

# MERCY CORPS

## WATER & COMMUNITY HEALTH PROJECT

### FIELD VISIT REPORT

#### ANTHONY WATERKEYN

#### NOVEMBER 2006

**Project Data:**

Project signed with UK Big Lottery Fund in June 2006  
Funding approx £350,000  
Duration: 24 months  
Completion by: May 2008  
Location: Buhera & Chipinge Districts, Manicaland Province

**Project Outputs:** (as per Contract Document)

*School Toilets* : 100 latrine stances (Y1) + 120 (Y2) = **220 toilets**  
*Water Points*: Rehab/construct 80 Wells / Boreholes (Y1) + 92 (Y2) = **172 WPs**  
*Water Point Committees*: 10 (Y1) + 10 (Y2) = 20  
*Village Pump Mechanics*: 10 in Y1 + 10 in Y2 = **20 VPMs**  
*PHHE*: 200 community stakeholders trained (Y1) + 300 (Y2) = **500 EH trainees**

**Project Partners:** Mvuramanzi Trust (± £90,000). Fit 120 Wells with Rope/Washer pumps; construct 220 School toilets; carry out water quality testing)

**Project Management** : Country Director: Rob Maroni (Harare)

Project Manager: Passmore Chinyama (Buhera)

**BUHERA**

5 Wards:- 1, 2, 8, 10 & 31

Mercy Corps Staff based at Murambinda:-

Logistics Officer:	Peter Ngarize
Project WatSan Officers	Shadreck Kundishora and Admire Nyathi
Office Assistant	Nyasha Mubata

**CHIPINGE**

4 Wards:- 23, 28, 29 & 30

Mercy Corps Staff based in Chipinge:-

Project WatSan Officers: Stanley Krias, Edmond Musegedi and Lloyd Chasinda  
Office Assistant: Lovemore Chihari

## Concerns over the 350 Rope-Washer Pumps (RWP) installed last year



This latest version (July 2006) of the RWP will require demolition of the masonry support to the delivery pipe in order to gain access down the well (by removing the semi-circular concrete slabs). Access down the well is vital in order to carry out repairs to the rope when it breaks and to deepen the well when the water table drops as it certainly does during dry years. It is highly unlikely that those vulnerable families will be able to afford the cost of the cement and new rope required for such repair... let alone the 'know-how' to affect such repairs.



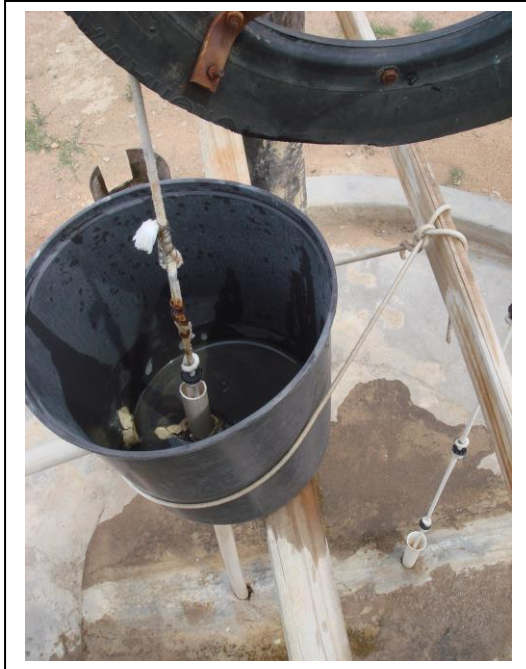
This RWP was installed within the past 4 months and yet it has already lost 25% of its washers! Note the torn washer that was found next to the pump. It is highly unlikely that this pump will still be working at all in a short period of time.... Like most of the others??



