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**WORLD VISION MOZAMBIQUE  
CHILD SURVIVAL PROJECTS  
TETE & ZAMBEZIA PROVINCES**



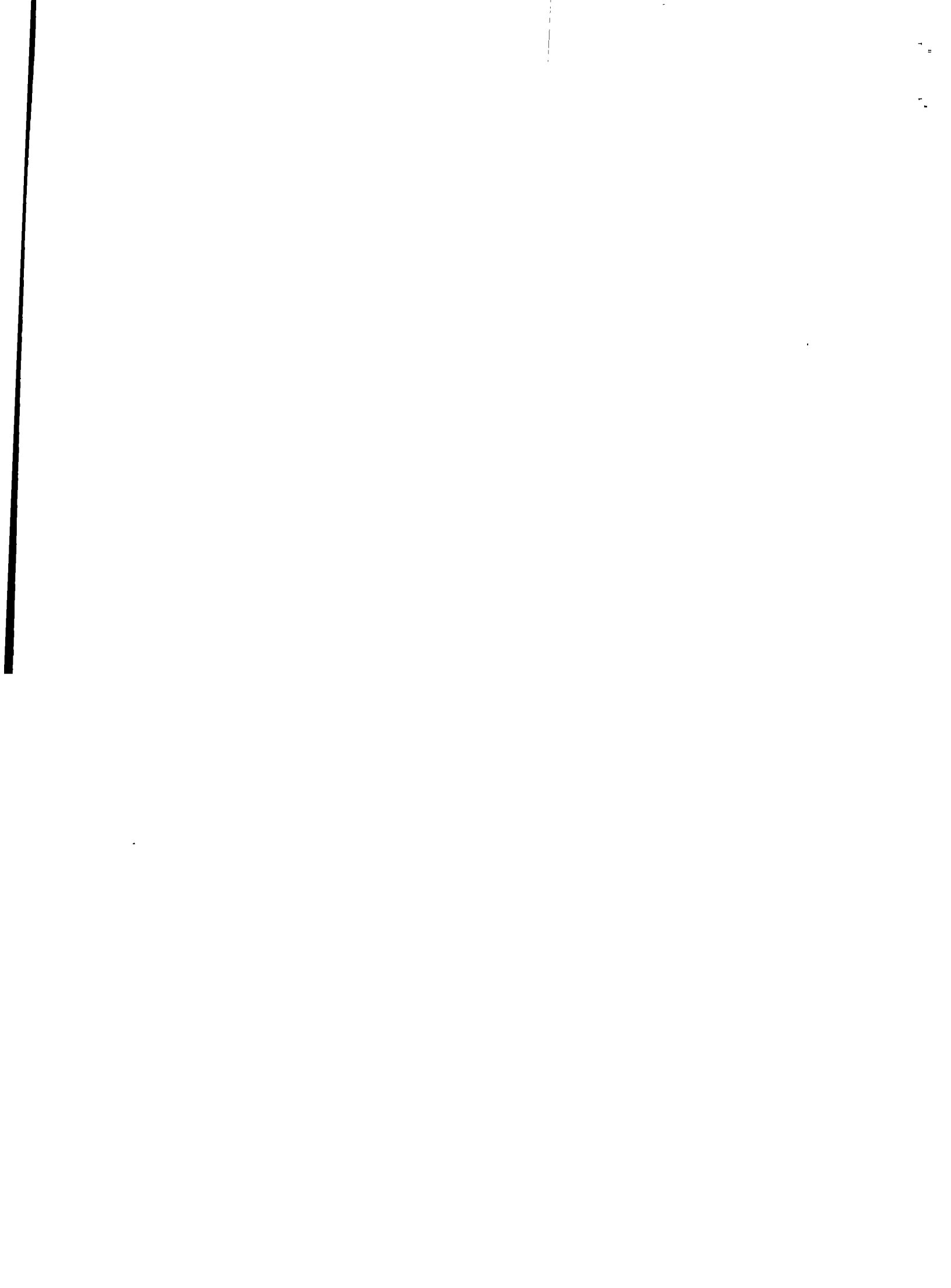
**VIP LATRINES IN MOZAMBIQUE**

**Theresa Andrews, MD - World Vision Mozambique  
Pam Kerr, MPH - World Vision Relief and Development**

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## **I. SUMMARY:**

World Vision Mozambique is currently in its third year of implementation of two USAID-funded Child Survival Projects in Tete and Zambezia provinces of Mozambique. Both projects have completed baseline and final Knowledge, Attitudes and Practice (KAP) surveys covering all areas of primary health, including water and sanitation practices. Although progress has been made in all interventions, the water and sanitation achievements were most remarkable in that the project supplied almost no materials\* and very few staff: With two nurses and two assistants, 2,200 pit latrines have been constructed in the past 3 <sup>1</sup>/<sub>2</sub> years. Overall latrine coverage for 48 villages (population 120,000) increased from 5% in 1991 to 16% in 1993. In pilot villages, where community participation was enhanced by village Health Committee formation and Community Facilitator training, latrine coverage rates were 24% - 46%. Most of the latrines constructed were the VIP type, which was unknown to these villages prior to WV's work there. The success of this project can be attributed primarily to community participation and innovation in the face of few resources.

## **II. BACKGROUND/CONTEXT**

### **A. Country Background**

The country of Mozambique has had a painful and difficult history. 500 years of authoritarian rule did little to advance the Mozambicans in terms of skills and education. When the eight-year war of liberation fought by Frelimo (a Mozambican Marxist-Socialist movement) led to independence in 1975, the vast majority of educated, skilled individuals fled the country. Though the new Frelimo government tried to compensate with education/training programs for thousands of nurses, their efforts were soon undermined by a guerilla resistance movement (RENAMO). For 17 years, one of the most brutal and destructive civil wars ever fought ravaged the country. Thousands of men, women and children were killed or kidnapped during Renamo raids, and millions were driven from their homelands, unable to farm or support themselves. Infrastructures of all ministries, including the Ministry of Health, were completely destroyed. Only provincial capitals had electricity, and many of these had only sporadically running water.

