Partners for Water and Sanitation

Note on project reports

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Partners for Water and Sanitation

Project No: 73-NIG
Review of Kafin Madaki and Dass Water Supply Projects
Bauchi State
Nigeria

TECHNICAL REPORT

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Contents

1 Executive Summary

This report is a summary of the findings and recommendations from the visit to the Kafin Madaki and Dass water supply projects in the state of Bauchi, Nigeria. The Kafin Madaki project is an initiative by the Bauchi State Water Board (BSWB) with support from the NGO WaterAid to provide access to clean water for the town. WaterAid requested technical assistance from PAWS, to understand why the project had stalled and guidance on their options for supplying water to the town of Kafin Madaki.

Dass is an initiative by WaterAid and a community organisation (Dass Women Multipurpose Cooperative Union) to provide access to clean water for a small section of the town of Dass. The scheme has community involvement and support. Although not part of the original brief, we were asked to visit Dass to assess the options for extending the benefits of the working scheme. The organisation UNICEF is also working in Dass, although at the opposite end of the town, to provide a series of small water supply schemes.

During a two day visit in March 2007, we carried out a number of meetings and site visits of existing water supply installations run by both BSWB and WaterAid.

We concluded that:

- The Kafin Madaki scheme has the potential to work with little or no investment in new infrastructure - Perhaps as simple a resolution as providing a reliable energy source to the existing borehole pumps and potentially some management of the multiple borehole delivery pipework – to avoid conflict between variable delivery pressures caused by dissimilar head losses.
- Dass has proved to be a shining example of a sustainable small scale water supply project.
- However, caution is recommended before the scheme is expanded geographically and/or demographically. Hydraulic limitations associated with the existing pipe work, pump and storage facility are areas of concern.
- There appear to be two organisations operating within Dass, it is vital that WaterAid and UNICEF communicate about, and agree the strategy for supplying water to Dass.

2 Kafin Madaki Project

2.1 Kafin Madaki

Kafin Madaki is a town of approximately 20000 people (projected from the 1991 Census figures) situated some 45 Km north of Bauchi. It is the local government headquarters of Ganjuwa Local Government.

The major economic base of Kafin Madaki is farming; with weaving and iron working, soap making and brick making on a cottage scale.

There are two main seasons – the hot season peaks around April to May with temperatures reaching 47^{o}C; the cold season is between December and February with temperatures dropping to around 18^{o}C. The wet season is around June to August.

Houses in Kafin Madurki are built mainly from mud block which means extensive rebuilding after the rainy season. There are some buildings constructed of concrete block which withstand the rains. Rebuilding of mud structures requires the use of water.

2.2 Bauchi State Water Board (BSWB)

BSWB is one of the strategic partners for WaterAid in Bauchi State and, under state law, is responsible for all urban water supply. BSWB sits within the Ministry of Water Resources in Bauchi State.

It was immediately obvious that there exists significant commitment from the BSWB staff – In particular the Kafin Madaki Water Supply Project Coordinator. He demonstrated an excellent knowledge of the local infrastructure and an understanding of the hydraulic requirements and limitations of the scheme.

However, it should be noted that position of Commissioner of the Ministry of Water Resources, is essentially a political appointment and as such is vulnerable to changes in elected government.

2.3 Kafin Madaki Water Supply Scheme

BSWB recognise that two previous interventions in Kafin Madaki were not successful due to substandard design and lack of ownership of the schemes.

Water, when it was available, did not reach strategic locations within the town such as the Hospital and secondary school. Currently, with the borehole scheme not operating, the town relies on hand dug wells for water.

BSWB operates all of the assets used in the official water supply for the town of Kafin Madaki. Our discussions with BSWB were specifically aimed at identifying assets related to supply in Kafin Madaki. We gather these consist of:

- *Seven boreholes, although only five are currently operational*
    - *Two overhead tanks (approximately 120 m3 capacity)*
    - *There is a further overhead tank at the Local Government Secretariat – this asset was not surveyed, the purpose and area of supply are not known.*
- *Water Distribution and Transmission mains including:*
    - *4 inch and 6 inch Asbestos Cement*
    - *4 inch UPVC*
    - *4 inch galvanised iron (road crossing)*

The water levels in Boreholes 1 and 2 were dipped and found to be 1.9m and 2.1m below ground level respectively.

