to repair/refurbish already established water points rather than drill new boreholes.

Secondly, certain boreholes have been drilled that are sufficiently deep that the pump of choice, Afridev hand pump, is ineffective. This has led to a debate to either abandon the borehole or install

a different pump with a deep-well capability. Abandonment seems an unwise choice particularly if the villagers have otherwise fulfilled all the criteria for site selection and the borehole itself has sufficient water quantity of good quality to meet consumption needs. Alternately, the cost of installation and maintenance of deep-water pumps might be too expensive, and spares might not be readily available. The best manner to address some of these practical issues is a demonstration project with three or more replicates (deep-well installations); however, this should be preceded by an analysis (justification) that will allow adequate comparison to the Afridev pump in terms of installation cost, maintenance requirements, parts availability, and training of FWs and WPCs. It was understood during the Review that the deep-water pumps and parts are readily available in neighboring Zambia and are being installed in a more regular basis in Malawi; these points require confirmation as part of the justification.

There is a perceived need for training in 2009-2010 to provide opportunities for all FWs (and by extension, HSAs) to gain hands-on experience with borehole siting and drilling procedures. This strengthens their capacity and adds to sustainability in WATSAN.

b. Shallow wells.- The installation of shallow wells has been hampered principally by the unavailability of rings at the time of digging the well or by the poor installation of rings allowing them to move and the well sides to collapse. Although the PIU is well aware of this dilemma, the need to address the “ring issue” is specifically highlighted here.

c. Latrines.- The latrine sub-program has proceeded very well though not at the rate of the borehole sub-program. Although the Ecosan latrine is promoted by WASNAN it has not been the “latrine of choice” by the villagers. The two primary reasons appear to be (a) installation cost and (b) reluctance to use human waste as fertilizer. The Reviewer is of the opinion that both these issues can be addressed in part through effective demonstration projects particularly in collaboration with the Ministry of Agriculture & Food Security (MAFS). MAFS is specifically identified as a key Ministry stakeholder in the 2008 National Sanitation Policy (Section 4.11) with responsibilities amongst others to (Section 4.11.2) “*Promote the use of ecosan or other similar technologies among farming communities*” and (Section 4.11.4) “*Promote recycling of organic liquid and solid wastes for production of manure and/or biogas wherever appropriate.*” Therefore, the rationale for collaborative demonstration projects with MAFS is compelling given that (a) villagers can see first hand the benefits of using human waste as fertilizer while (b) simultaneously promoting the benefits in a broader context to the agriculture sector.

There should be an active awareness campaign to assure that persons collecting and/or using latrine wastes are not socially prejudiced within their village.

Related to the perceived need for demonstration projects using latrine wastes, the Reviewer toured a small private vermiculture project in South Africa that used earthworms to compost cattle manure (Appendix 3). The project has direct applicability to WATSAN in that worms facilitate the breakdown of manure at a significantly higher rate than by other natural processes, which is very important in a high rainfall area such as TA Nankumba. Further, human fecal matter can be combined with livestock manure to achieve the same results. This is a low technology undertaking, requiring minimal skills and investment that WATSAN should further investigate.

d. Human health and hygiene.- The ultimate objective of WATSAN is not the number of boreholes that have been drilled nor shallow wells that have been built nor the number of latrines that have been installed. Rather, the real target of WATSAN is improved human health and hygiene. For this reason, WATSAN in collaboration with the MOH needs to specifically track cases of cholera, acute diarrhoea, child mortality, and HIV/AIDS in TA Nankumba to effectively demonstrate the benefits of WASNAN activities.