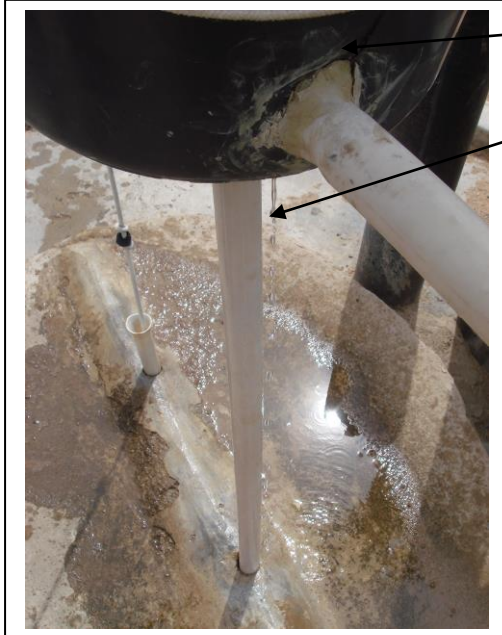
For over 12 years about 60 people (over 10 households) benefited from this well that had previously been fitted with a bucket and windlass. As an Upgraded Family Well (UFW) it had clearly proven itself to be robust, sustainable and reliable and was readily maintained by the families themselves.

But, in Feb 2006, it was demolished and replaced with this RWP and within just three short months it was failing in the following ways:- the timber upright on the LHS had already come adrift; there were numerous joints in the rope and washers were coming off; the yield was very disappointing and required strenuous and difficult work to turn the handle by someone balanced precariously atop the narrow steps (dangerous for old and young alike). The owner was justifiably dismayed by what had happened in such a short period of time. Such bad examples risk sabotaging this whole MC programme! Apparently there are already similar stories to tell from at least half of the other 350 RWPs so far installed for vulnerable households?

## Rope-Washer Pump vs Bucket & Windlass, (UFW)



Already significant make-shift repairs have been carried out on this RWP despite recent installation. This is certainly NOT a robust water-lifting device by any measure!



Note the various attempts at Trinipon repairs on this RWP. Such leaks will obviously reduce delivery quite significantly. This poor RWP model was eventually dropped as further refinements were necessarily introduced.

BUT... the fact that it was even tried at all only indicates that the design of RWPs in Zimbabwe has certainly not yet been refined or standardised in any way.

Zimbabwe has gained considerable first-hand experience of low-cost pumps over the years. In the 80s there was the Blair pump, the Nsimbi pump and the Bucket pump all of which had to be abandoned when unexpected weaknesses emerged after many years of implementation and it became apparent that rural families would be quite unable to replace the broken or worn parts themselves as had been the intention all along. Exactly the same failures with the RWP are now coming to light!



Already a broken strap-support to this 3-month old RWP. Plastic and rubber products tend to deteriorate quite rapidly in the sun as is clearly the case here.

*Note: this was found to be the case with Zimbabwe's famous PVC Blair pump of the 1980's that had to be abandoned after several hopeful years of widespread distribution throughout the region.*





This is yet another example of a RWP that has clearly failed. What was once a perfectly good upgraded family well has now reverted back to being a simple bucket and rope (i.e. no windlass).

This also goes to show that during the first phase of this MC programme (i.e. during the past 12 months), experimentation using the RWP has been the norm. As a result we now have over 350 vulnerable households in Buhera and Chipinge that have been used as experimental guinea pigs! Surely this is exceptionally poor practice and could easily backfire if the newly elected Councillors take up the issue?? Remedial action is strongly recommended as a matter of urgency.



Here we have the project teams from both districts inspecting the same failure. As a matter of principle, NO upgraded family well (bucket and windlass) that is functioning properly should ever be destroyed in order to equip it with a RWP. Rather upgrade ONLY those wells that have never been upgraded before (of which there are many) or, better still, construct brand new wells altogether for those families who are unable to construct their own, by facilitating local well-sinking teams.

*Support the principles of 'Self Supply'! Please do not sabotage this vital initiative that is Africa's only hope of ever achieving the MDGs.*



The owner of this UFW took the trouble to deepen his own well by >2 meters last year by blasting through the rock that can still be seen in the foreground. He now has year-round water for his highly ambitious vegetable, herb and fruit-tree projects. He constructed this well himself in 1995 with support from Mvuramanzi Trust who provided a steel windlass and 5 bags of cement; a subsidy worth just 25% of total cost. As recently as 15 years ago, one would hardly ever see a windlass in the rural areas of Zimbabwe. Now there are over 100,000 and UFWs are clearly visible throughout the country. Most have been constructed by the families themselves with ZERO subsidy... this is genuine 'Self Supply' and is the best example of its kind in the whole of Africa!