Each borehole is constructed with an upstand (borehole liner) of approximately 0.5 metres, on a cap of in situ cast concrete to prevent surface water ingress.

From the 1978 data provided by BWSB each of the boreholes are 150mm diameter with gravel packs, screens and liners. The depth of the boreholes varies but is typically reported to be between 30 to 50m. The report also recommends that the maximum continuous abstraction rate for borehole 1 as 1800 gallons per hour (8 m^3/hour).

Data subsequently provided by BWSB confirms the borehole depths and potential yields, however at the time of writing we are not able to correlate this information with the locations on the network schematic. The supplied data are reproduced below:

BOREHOLE RECORDS AT KAFIN MADAKI
BAUCHI STATE

BH No.	Date of Completion	BH Dia.(mm)	Depth(m)	SWL (m)	DWL(m)	Yield(l/s)	m3/hr	m3/day
1	15/08/1980	150	54	5	17	3.25	11.7	281
2	-	150	56	6.2	26.5	1.18	4.2	102
3	-	150	30	2	11	1.5	5.4	130
4	-	150	-	-	-	-	-	-
5	-	150	-	-	-	-	-	-
6	26/05/1983	150	43	2.3	10.5	1.75	6.3	151
7	06/07/1983	150	43	2.6	9.8	1.75	6.3	151
8	30/06/1983	150	34	8	8	1.62	5.8	140
					Total	**11.05**	**39.8**	**955**

Source: Bauchi State Water Board
Note: There was no layout map to identify the boreholes location

Severe river bank erosion was noted close to borehole 1 and the generator building. The river was essentially dry with a few small puddles remaining; the water level of these puddles was at least 3m below ground level of the boreholes. Some erosion protection had been installed close to borehole 6 where Nim trees had been cultivated.

Due to the variable lengths of 4" pipework from boreholes there is a potential for hydraulic imbalance between individual borehole pumps.

Each 50mm delivery pipe from the individual boreholes has a non return valve (NRV) in place but no checks on operation.

50mm positive displacement flow meters are present on boreholes 1 and 2 –
BH1 read 1455m^3
BH2 read 894 m^3

The generator building appeared to be generally secure, some items were reported as having been stolen – control panel and cabling.
Borehole 1 pump has cable protruding from the cap where it has been cut off.

Borehole 4 was located within a semi derelict building within school yard offering little or no security.

There was visible evidence of iron staining from the dipped boreholes – BSWB say this is a corrosion product of the iron linings.

Both overhead tanks, designated as OHT1 and OHT2 were bolted section Braithwaite tanks of approximately 120 m^3 capacity with 150 mm diameter inlet and outlet pipes.
The overflow pipe at OHT1 appeared to be lost in a roadside culvert; we were unable to confirm the position of the outlet for the overflow. BSWB assured us that there was no leakage from these tanks.

A section of the distribution pipework to a new development has been diverted; there are no records of pipe location or the connection, indicated as point A on the plan.

A comprehensive, hand drawn, network schematic for Kafin Madaki was supplied to us during the initial meeting with BSWB, although no formal maps appeared to exist and all operations are manual (no telemetry or SCADA).

The target per capita consumption figure for this scheme is 80 litres/head/day. Based on a population of 20000 people that would indicate that the scheme has to be capable of supplying 1600 m^3/day.

In the absence of any recorded flow data an assumption that each borehole is capable of producing 8 m^3/hour (1978 yield test) has been made.
Total output from 5 boreholes would be 40m^3/hour, or 960 m^3/day; well short of the target output. This output could provide 48 litres/head/day.