e. Water quality monitoring.- To date, water quality monitoring of WASNAN boreholes, shallow wells and springs has not been initiated. However, there are plans to do so and a Paqualab Incubator 50 kit has been purchased for the Monkey Bay Hospital. Such monitoring is not inexpensive, and costs escalate with the number and nature of parameters monitored, the frequency of monitoring and the geographic coverage. Sampling is likely to be semi-annual or annual, with the best time after the rainy season, i.e., most contaminants will normally enter groundwater supplies during the rainy season. For initial water quality screening, parameters to monitor include pH, hardness, nitrate/nitrites, and total coliform bacteria; specifications indicate that the Paqualab Incubator 50 kit is adequate to monitor these parameters. Measurements should be referenced against “alert” levels with regards to human health standards. pH and hardness are related to the acidity of the water and dissolved minerals, respectively, that directly influence corrosion of water installations; low pH also enhances the mobility of other contaminants such as heavy metals. High nitrates/nitrites and coliform bacteria readings often correlate with groundwater contamination of organics which in turn might be associated with fecal material that is carrying the cholera bacterium, *Vibrio cholerae*. Once humans consume the bacterium in sufficient quantity, the incubation period is very short from infection until the disease breaks out, generally less than two days, although it can be as long as five days. If Hospital instrumentation is available and there is an adequate budget, water samples can be examined for the presence of the cholera bacterium especially during and after peak rainfall seasons.

f. Latrine monitoring.- A latrine monitoring program has not yet been considered for WATSAN. This is especially necessary in order to guide the safe use of human fecal material as an organic fertilizer. Human feces can carry a number of human parasites, pathogens and bacteria, each with different life cycles and thresholds for survival. While the use of human feces as a fertilizer has merit, such a program must be guided by sound handling procedures. The Monkey Bay Hospital can play a vital role in establishing the correct protocol.

C. RISKS AND CONSTRAINTS ON WATSAN AND WASNAN

The PD identified four potential risks and constraints on WATSAN (See p.24 of the PD):

- 1. The possibility of any future political changes either in Malawi or in Iceland that would negatively influence the current development policy could constitute a risk for the project.*
- 2. Another substantial risk is the District’s involvement through the demand driven aspects of the Project, because of weak district capacities and their inadequate funding. The Project will address this through strengthening the Project management at the regional level through the Mangochi office.*
- 3. The third risk is connected to the second one is that the field staff from the Ministry of Health and Ministry of Women and Child Development is already involved in other projects such as the ICEIDA sponsored Health Project and Adult Literacy Project.*
- 4. Other notable risks are possible natural disasters beyond human control.*

With respect to the first point, there was no hint at the time that the PD was prepared that Iceland would be facing an economic crisis that would result in a devaluation of its currency by approximately 50% in the latter half of 2008. The impact of the devaluation of the Icelandic Krona on foreign aid programs sponsored through ICEIDA is still not fully appreciated at the time of this Review. However, it is understood that ICEIDA will continue to honor its current obligations (e.g., to WATSAN through 2010) albeit at a somewhat reduced level of support. Too, the CD remains optimistic regarding Iceland’s future in Malawi. With these thoughts in mind, coupled with the reality of competing activities sponsored by ICEIDA globally, it is not too early for the CD to lobby and plan for the continuation of WATSAN beyond 2010. This opinion is based upon the National significance given by the GoM to the water and sanitation sector coupled to the demonstrated success that WATSAN has achieved at the time of this mid-term Review.

Risk 1 gives further impetus to Risks 2 and 3 which are interrelated. As referenced in II.B.4.d above, WATSAN has augmented District capacity by the direct hire of FWs. While in practice this arrangement has been successful, in principal this action has not facilitated sustainability (in the context of GoM planning and budgeting for personnel retention should ICEIDA financial support wane). Ways and means of retaining the FWs appears to the Reviewer to be a real consideration for GoM, and ICEIDA must assist in those deliberations.

III. RECOMMENDATIONS

The Review offers the following recommendations by theme, not by priority listing:

A. Defining WATSAN and WASNAN

1. It is recommended that WATSAN be defined as the ICEIDA-sponsored program for *all* projects concerning water and sanitation in Malawi, both current and future.
2. It is recommended that WASNAN be defined as a WATSAN project specific to the water and sanitation activities in the Nankumba TA of the Mangochi District.