This very simple, beautifully balanced and light windlass was fabricated in a local metal workshop and was paid for entirely by the household itself (i.e. zero subsidy!).

Tremendous added value to this project will be gained if local suppliers of windlasses, tin lids and buckets can be encouraged to set up shop.

In addition, every Ward or even Village should be supported to establish properly trained 'well-sinking teams'. They could then be contracted out to construct wells for the most vulnerable households. Local skills like these will ensure sustainability and widespread uptake of the UFW (self-supply) approach.



Yet another 'home grown' version of the bucket and windlass water lifting device that has proven to be both robust, and very sustainable.

UFWs have clearly been proven to be very popular with rural Zimbabweans.

Some UFWs have been constructed by families themselves down to depths exceeding 30 meters! Even the DA of Buhera has a 32 m deep UFW in Ward 10.



Note the wide extent of this nutrition garden from just one UFW!

Fenced-off nutrition gardens like this one are increasingly becoming the norm whenever an UFW is installed. This provides not only much better nutrition for the whole family but, most important, a good source of income from the sale of produce. Medicinal herbs are increasingly popular.





This Community Health Club (CHC) member in Makoni constructed this deep well fitted with a simple wooden windlass all by herself, using local materials. Such home-grown upgrading efforts can dramatically improve the quality and convenience of having water close to the home as well as the obvious hygiene and health benefits.

See Page 7 below for a view of the large drip-irrigated tomato and vegetable garden that this well also supports.



Before being 'upgraded' it is important to ensure that the well will last for many generations. This requires proper lining with burnt clay bricks all the way down.

There is a great opportunity to add more value to this project by supporting the establishment of properly trained and equipped Well-Sinking Teams. This would not be difficult nor very expensive (excellent well sinking equipment can be purchased from V&W Engineering in Harare). Local fabrication of the equipment could also be considered. If every Ward had an entrepreneurial and efficient Well-Sinking Team the impact for rolling out UFWs (and also deepening existing wells), would be considerable... and make the programme even more sustainable. On-the-job training (i.e. providing free wells) could be located at the most vulnerable households.



This Makoni CHC member, Mrs Toriro, is the proud owner of this UFW. Behind her can be seen part of a flourishing vegetable and herb garden (she has over 80 different herbs!) plus countless fruit trees. She claims that the CHC that she joined ten years ago has enabled her to become totally 'self reliant'. Her club has moved on from water and sanitation issues and now concentrates on a wide range of income generating projects, adult literacy, and widespread home care for PLWAs and OVCs.



In 1995, at the Annual Review of the Water & Sanitation Sector, the Upgraded Family Well was formally adopted as being the technology of first choice wherever feasible. This came about after 20,000 UFWs had been completed through Mvuramanzi Trust and the technology had proven itself to be sustainable during drought years (1992) as a result of family ownership. In addition, numerous other benefits like nutrition gardens, income generation, improved household hygiene & health all contributed to understanding that although its a very old technology (over 5,000 years!) it works exceptionally well...just like the wheel... and anyway, there is nothing to stop families eventually upgrading to higher yielding pumps in due course, household finances permitting~!



Yet another good example of an elaborate and ambitious nutrition garden... proof that even the simple UFW can be put to such extensive use for income generating purposes... and obviously, when located close to the homestead, hygiene and health benefits also accrue



This family could still further upgrade their well ... but it does at least have a sensible if rather basic water lifting device in the form of this home-made timber windlass as well as a tin lid and an up-stand that does provide some form of sanitary seal. The toilet of this homestead is over 30 meters away which is adhering to the general rule: *"No well within 30 meters of a pit latrine"*.

Note the use of drip irrigation that is being used to grow an impressive crop of tomatoes!



## SCHOOL SANITATION



This concrete/brick Hand-Washing Facility (HWF) is far too elaborate and expensive and is in fact not practical. It is neither likely to be filled with water nor properly maintained. The tap is vulnerable and could be stolen and the tank could be vandalised during the school holidays (as has in fact already been reported).

It would be preferable to use an 'off-the-shelf' container (e.g. a 50-100 litre drum that can be fitted with handles, a lid and a simple tap with a flow reducer inserted. Such a mobile HWF can be locked away during school holidays, can be easily cleaned and can be moved about as necessary (e.g. to the food distribution point for 'before-meal hand washing).