Using the data recently supplied by BSWB the total yield of *six* boreholes would be 955 m^3/day which appears to correlate well with our assumed yield.

BSWB have proposed the following interventions to improve the scheme:

- renovation of the generator, reconnection of the electrical wiring;
- Installation of a booster station between the boreholes and OHT1, with duty and standby pumps;
- relocation of the surface tank on the site of OHT2 to act as a pumping sump;
- installation of level probe controls within the surface tank;
- drilling two further boreholes close to OHT2;
- operation of the scheme as two separate, but linked systems, one on the eastern side of the road, the other on the western side (use of existing water main sluice valves as closed or parting valves).

The proposed intervention and existing scheme are critically reviewed in section 4 of this report.

2.4 Geography and Geology [1]

1 Oyawoye, 1965; and Bauchi State Water Board

The town and much of western Bauchi State are underlain by Pre-Cambrian and Palaeozoic continental shield rock type, collectively known as the Basement Complex.

The basement Complex is dominated by coarse crystalline rocks such as porphyritic granite-gneiss, with migmatite and pegmatite veins that have undergone extensive stress and weathering (lateritisation).

Kafin Madaki sits on an outcrop of very coarse grained olivine rich quartz syenite, distinct from the surrounding country rocks of bonded biotite gneiss and granite. This outcrop is characterised by high iron content and decomposes under weathering to yield a fertile soil of rich red loam.

The weathered zone is commonly around 35m thick and rarely exceeds 40m. The underlying profile of fresh bedrock and associated groundwater contours are normally a reflection of the surface topography.

Surface physical features in the area are typical of Basement Complex terrains comprising steep bare rock bergs which outcrop on the interfluves separating discrete intervening basins.

2.5 Project Goals and Objectives [2]

[2] Bauchi State Water Board

BSWB have documented the goals and objectives for the Kafin Madaki water supply project, these are reproduced below:

Goals
The main goal of the project is the provision of sufficient potable water and adequate sanitation in an affordable way through participatory investment by State government through Bauchi State Water Board, Development Exchange Centre, beneficiary community and WaterAid. The project will contribute to the reduction in poverty and, overall, the improved well being of the community.

Objectives

- *To achieve these goals, the key outcome objectives of the project are:*
- *Promote improved hygiene and sanitation practices by developing and applying appropriate participatory and social marketing methods and techniques;*
- *Support, strengthen and enhance community management resulting in sustainability of water supply and sanitation services;*
- *Increase the capacity of the community to obtain the basic water supply and sanitation services that the community themselves can manage;*
- *Increase the capacity of the State Government institution to manage programme implementation in support of communities in an efficient and cost effective manner;*
- *Support the poverty and reduction programme by reducing diseases and workload burden so that the poor and disadvantaged, especially women in the community can lead a more productive and fulfilling life;*
- *Promote better health practices, focussing on safe water, good hygiene and proper excreta disposal;*
- *Monitor the performance of the project for sustainability and development.*

Project Composition and Structure
The project is being developed within the context of the overall water and sanitation sector which is part of the NEEDS. Government and donor/lending agencies have a broad consensus on the need to pursue the Sector Wide Approach (SWAP) within the context of a poverty reduction strategy. The project is composed of the key component of hygiene promotion and education, sanitation and water supply. It is also structured to include three types of programme; government, NGO programme and community participation. The project will pursue an integrated approach for the delivery of safe water and improved sanitation and hygiene services for the community, health centres, schools and other public/private institutions. The main components of the project therefore are hygiene promotion, improve sanitation and water supply.

2.6 Sanitation

There is no organised sewage disposal system for Kafin Madaki. Septic tanks and soakaways are used in the recently developed areas of the town. The older parts of the town make use of pit latrines, which have been reported as being septic, malodorous, highly offensive and a danger to health.

The water table in the rainy season is usually about one metre below ground level which has resulted in the collapse of basic pit latrines. The local Government has built VIP latrines in certain areas of the town and plans to extend their use over time through out the town.