B. Development of a Standard Operating Procedures (SOP) for WATSAN

3. It is recommended that clear guidance on the Standard Operating Procedures (SOP) for WATSAN be developed and agreed upon for the smooth functioning of the project, including
 - a. Allowances, transportation, transparency in the budget, project equipment, and employment of project personnel;
 - b. Terms of Reference (TOR) of the Project Supervisory Board (PSB), Project Steering Committee (PSC) and Project Implementation Unit (PIU) are required, including alterations to those included in the PD as required; and
 - c. Terms of Reference of the Chairpersons of the PSB, PSC, and PIU should be clear and concise, e.g., do Chairpersons simply convene meetings or do they have management or oversight responsibilities?
4. It is recommended that concise guidelines be developed for monitoring and evaluation of expenses incurred for borehole drilling, borehole repair/refurbishment, shallow well development, and latrine building, i.e., cost per installation per location.

C. Strengthening project planning, management and monitoring

5. It is recommended that WATSAN be developed into a broader multi-sectoral program especially incorporating the MOH and MAFS.
6. It is recommended that consideration be given to greater participation of the MOH and MAFS on the PSB, PSC, and PIU.
7. It is recommended that PSB, PSC, and PIU meetings be planned well in advance to maximize participation of all members.
8. It is recommended that the PM (Monkey Bay) be proactive in communicating with District (Mangochi) counterparts outside of scheduled meetings and planning sessions.
9. It is recommended that more care be taken in the preparation of minutes of all meetings of the PSB, PSC and PIU, plus other relevant meetings, to include
 - a. Name of the meeting;
 - b. Date of the meeting (with month spelled out);
 - c. Venue;
 - d. Attendees, their precise titles and affiliations;
 - e. Agenda:
 - 1) Welcome,
 - 2) Amendments to the agenda,

- 3) Review of the Minutes of the previous meeting,
 - a) Correction of minutes,
 - b) Approval of the minutes,
 - c) Signing of the corrected minutes by the Chair,
 - 4) Old Business,
 - 5) New Business, and
 - 6) “Action Items” should be identified;
 - f. Rapporteur responsible for Minute taking;
 - g. Proper syntax should be used for minute preparation; and
 - h. Acronyms and abbreviations should be spelled out the first time they are used.
 10. It is recommended that the contract of the current PM be extended through the current terminal date of this phase of WATSAN, i.e., December 2010.
 11. It is recommended that the “acting” PC post be permanently filled.
 12. It is recommended that a needs assessment be conducted to justify the addition of at least two motorcycles and 1 X 1-ton 4X4 single cab pickup to the available motor pool for the FWs, at least on a part-time basis.
- D. Work Plans for 2009 and 2010
13. It is recommended that the 2005 “Water Point Survey” prepared for the Mangochi District - TA Nankumba by the MIWD be better consulted as part of the planning procedure before new boreholes are installed or old ones are repaired.
 14. It is recommended that as a cost saving measure the 2009 and 2010 Work Plans consider borehole refurbishment rather than new borehole drilling (on a case-by-case basis).
 15. It is recommended that WATSAN and MOH collaborate to specifically track cases of cholera, acute diarrhea, child mortality, and HIV/AIDS in TA Nankumba to effectively demonstrate the human health benefits of WATSAN activities.
 16. It is recommended that agricultural demonstration projects be initiated with MAFS to demonstrate the efficacy of the Ecosan latrine and use of human fecal wastes as an effective organic fertilizer, with such projects possibly to include vermiculture.
 17. It is recommended that a routine water quality monitoring program for boreholes, springs and shallow wells is established in affiliation with the MOH and Monkey Bay Hospital.
 18. It is recommended that a routine monitoring program be established in affiliation with the MOH, MAFS and Monkey Bay Hospital to develop a protocol for the safe handling of human fecal material to be used as organic fertilizer.
 19. It is recommended that an active awareness campaign be initiated to assure that persons collecting and/or using latrine wastes are not socially prejudiced within their village.
 20. It is recommended that specific supplemental training be offered to
 - a. the Field Operation Supervisor and two Assistant Field Operation Supervisors in the form of short courses in project planning, monitoring & evaluation, and data handling & interpretation;
 - b. at least two other MIWD staff in WASNAN procedures to further strengthen District participation in WASNAN and enhance its sustainability; and
 - c. provide opportunities for all FWs (and by extension, HSAs) to gain hands-on experience with borehole siting and drilling procedures to strengthen their role in WATSAN and add to sustainability.
 21. It is recommended that a needs assessment be conducted to evaluate the efficacy of deep-borehole hand pumps, their installation costs, longevity, maintenance requirements, and parts availability, and with sufficient justification, that at least three deepwater pumps (replicates) be installed for monitoring and assessment.
 22. It is recommended that the program be proactive in addressing the availability of rings for shallow wells, as most shallow well issues stem from this central need.