The impact on health and quality of life is told in Unicef's annual publication "The State of the World's Children": for 4 consecutive years, Mozambique has had the highest level of infant mortality and child malnutrition in the world. Child and maternal mortality are at the bottom of the scale. In 1991, Mozambique scored higher on the "Human Suffering Index" than any other country in the world. Although a peace accord was finally signed in October 1992, very little measurable improvement in health care systems has been achieved to date.

\* The only contribution to the project were 200 cement flagstones made by locally hired assistants, given as incentives to the first 10% of villagers who constructed latrines in Tete. Zambezia does not use any incentives.



## **B. Water and Sanitation Background:**

As was the Ministry of Health, the Ministry of Water and Sanitation was devastated by the war. Operating with few resources and almost no budget, there is little it can do. Government donations are usually channelled into the drilling of boreholes and building of protected wells, but bureaucracy and corruption make progress in these activities slow and inefficient. The only sanitation activities are carried out by volunteer animators, who receive a small amount of training from the government and have a mandate to mobilize communities to build simple latrines. Unfortunately, the animators lack sufficient training, authority and motivation to accomplish much. NGO's and the government alike agree that the program is essentially ineffective.

The situation is further complicated by the fact that water and sanitation systems installed by the Portuguese have gone for many years without maintenance and are breaking down, becoming dangerous sources of water-borne infection for peri-urban populations. One teacher training school in Zambezia province continues to use the dormitory's flush toilet system, put in by the Portuguese 25 years ago. The toilets no longer flush, and with regular use are now filled to the brim with excreta. In other areas, old septic and sewer systems have caved in, exposing communities to large collections of open human waste.