There is no organised solid waste disposal system within the town. There are a number of informal dump sites. Solid waste disposal is the responsibility of the Local Government.

Flooding and erosion of roads and water ways is reported to be a major problem during the rainy season. Drains and gullies are often blocked with litter and silt resulting in large scale erosion of roads. Extensive riverbank erosion was observed at the borehole site.

3 Dass Water Supply Scheme

3.1 Dass

Dass is a small town in Bauchi State approximately 50 Km south west of Bauchi. The population of the town is not known but estimated at around 15000 people.

Dass Women Multipurpose Cooperative Union (DWMCU) is a NGO founded in 1985 with the aim of assisting to address women and children development issues such as economic, education, health and political empowerment.

A copy of the DWMCU brochure was give to us during the visit and it attached as Appendix 6.2.

3.2 Dass Water Supply Project

The water supply project in Dass has been developed by DWMCU in partnership with WaterAid. Both WaterAid and DWMCU are keen to extend the area supplied by the scheme.

The scheme currently consists of a single operational borehole located in the eastern fringe of the town. The borehole pump is powered by a four panelled solar array, photovoltaic (PV) assembly, pumping water to a nearby 8 m^3 capacity overhead welded steel tank. No technical data relating to the PV system was available. Observation only suggests a monocrystalline silicon cell system supplying a DC power source to a submersible pump. Again, no technical data was provided for the pump.

Two further boreholes have been drilled but were not operational at the time of our visit.

3.3 Geography and Geology [3]

[3] Mazurah Engineering and Environmental Services 2005: report on Dass Water Supply Scheme

Dass is underlain by rocks of the crystalline Basement Complex, where groundwater occurs in the weathered overburden (saprolite zone) and fractures and joints in the fresh/partially weathered bedrock. Granific iselbergs can be clearly seen inside the town. Places such as Dass have been found to be hydro geologically favoured for occurrences of groundwater.

4 Review of Projects

The main objective for the PAWS visit was a technical assessment of WaterAid's Bauchi Urban WATSAN projects, and make recommendations on the way forward. The project implementation team for the Kafin Madaki Project (BSWB), headed by a Project Coordinator, looks to be competent and committed to the success of the project.

4.1 Kafin Madaki

4.1.1 Existing Scheme

It is our opinion that the scheme, in its current asset build, is robust enough to provide a supply of water to the population of the town. The appropriate sizing of the existing water mains, their location and the topography all suggest that water will flow from the multiple boreholes, to OHT1, followed by a gravity supply to the town.

Based on the assumption that the five currently in service bore holes are producing 100% of their 1978 measured yield, OHT1 would fill and empty eight times in 24 hours (assumes that OHT 2 is supplied via the proposed boreholes)
This level of turnover indicates inadequate storage relative to the assumed achievable borehole outputs.
This concern is exaggerated if the two currently inoperable bore holes are brought into service.

The advocation is that, by and large, the water distribution network within Kafin Madaki is generally appropriate.

However, a question over the systems integrity does remain.

We were informed that, during recent construction works within the town, a section of the PVC water main was diverted to accommodate the construction. The diversion works were undertaken by the local developer and it seems that BSWB were not involved or undertook any form of inspection of the works. It is therefore a potential risk to the whole town being supplied, as the area in question lies between OHT 1 and the supplying boreholes. The unknowns are:

- Pipe materials and diameters of diverted pipes
- Was the diversion element of the mains connected
- Buried valving

As no energy was available during the survey, no pump trial was completed and therefore, no certainty can be attached to whether any restriction or physical connections exist.

The five number serviceable bore holes share a common delivery pipe – a single 4" UPVC. Connected to this pipe are the individual bore delivery pipes. These are confirmed to be 2" galvanised iron.
No internal pipe wall inspection was possible. It is therefore assumed that, consistent with other regional measured pH levels (Hydrogen Ion Concentration), a reading of between 4 -5 would be expected. It is therefore probable that internal corrosion is a hydraulic consideration, in terms of pipe roughness.