If a hand-full of Omo is added to the water it will make the water soapy which is good for hand washing, and avoids likely theft of soap (and use as drinking water). A simple pedestal with drain should be constructed for this form of low-cost HWF.



This recently constructed and so-far unused school latrine squat-hole is simply horrible! The shape is hardly ergonomic and there is some wire reinforcing across the centre of the drop hole... definitely not a good idea! This is a result of the current rather primitive practice of forming the hole by using two shaped bricks while casting the concrete slab and then having to break them out later which results in the sort of thing seen here. Rather use a properly shaped timber or steel mould that ensures the all-important 'key-hole' ergonomic shape. After all, this is about the most important part of the whole latrine? A high quality cement screed should slope towards the drop-hole for ease of cleaning.



These recently completed Vent Pipes do not have the all important fly screen. It is usually difficult to determine the state of the fly screen which anyway corrodes after a few years. A simple design change to the top of the VP that provides a 45° slope to the mesh with a gable shaped wall on either side greatly improves air flow and ability to inspect the screen.

Otherwise the superstructures as constructed here are quite impressive although some very significant '*added value*' should seriously be considered. ....





Local building teams are being trained to construct school latrines. It would be relatively simple to add considerable value to School Sanitation (nationally) by considering the requirements of pubescent girls by providing them with private washing facilities (i.e. to help them better cope with menstruation).

Globally there is increasing concern that girls tend to drop out of secondary school because of poor school sanitation. This is devastating for both the girls and for long term development.

Good, very low-cost designs have been developed and tested in Zimbabwe that should urgently be adopted by this project!



Another obvious improvement would be to provide simple, low-cost urinals next to the boys' toilets.

At least one latrine stance per block should be constructed to allow for disabled children to use a latrine (e.g. by simply providing wheel-chair access, hand-holds and a pedestal seat; all of which can be achieved at minimal cost... just some prior planning and consideration!

If such simple 'added value' measures were taken it would go a long way to enhancing the status of this whole project both within the respective districts and nationally.



These school children are bringing water for the builders to mix their mortar. The same process of collecting water every day to fill the HWF should be adopted. For hand-washing to become effective, it is essential that proper supervision by the teachers and prefects ensures that washing hands after use of toilet becomes a habit that the children will adhere to and also practice at home. Establishing School Health Clubs is a good means towards achieving this outcome.

## HEALTH & HYGIENE EDUCATION TOWARDS BEHAVIOUR CHANGE



### Knowledge, Attitudes and Practice (KAP)

Global Studies on the impact of the PHAST approach have clearly established that PHHE may transfer Knowledge but will invariably NOT change Attitudes or Practices. And yet Behaviour Change can be achieved at very low cost and with outstanding results in a very short period of time. Community Health Clubs (CHCs) already cover most of neighbouring Makoni district and could readily be expanded to Buhera and Chipinge. These CHC members are proudly holding up their Graduation Certificates after having completed all 20 preventative health topics (as per their Membership Cards) and after having completed all the required practical improvements within their homes.



The originality, creativity and cleanliness of this rural kitchen clearly demonstrate the pride and enthusiasm that CHC members have towards improving the health and welfare of their families and their general quality of life.

The six-month process of CHC training enables legitimate leadership structures to be established that can then go on to ensure a broad base for all future development activities within their community environment. Social Capital is rapidly strengthened together with sustainable livelihoods.



The weekly CHC training session goes on for an hour or two. The sessions are facilitated by an EHT (after training by ZimAHEAD) and are highly participatory and designed to be fun and all-inclusive.

Drama and songs enliven the sessions considerably as well as to ensure that the lessons become ingrained. Soon this process leads to a strong “culture of health” developing within the community which has been well proven to be long sustained.

The CHC methodology is rapidly gaining international recognition as being the most effective means to achieve positive behaviour change. (Ref. London School of Hygiene and Tropical Medicine and World Bank- WSP ).





One of the first tasks a CHC is expected to do is complete an accurate Village Map of their area indicating location of all members and existing water points, latrines, roads, rivers etc. This helps in creating a sense of identity for the Club as well as to assist in all future development planning that the CHC decides to embark upon.