Rural Mozambicans in central Mozambique (where WV project sites are located) have little or no tradition of latrines. Nurses in World Vision Emergency Health sites find that 50 - 80% of their patients have never heard of a latrine and need to be taught how to use one upon admission to a WV therapeutic feeding center. Traditionally, rural Mozambicans are extremely spread out, with small villages of 100-300 families situated 2 to 10 miles from one another. There was no felt need on the part of Mozambicans to use any other form of latrine than what the bush afforded, and there was plenty of bush to go around.

Finally, the traumatic effect of war and dislocation caused many Mozambicans to depart from even their basic standards of hygiene. Before independence, no Mozambican would have considered abandoning the usual bush areas for latrine use. Over the last few years, more and more incidences of excreta collections in public areas can be seen. On one rural Zambezia road, there is a 3 mile long "latrine" stretch lined with feces.

## **III. METHODOLOGIES:**

### **A. Surveys**

1. Baseline surveys: World Vision Mozambique collaborated with Johns Hopkins University to conduct baseline KAP surveys of their Child Survival Projects in Tete and Zambezia provinces. 245 mothers of 0-2 year old children were chosen using the 30 cluster sampling method (for Nicoadala district of Zambezia province) and a modified 30 cluster method for Changara district of Tete province. Mothers' knowledge, attitudes and practices were evaluated in the areas of nutrition, breast feeding/weaning, vaccination, diarrhea management, malaria control and water sanitation activities. Results were analyzed using EPI Info Software.





2. End of Project Surveys: The same KAP survey conducted in December 1991 was repeated in June of 1993 to measure the projects' progress over 2 1/2 years. This time 270 mothers were interviewed in each province and the 30 cluster sampling method was used for Tete as well as Zambezia. A summary comparison of baseline and final KAP surveys for Zambezia province is included in the appendix section of this report.

Note: Both baseline and KAP questionnaires were modifications of the USAID Child Survival questionnaire adapted to the Mozambican culture. The questionnaire was first translated into Portuguese (the national language) and then into the local language of Tete (Njungwe) and Zambezia (Chuabo). One lesson learned from the baseline survey was that nurses and assistants were so unfamiliar with reading their local language that the questionnaire was more distracting than useful. During the final survey, the Portuguese questionnaire was used, and key words in the local language were agreed upon during the pre-KAP training session.

3. In May, 1993, a latrine count was conducted in the pilot villages (those with Health Committees and Community Facilitators) of Zambezia to evaluate latrine coverage. 50% of the pilot village households were evaluated.

## **B. Community Mobilization/VIP latrine construction**

1. Meetings with village leaders: The World Vision Water/Sanitation (W/S) technician began community mobilization activities with at least two meetings with community leaders. Leaders were asked what they considered to be the major health problem in the village. Without exception, diarrhea was put forth as the most important problem. The group was then asked if they knew ways to solve the problem. Aside from medicines, other suggestions included pouring ashes on feces, using a wood preservative to disinfect and traditional remedies. In about 50% of the villages, at least one village leader had heard of latrines and put this forth as a solution. If latrines were not mentioned, the technician would ask whether the leaders had heard of latrines and evaluate their attitudes/receptivity towards the idea. When the suggestion of latrines came spontaneously from the village leaders themselves, further steps towards community mobilization could often be taken during the very next visit. Villages unfamiliar with latrines required multiple visits to build understanding of latrines and motivation to construct them.

2. Inductive teaching & demonstrations of VIP latrines: Once the village leaders appeared ready to start latrine building, a date was set for WV W/S technician to return and show them how. The technician made it clear from the start that the leadership and villagers were expected to contribute their own labor, materials and ideas; there was freedom to make small modifications based on creativity and availability of materials. A series of drawings on durable plastic sheets were used to convey the basic steps of VIP construction. When it was clear that all village leaders understood the principles, the technician or his assistant would offer to work with the first 5-10 leaders to help construct their latrines. Latrines built by the leadership were examples for the rest of the community to follow. As most leaders had village subsections under their jurisdiction, they were in charge of encouraging and assisting their charges to build one latrine for each household. The WV technician and his assistant would continue to return on a monthly basis to meet with the village and evaluate progress with latrines.