Data provided retrospectively by BSWB regarding pipe lengths and connectivity to the common 4" UPVC pipe has been used to model the effects of the convergence of the five borehole flows.

WS Akins has kindly offered to run some models – the output from these models will be issued as an addendum to this report.

4.1.2 Proposed Intervention

- Renovation of the generator, reconnection of the electrical wiring.

This is essential for the operation of the scheme and we would strongly support this intervention.

- Installation of a booster station between the boreholes and OHT1, with duty and standby pumps; relocation of the surface tank on the site of OHT2 to act as a pumping sump; installation of level probe controls within the surface tank.

We would question the need for this intervention, before running the scheme as originally designed. The hydraulics of the existing system should be capable of providing water to most parts of the town, provided the supply from the boreholes is maintained and is enough to satisfy the initial surge in consumption.
(The further modelling by Atkins will help to determine if we need to connect each borehole individually, however we will need the output from each borehole to run an effective model)

- drilling two further boreholes close to OHT2

We would support this intervention, provided the yield of the boreholes was sufficient.

- operation of the scheme as two separate, but linked systems, one on the eastern side of the road, the other on the western side (use of existing water main sluice valves as closed or parting valves).

We would support this intervention, in association with the drilling of two new boreholes. This would allow flexibility of supply to the town.

4.2 Dass

The supply scheme in Dass appears to be a well designed and well run operation. It is only a small-scale supply scheme, currently operating from one supplying borehole. However the use of photovoltaic technology removes the reliance on the incumbent mains electricity supplier, a reliable supply of diesel or an operational generator.
It does introduce the question of security, as already one set of panels was reported as having been stolen; however this does not detract from what appears to be a sustainable solution.

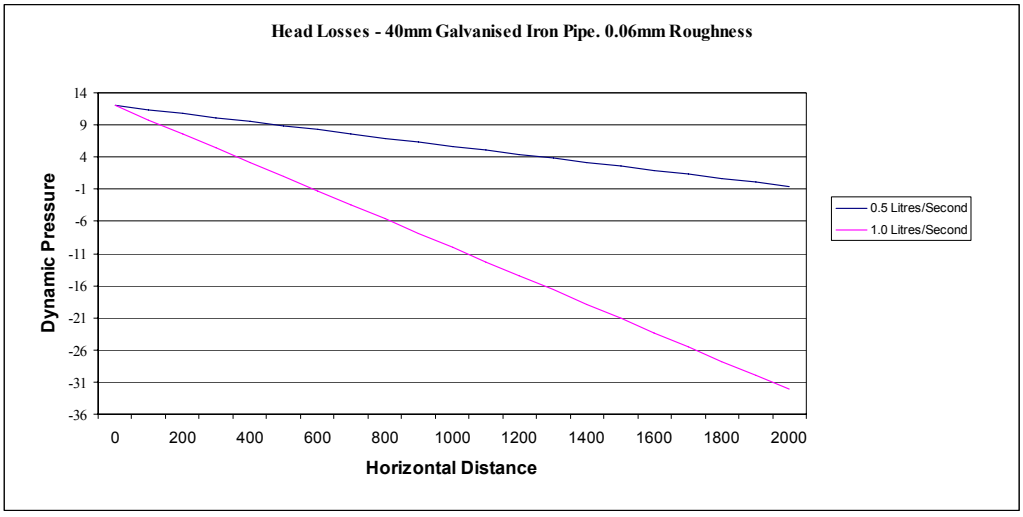
The current yield of the scheme is not known and caution should be exercised when considering any extension of this scheme.
Similar technology could be introduced on the other two boreholes and the total yield of the scheme must be assessed before embarking on any extension of the supply area.

The design of any extensions to this system must take into account the hydraulic limitations of the existing pipework, the storage facilities and the pumps.