23. It is recommended that the full integration of FWs and HSAs into WASNAN continue on an accelerated pace.
- E. WATSAN as a National GoM priority
24. It is recommended that the Traditional Authority (TA) Nankumba WASNAN project be promoted as a model to continue to build the momentum linking water and sanitation as a planning, policy and budget priority at the National level in the promotion of economic development, poverty alleviation, and human health standards as targeted by the MGDS and NSP.
25. With regards to the latter point, it is recommended (and re-emphasized) that the PSB, PSC, and PIU expand the current memberships to become multi-sectoral, but without over burdening the current efficiency and success of WATSAN.
26. It is recommended that the CD and PM be proactive in discussions, especially with the MIWD and MOH, to facilitate the assimilation of the FWs into GoM line positions as they represent an invaluable human resource important to the sustainability of water and sanitation sector at the National level.
27. It is recommended that the CD and PM (representing ICEIDA) and the MIWD (representing the GoM) consider ways and means of co-partnering, planning and cost sharing with other donors to maximize the benefits to be derived by Malawi in the water and sanitation sector, while understanding that such actions will require a SOP protocol to ensure transparency and smooth functioning of such cooperative relationships.
28. It is recommended that the ICEIDA Country Director “plan forward” with Home Office for the continuance of WATSAN after Year 2010.
29. To facilitate the above, it is recommended that an active public relations campaign be initiated to increase the profile of the ICEIDA-sponsored WATSAN program both Nationally (Malawi) and at home (Iceland).

IV. SUMMARY

WATSAN is an extremely well-received ICEIDA-sponsored program with Malawi ownership at every level of cooperation: GoM/Ministry, Regional, District, Traditional Authority, and village. WATSAN currently focuses upon the water and sanitation needs in the TA Nankumba, Mangochi District, where it is known as the WASNAN project. The target goals of the PD are well along the way to being achieved. The governance, management and coordination of WATSAN has increased in momentum since mid-2008 (as evidenced by increased PSB, PSC, PIU and Mangochi District meetings). An effective internal monitoring and evaluation protocol is in place. Constructive comments offered in the Review pale in comparison to the achievements of the stakeholders.

Recommendations of the Review have centered upon actions to improve WATSAN/WASNAN through its terminal date of December 2010, including

- a. Development of a Standard Operating Procedures (SOP) for WATSAN,
- b. Strengthening project planning, management and monitoring,
- c. Addressing specific needs in the Work Plans for 2009 and 2010, and
- d. Facilitating the promotion of water and sanitation as a National priority for GoM planning, policy and budget processes, including the need for the ICEIDA CD to “plan forward” with Home Office to ensure continuance of support for WATSAN after the project termination date of December 2010.

The 2005 Malawi Growth and Development Strategy (MGDS) and 2008 National Sanitation Policy (NSP) have each elevated water and sanitation to a level of prominence for meeting National goals of economic development, poverty alleviation, and improved human health standards. The NSP,

particularly, emphasizes the cross-cutting nature of water and sanitation across all government bodies and sectors as the key to addressing poverty alleviation and promoting economic prosperity. In this context, the CD's vision for ICEIDA's future involvement in Malawi is assuredly correct, i.e., integrating ICEIDA's programmatic planning into a comprehensive package linking the human health, education, and water and sanitation sectors.

V. ACKNOWLEDGEMENTS

The Reviewer extends his gratitude to all those who made his visit to TA Nankumba an enjoyable and informative visit. The commitment to success that was shared by all is infused throughout the Review, ranging from the highest level of governance of WATSAN through the District representatives and the TA Nankumba to the WPCs and FWs. The on-site visits to Kalumba Kamwendo, Kalumba Jere and Malembo Health Centre could not have been met with more fervor for the success of WATSAN/WASNAN than was demonstrated by the villagers themselves and the WPCs. The Chief of TA Nankumba, GVH Chantulo and GVH Mdzodzo demonstrated keen insight into the value of WATSAN/WASNAN in relationship to their respective communities. Lastly, I particularly thank all members of the PIU for working overtime with me and sharing their experience and knowledge.