Such 'maps' are usually transferred onto colourfully embroidered cloth banners together with the CHC name and slogan. This is held up and waved at CHC gatherings and inter-CHC Model -Home competitions.



Community Based Management (CBM) of Hand Pumps is assured when the whole process and training originates within the context of a CHC.

An established CHC will be in a very strong position to take on the whole role and responsibility of CBM that includes good book-keeping and the productive use of water to ensure that there are potential earnings to purchase pump spares as and when required. This CHC has already established a large communal garden in order to grow and sell vegetables. They are unlikely to allow their pump to be poorly maintained when so much is at stake.

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1	Zvakatikomberedza	02/03/06	[Signature]
2	Kuona rudzi nwezvirwere	19/02/06	[Signature]
3	Noupenyu hweutachiona	19/02/06	[Signature]
4	Utsanana / Kugeza Maoko	19/02/06	[Signature]
5	Kuchengedza misha zvineutsanana	06/03/06	[Signature]
6	Panobva mvura yokumwa	22/02/06	[Signature]
7	Kushandisa mvura	31/03/06	[Signature]
8	Kuchengedza mvura mumba	10/03/06	[Signature]
9	Mvura yekumwa	21/02/06	[Signature]
0	Kufamba kunoita tsina mukawwa	03/03/06	[Signature]
1	Manyoka	21/02/06	[Signature]
2	Mvura inemunyu neshuga	19/02/06	[Signature]
3	Zvimbuzi	19/02/06	[Signature]
4	Chipfunga	06/03/06	[Signature]
5	Chimhungwe	19/02/06	[Signature]
6	Honye	14/06/06	[Signature]
7	Zvirwere Zveganda / Maziso	21/03/06	[Signature]
8	Mukondombera / Rurindi	16/06/06	[Signature]
9	Kudya Kunovaka Miviri	02/03/06	[Signature]

Community Health Club (CHC) Membership Cards ensure that a structured approach will be sustained in order to cover all 20 preventative health topics.

Preventative Health Topics selected are those that are of concern within any particular local environment (e.g. malaria or infant care may be the major concern in some countries as is the actual case in Sierra Leone or Northern Uganda).



This particular community 'demanded' support in establishing a CHC after witnessing the positive impact on the lives of their neighbours who were already CHC members. They formed themselves into a group and then requested support from the EHT in order to cover all the health topics. Here they are engaged in a participatory health session.



The Graduation Ceremony is a festive occasion that brings both status and sense of responsibility towards maintaining the standards by all CHC members.

Here we have some enthusiastic 'visitors' who could not refrain from joining in!!



CHC membership is always open to old and young, men and women, literate and less literate.

Here this elderly lady is receiving respect and recognition from the community and leadership at large (her paper Certificate being the only physical reward supplied by the project).

In Makoni District there are now 195 active health clubs with 17,475 families across 23 Wards. The CHCs have positively transformed all of their lives by helping them to become self reliant. This is remarkable, especially during such stressful times.



# **SUMMARY OF RECOMMENDATIONS**

## **1. Hand Washing Facilities at Schools**

### **Problems:**

Mvuramanzi Trust is still building the large and expensive “sand-filter hand-washing tanks” on this project. Such HWFs were originally designed for use in difficult terrain where poor quality surface water would be brought in daily by the school children in order to fill the large tank, so that it could first be filtered to some extent and thereby minimise the potential health risk from the children drinking otherwise dirty water. The design was thus originally developed to help purify the water through slow-sand filtration. But... these large and expensive tanks are still being constructed despite the original purpose of filtration having long since been dropped??

There is thus an urgent need to modify the design and approach to HWFs. Concern was expressed by school headmasters that the tanks were in fact seldom filled anyway, that the taps were stolen and that they were even vandalised during the holidays by children dropping faeces into the tanks... as a practical joke perhaps? Clearly a serious Hand-Washing intervention is required at schools that is far more than the simple provision of a HWF.

### **Suggestion:**

1. Use an ‘off the shelf’ drum (e.g. a garbage bin of 50 - 100 litre capacity) that is fitted with a controlled-flow tap that is then placed on a pedestal with drainage conveniently near the toilets. Such a low-cost HW facility can then easily be moved to the school feeding points for use by all the children before being fed with the ‘relief meals’ now on offer in the district. Such ‘good hygiene practice’ may soon become a life-long habit for the children that they can also practice at home. This type of ‘mobile HWF’ can also be safely stored.