Undertaking pressure loss calculations clearly defines the limitations of the existing small diameter pipe work. The high level service reservoir located at Dass, with a top water level of 12 m above ground level has been used. Topographical losses/gains are not considered as the Dass region is essentially flat. Internal roughness has been estimated at 0.06 mm.
This may well be optimistic considering the age of the pipe, the pH of the water and the low velocities.

Graph 1 indicates the hydraulic losses through the existing 40mm pipe, with flows of 0.5 l/sec and 1.0 l/sec.

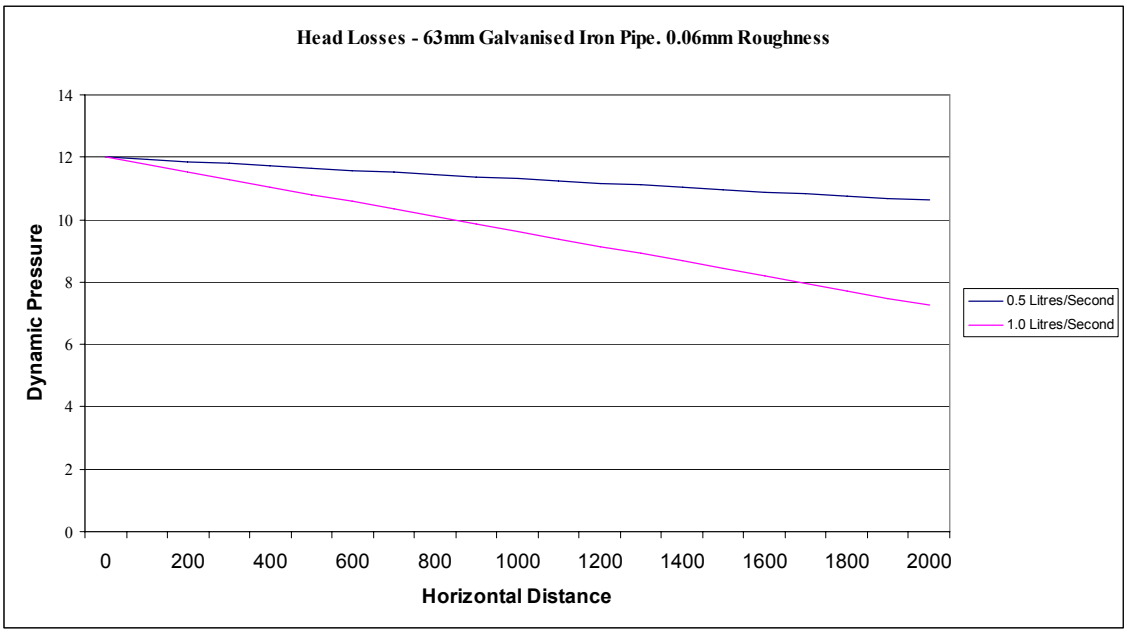
Graph 1



With a flow of 1.0 l/sec the headloss effectively reduces the flow to zero within approximately 600 m. This length would be extended to around 1800 m with a reduced flow of 0.5 l/sec.

Graph 2 indicates the radical reduction in head loss with only a minimal increase in pipe diameter – from 40 mm to 63 mm.

Graph 2



By increasing the size of the pipe water could be made available at some distance from the storage tank.

It is therefore apparent that the scheme is currently limited by the use of small diameter pipes. Increasing the diameter relieves pressure loss exponentially. However, with an increase in pipe diameter would come the potential for an increase in flow. This in turn would place greater demand on both storage and raw resources. Both of which are considered to be latent issues should the scheme be expanded.

This is an area where PAWS may be able to provide further support, in terms of hydraulic modelling.

We would welcome any detailed information that exists about the photovoltaic assembly and the pump as this would appear to be an excellent option for small supply areas.

4.3 Sanitation

Although outside of the terms of reference, we also considered the sanitary aspects of the Kafin Madaki and Dass areas and offer advice on a possible course of action.

At Kafin Madaki, DEC is in partnership with WaterAid on Hygiene promotion, and in Dass, DWCMU is in partnership with WaterAid on sanitation and hygiene promotion.