APPENDIX 1. List of Persons Interviewed during the Review

ICEIDA

Mr. Stefán Jón Hafstein – Country Director
Mr. Glumur Baldvinsson – Project Manager of WATSAN
Mr. Levi Soko – Project Coordinator of WATSAN
Ms. Mary Makande – Field Operations Supervisor, WASNAN
Mr. Geoffrey Perekamoyo – Assistant Field Supervisor (Sanitation)
Mr. Jonas Salim - Assistant Field Supervisor (Water)
Mr. Mabvuto M'manga – Field Worker
Ms. Dorica Smart - Field Worker
Mr. Spider Milambo – Field Worker

Ministry of Irrigation and Water Development

Mr. Boniface Gondwe – Director of Water Supply
Ms. Mavel Nakanga – Head of Water Office, Mangochi District
Mr. Joseph Mapwesela – Acting Regional Water Officer
Mr. H. Pondeponde – Assistant District Water Officer, Mangochi District

Mangochi District

Mr. Kennedy Mughogho – Director of Planning & Development
Mr. Richard Chola – Zone Environmental Health Coordinator, Monkey Bay Hospital
Chief Nankumba
GVH Chantulo
GVH Mdzodzo
HSA Ibrahim Maunde
Sister, Malembo Health Centre
Ecosan Demonstration Site

Kalumba Village

Kalumba Kamwendo – WASNAN 105
Kalumba Jere & WPC – WASNAN 186
WASNAN 173

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APPENDIX 3. Example of Low Technology Vermiculture (Earthworm) Composting Project of Cattle Manure

The following photographs are of a private small scale vermiculture (earthworm) composting project visited by the Reviewer in South Africa. The raw material in the project is cattle manure, but nonetheless the technology lends itself to the use of human fecal material as proposed within the WATSAN program. In fact human feces can be combined with livestock manure locally available in TA Nankumba to achieve the same end result of a high quality organic fertilizer. The caveat is that guidelines will have to be developed for the safe collecting and handling of human wastes (Recommendation 18). Additionally, earthworms used should be indigenous to Malawi unless otherwise permitted for importation.

Vermiculture differs from organic composting. Organic composting is an effective process in which organic materials such as manure, vegetable and fruit matter, leaves, grasses, etc. are heaped together in a pile. Decomposition is through micro-organisms, including bacterial action. Temperatures of a compost pile are actually too hot for earthworms, thus in the photographs presented here it is observed that rather shallow rows are used for vermiculture. Also, vermiculture requires moistness, but not too much water. Vermiculture processing of fecal material is rather rapid within days to a couple of weeks once the worm culture is well established, which is a very good property in a high rainfall area such as TA Nankumba.

Photograph A is self explanatory, i.e., manure has been collected and taken to the treatment site. The vermiculture rows are under roof and on a concrete slab; however, these are not necessary. Rather, a shaded area will suffice and old corrugation or plastic sheets can be used to lay out individual rows (Photograph B) which are inoculated with worms. The rows lie parallel to one another with sufficient space for a person to walk between them and are covered by a plastic sheet. One side of the row is generally open (right side in these photographs) while the other side (left) is covered by plastic to retain a higher level of moisture. Small stakes are used to keep the plastic in place. During rains, the plastic can be used to cover the entire row to prevent erosion and the worms escaping.

A. Manure collecting



B. Compost rows



Photograph C depicts a person “feeding” the wet side of the rows with fresh manure, with Photograph D showing the end result. About 4 to 5 cm of fresh manure are added twice a week to each row. In effect, this means the rows are slowly growing to the left in these photographs. Once fed, the plastic sheets are put back in place to retain the moisture levels on the left side.

C. “Feeding” wet manure



D. Row “fed” with manure



An active culture of earthworms (Photograph E) will rapidly break down manure to a dry rich organic compost (Photograph F) that is easy to handle. In effect the worms convert the human/cattle manure into worm manure.

E. Earthworms



F. Dry and processed compost