2. Putting some Surf or Omo into the tank will make the water soapy (for better hygiene) and at the same time reduce the likelihood of the children also drinking from the HW tank that may not have been filled with the safest of drinking water. As bits of soap tend to 'disappear' this is a good way to get round this problem.
3. Persuade School Headmasters to ensure the establishment of a school HWF monitoring system. E.g. class monitors or prefects should ensure that all children adequately wash their hands after visiting the toilet and before going to eat. Also ensure that tanks are always being filled daily and that soap, or soapy water, is always provided.
4. There is also the obvious problem of supply of anal cleansing materials for the children (i.e toilet paper). The School and PTA should be persuaded that it is in their best interest to ensure that every aspect of school sanitation is adequately covered.

## **2. Toilet Designs for School Sanitation**

### **Problems**

1. No consideration is currently being given to the disabled children at the school, or those who would otherwise come to school if there were indeed any suitable sanitary facilities for them to use. There is need to consider:-
  - ease of access into the latrine (for those in wheel chairs),
  - convenient hand-holds within the latrine itself
  - a pedestal seat
  - convenient hand washing facility.
2. No provision of urinals for either boys or girls
3. No provision for girls who are menstruating (e.g. private washing area with water and basins as part of the female toilet block).
4. The floor screed needs to be of high quality cement and laid to a fall towards the squat hole for ease of cleaning inside the latrine but to fall out to the entrance to ensure rain water does not enter the latrine.
5. The vent pipe should be improved so that the fly screen mesh is visible from the ground. A design where it slopes (as with a pitch roof) is good.
6. The squat hole is currently very poorly made (as seen in the photos). An ergonomic 'key-hole' shape is best and for this a simple wooden, steel or plastic mould should ALWAYS be used. The current primitive use of broken bricks that are cast into the concrete slab and then broken out later should be stopped immediately! After all, this is the critical point of the whole edifice that should provide the user with the interface he or she is hoping for. This requires some care in design and preparation... not the hammering out of a broken piece of brick!



Tried and tested designs for every one of the above are available in Zimbabwe that have been developed by Dr. Peter Morgan, formerly of the Blair Research Institute. Peter has dedicated his life's work in support of Water and Sanitation both within Zimbabwe and beyond. He is also the Co-founder of Mvuramanzi Trust and is recently back on the Board of Trustees as a highly respected member. I know that he would be happy to assist this programme in any way possible (Tel No. in Harare is 301115).

### **3. Sustainable Water Lifting Devices : - The Rope-Washer Pump as compared to the Upgraded Family Well fitted with Bucket and Windlass**

#### **Problems**

During the past 12 months 350 Rope-Washer Pumps have been installed by MC/MT. MC staff from both Chipinge and Buhera have reported that over half of these RWP's have already failed and that the rest are in a very precarious state. In light of such major concerns as to the inappropriateness of this pump and as discussed earlier in this Report (with supporting photographic 'evidence'), it is strongly recommended that the project should immediately switch to the tried and tested Upgraded Family Well with simple bucket and windlass. There is now so much evidence that this works very well indeed. There is almost no evidence that the RWP is likely to be maintained by poor rural households.

After all, the fundamental objective of this relief programme is to assist vulnerable families, especially those with PLWAs and OVCs to benefit from a reliable source of safe drinking water as close to the homestead as possible. If, after the drinking, cooking and hygiene needs of the household have been met and there is still sufficient water in the well, then nutrition gardens should certainly be encouraged. However, the over-riding principle should be:- ***"some for all rather than all for some"***! If a family wants to expand its nutrition garden into an income generating venture as is very often the case (and as shown in some of the earlier photos of CHC members in Makoni) then that is just great and an added bonus.

Until the RWP design has been perfected and has been proven to be maintained by poor rural households over time, then it is unethical to 'use' vulnerable households as experimental guinea pigs for this project. Currently there are around 200 families whose RWP's have already failed. More such worrying statistics are certainly on the way. Such a depressing outcome within the space of just one year could lead to very serious negative consequences with the district leadership and the recently appointed Ward Councillors taking up this issue. There is urgent need to rectify this problem before it gets out of hand and to go back to every house and see what can be done now to alleviate the problem that has been created.