As far as we could gather, sanitation is essentially considered to be an individual concern rather than a public one. We are not aware of the existence of any sewerage network in either town; pit latrines, soakaways and septic tanks appear to be the rule.

Having said this, the sanitary situation is not as bad as it could be. The soil is sandy and apparently offers good infiltration capacity as no open sewers were observed. We did not observe widespread open defecation at the perimeters of the towns.

During the rainy season the sanitary situation could be expected to deteriorate markedly, as infiltration capacity is exceeded and open defecation is washed into the streets.

Traditional sewer systems are very expensive. It is often far more expensive to take waste water away from a suburb than it is to deliver clean water, and this would almost certainly be the case in Kafin Madaki and Dass. Having said that, the towns are well suited to a traditional drainage system as streets are wide and unpaved and would permit construction of a network, possibly by residents themselves. Such drainage systems rely on a minimum flow of water to remove the waste, and this flow may not be attained where daily consumption is assumed to be less than 30 litres per capita. Some consideration could be given to house or street (communal) septic tanks, or the construction of pit latrines.

Given the typically low willingness to pay for sanitation, a payment mechanism could be arranged such that the cost of water includes the cost of sanitation. In this way, Water Management Committees could become responsible for sanitation, and a fraction of revenues collected for water could be put towards the construction of street networks, septic tanks, sewage trucks or subsidising pit latrines.

Although the technical aspects of sanitation problems were not assessed as part of the site visit, some consideration was given to the problem and likely impacts of the water supply scheme.

The most important point regarding sanitation is that by increasing the amount of water easily available to the residents of Kafin Madaki and Dass, any extension of the supply project will inadvertently exacerbate the existing sanitation problem.

Housing may be of sufficiently low density to avoid public health problems associated with lack of drainage. The availability of water may increase the use of pour-flush toilets and decrease open defecation.

A responsible water supplier should still consider the impacts of supplying water on sanitary conditions. There was little evidence of open sewers in Kafin Madaki or Dass but this would be expected to increase with the availability of more water. Despite a potential decrease in open defecation, the net effect on public health could prove to be negative.

5 Recommendations

5.1 Renovation of the generator, reconnection of the electrical wiring.

This is essential to the operation of the scheme. Once complete the borehole pumps should be tested and the yield of each borehole established.

5.2 Run the scheme as originally designed

Once the generator has been repaired and all five borehole pumps are operational, the scheme should be run as originally designed.
The integrity of the pipework system and tanks should be checked and appropriate action taken if necessary to minimise any leakage

5.3 Water Quality Testing

Once running the quality of water supplied to Kafin Madaki should be checked, we would recommend checking the basic chemical and microbiological parameters:
pH
Turbidity
Colour
Total hardness
Total coliforms
Faecal coliforms

If possible a check on the metals content would be very useful particularly, Copper, Lead, Zinc, Iron, Manganese and Aluminium.

5.4 Future Intervention

Should the yield of the five boreholes not prove sufficient to meet the needs of the town, then the two further boreholes should be drilled, the yields assessed and the system operated as two separate supply but linked supply areas.

The installation of a booster station is not considered to be appropriate at this time.

6 Further Information

To enable us to more fully assess the scheme it would be useful to have the following information

GPS data, including elevation, about the locations of the boreholes, OHTs (inlets, outlets and top water levels), standpipes.

Confirmation of the length and diameter of each pipe from each borehole to OHT1.

Confirmation of the actual output from each borehole.

7 Appendix

7.1 Selected photographs

7.1.1 Borehole at Kafin Madaki

7.1.2 Erosion near borehole

7.1.3 Dipping the borehole

7.1.4 Overhead Tank 1 (OHT1)

7.1.5 Overhead tank 2 (OHT2)

7.1.6 Available water at Kafin Madaki

7.1.7 Hygiene class at Kafin Madaki

7.1.8 Dass

7.1.9 Solar powered water supply scheme at Dass

7.1.10 Standpipe arrangement, Dass

7.1.11 Standpipes at Dass

7.1.12 DWCMU

7.1.13 UNICEF scheme, Dass

7.2 Copy of DWMCU brochure

SOURCES OF FUNDING

DWMCU sources its fund from entrance fees, monthly dues, annual registration, sales of loan forms and pass books, loan administrative charges, income generating activities and donations.