In the meantime the tried and tested rope and bucket that is fitted to a robust windlass is the preferred option and is hereby strongly recommended. But to add value it would be a great idea if local manufacture of windlasses, tin lids and buckets can be supported by this project as well. This would add tremendous value and prestige to the project and ensure longer term sustainability. In addition it ensures that project

resources are kept as local as possible and that opportunities for local employment are always considered and supported wherever possible.

In addition the support, training and provision of basic well-sinking equipment would be of major benefit, both to the project itself and also to the community at large.

#### **4. Hygiene Behaviour Change**

Participatory Health and Hygiene Education (PHHE) has been implemented in Zimbabwe since the introduction of PHAST during the early 90s by UNICEF. Various evaluations and Studies have clearly demonstrated that although there has been significant improvement in levels of knowledge about Preventative Health issues, there has been minimal sustained behaviour change. In other words, Attitudes and Practice have remained much the same despite so many interventions. Behaviour change is certainly elusive.

Approaching communities through the CHC methodology can assist to establish a strong *collective identity and ethos* and a sense of *common purpose*. Without strong community group consensus, peer pressure and development of social capital, behaviour change is very unlikely to come about.

The entire MC/MT project staff spent a capacity-building day (Monday 13 November) being hosted by ZimAHEAD, an NGO that is now based in Rusape. The ‘team’ were able to witness for themselves the widespread impact and success of the CHC approach throughout Makoni district towards achieving significant Behaviour Change and overall holistic development towards self-reliance and sustainable livelihoods. There was unanimous agreement by the Project Manager and his team that CHCs should soon be introduced into every Ward covered by this project.

ZimAHEAD is willing and able to partner with this programme in order to introduce and manage an effective and widespread CHC initiative in all of the 9 Wards currently being served by this two-year project.

#### **5. Motor Cycles: Poor performance**

When asked whether staff were achieving “Zero Breakdown” I was informed “No...100% breakdown!!” No transport = no work

The WatSan Project Officers are currently using Suzuki 125s. These suffer almost daily breakdowns and the need for constant maintenance by a local mechanic. Two-stroke oil is difficult to obtain and is expensive at Z\$ 5,000 for just 500ml. Suggest MC contacts Riders for Health for advice. Consider changing to Yamaha AG100s and consider adopting the RfH strategy of “zero breakdown” for field staff.



## And Finally....!



What to do about the numerous pumps that have already failed or are about to??

The farmer here loved this pump while it worked for a couple of months, as he was able to water his vegetable garden in the background with a borrowed hose pipe. But he confirms that he is unable to purchase a new rope for his pump now that it has failed and has reverted to a bucket on a string as seen in previous photos... except now the bucket has detached from the string and has fallen to the bottom of the well?



A moment of truth as the fate of the RWP for this project hangs in the balance!



This is an example of an old Zimbabwe Bucket Pump in Buhera today. This pump eventually had to be discontinued when it was discovered that families simply could not afford to replace the bucket with bottom-valve when it failed after several years of useful service. However, here is a case where it has been modified to act as a conventional bucket and windlass fitted over the well.

The wooden bearings as seen here are still in excellent condition 15-20 years later!



**This farmer in Makoni has already constructed three wells on his land to maximise his agricultural output. He built this well himself and the rope used is made of sisal and is readily available locally and at little cost.**



**The farmer here has a productive piggery in the background. The 'rope' on his home-made windlass is made from the rubber of an old bus tyre.**

**The point being that this very old technology is extremely robust and that a wide range of 'ropes' can readily be used. Unlike the RWP which requires a very specific size of rope that is anyway not available in Buhera and probably could not be afforded by most poor rural families anyway, the windlass by contrast is much more forgiving.**



**A heavy-duty windlass made of a car axle fitted with a chain can lift this 20 litre container. This particular well serves the Paradise Motel in Murambinda!**

**All of the above forms of 'Self Supply' found in Buhera should be commended. However, after more hygiene education through the CHC methodology, they might well be considerably improved with a better sanitary seal and run off constructed at minimal cost as with the standard UFW.**