FUNDING SUPPORT

DWMCU has received support from both internal and external sources. Grants have been received from WaterAid Nigeria a UK International Charity based organisation, African Development Foundation (ADF) Washington DC, and Partners for Development (PFD). Other supporters such as British High Commission, Voluntary Services Overseas (VSO), Capacity Building for Decentralized Development(CBDD),Community Development Foundation (CDF) Ireland Aid, Enwai Centre for Political and Economic Research (ECPER) and Developing Agricultural Input Market in Nigeria. (DAIMINA) have provided support to DWMCU on certain project at one time or the other.

FOR FURTHER INFORMATION CONTACT:

DASS WOMEN MULTIPURPOSE CO-OPERATION UNION

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BROCHURE

DWMCU

DASS WOMEN MULTIPURPOSE CO-OPERATIVE UNION

Dass Women Multipurpose Cooperative Union

is Non-Governmental, Non-Profit making, Non-Religions and Non-Political Organisation. Founded in 1985 by 45 Women as founding Members with the aim of assisting to address Women and Children development issues such as Economic, Education, Health and Political Empowerment and got registered under its current name in 1997.

CORE VALUES

* That Women and Children are poor not because they are lazy but lack access to capital, Education opportunities and Skills.
* We value Women and Children's rights as fundamental human rights.
*Believe in equity, fairness and justice without discrimination of any form.
*We value Holistic approach to development rather than atomistic hype.
*In collaborating with other organisations / Institutions or individuals in facilitating development and reducing poverty.

VISION

Envisioning a society where equal access to service opportunities and better living condition are promoted and encouraged for all.

MISSION

Empowering Women and Children towards self-reliance and active participation for sustainable development.

STRATEGIC OBJECTIVES:

* To improve the economic status of Women through self reliance strategies.
* To promote women's reproductive health and reduce HIV/AIDS, water, sanitation and hygiene problem.
* To promote the rights of the vulnerable Women, Youths and Children.
* To build the capacities of CBO's/NOG's for sustainable development.
*To collaborate with other developmental organisations / Agencies to improve the living standards of Women and the most vulnerable communities through soci-economic activities, and capacity building.

PROGRAMMES AND ACTIVITIES

1. MICRO FINANCE

DWMCU provides micro-finance services to Women groups and individuals in the target areas. The scheme is offered to all desirable members for income generating activities. A composary savings of 20% of the loan received is mandated to all borrowers

2. HEALTH AND WATER, SANITATION/HYGIENE PROMOTION

DWMCU support the provision of water, sanitation and hygiene promotion to the most vulnerable communities in all our areas of operation.

DWMCU has linked up micro finance with reproductive health awareness creation is carried out on STI's, STD's, HIV/AIDS and Family Planning to member.

3. EDUCATION AND TRAINING

Functional literacy classes and post literacy are introduced for Women and drop outs girls who could not finished their secondary school. Nursery School also establish since 1986.

IEC on hygiene, reproductive health and nutrition and capacity building are organised for CBO's,CBD's and Male motivators.

4. AGRICULTURE AND SMALL ENTERPRISES DEVELOPMENT

Assist Women farmers etc with agricultural inputs at affordable price therefore limiting the problem of middle men.

Organise Enterpreneual skills training and capacity building.

5. GOVERNMENCE AND PARTNERSHIP

Organise Advocacies and civil education training to stakeholders and members

Network and partnership with both National and international Organisation

MANAGEMENT STRUCTURE

DWMCU is guided by a constitution. It has a structure comprising a board of trustees at the apex followed by a six member management team under which is the staff.