3. Community Teaching: During the same period that the water/sanitation technician was mobilizing for VIP latrine building, CSP nurses in charge of nutrition surveillance and vaccination conducted bimonthly visits to each village. Prior to initiating growth monitoring/vaccination activities, a teaching session on a primary health topic was given. As the baseline KAP identified diarrhea to be the top health problem in both provinces, diarrhea management and prevention was the planned teaching topic



in 50% of the sessions during the first year of CSP implementation. Sessions were conducted using drama, mime, songs and posters; community participation was an essential component, and sessions finished with inductive questioning to ensure that mothers understood the basic principles taught. In addition to hand-washing and water purification/boiling, latrines were inevitably taught as an important method of diarrhea prevention.

4. Health Committee formation (pilot villages): Eight villages showing the most initiative/responsiveness to basic health messages were chosen for an intensive focus. Teaching sessions describing the role and function of a health committee as well as who would make a good health committee member were given over a period of 2-3 hour long sessions. The leadership was then asked to choose members suitable for a Health Committee (HC). In most villages, Health Committees included women as well as men. The Health Committees agreed with CSP nurses to meet 4 more times to learn about basic health problems, how to prioritize health problems in their village and how to plan steps to solve these problems. As with the village leaders, HC's nearly always identified diarrhea as a priority health problem and often chose latrine construction as one of the solutions.

Once these meetings were completed, the HC's were asked to choose 10 - 15 volunteer Community Facilitators (CF's) for further training. Most CF's were mothers or older women in the village. They received 8 two-hour sessions over the course of two months covering basic principles of nutrition, weaning, vaccination, malaria prevention and diarrhea management/prevention. Once these concepts were grasped, they were taught how to teach these principles during a two day seminar. The CF's were then given a mandate to visit 10 - 20 neighboring houses each month to evaluate mothers' practices and give one-on-one teaching to mothers whose knowledge in any given health area may not be sufficient. Again, latrines were advocated by the CF's as a diarrhea prevention method.

#### **IV. PROBLEMS ENCOUNTERED/LESSONS LEARNED:**

The VIP latrine project became one of the most successful components of the CSP work in terms of community participation and sustainability. All of the solutions to the environmental and local material problems listed below came from the villagers themselves.

**A. Tradition:** Villagers had little or no tradition in latrine building of any sort. Steps to overcome this problem included:

1. Establishing a relationship with village leaders through meetings and other CSP activities encouraged trust between villages and CSP staff.
2. Using a "How to solve an important health problem" format allowed the suggestion of latrines to come from the villagers themselves many times, or at least make them more open to the idea.

**B. Poverty and Malnutrition:** These factors distracted villagers from the work of latrine building. Many complained that they had to spend all day looking for food and had no energy left for latrine building. These difficulties were alleviated by the following actions:

1. Community participation through village health committees and community facilitators (described above) served as a tremendous motivator in pilot villages.



2. Communities were asked what would make latrines more desirable for them. Most frequent responses were: decreasing the smell and making a latrine that does not fill up so quickly. These comments were incorporated into latrine design: the problem of reducing smell was already addressed by the ventilated pit model of latrine. The problem of durability was addressed by increasing the pit depth to 2 meters.

3. A latrine registry system was developed. The registry system was similar to that used by the administrator to register families and houses in the villages. Local assistants visited villages each month to identify and register newly built latrines.

4. A latrine inspection system was developed. During the monthly registry visit, old latrines were inspected for cracks in ventilator pipes, presence of mesh covering the pipe, and cleanliness. Villagers welcomed the ongoing contact of the registration/inspection visits. It also often served as a problem solving time for families with latrines.

### **C. Environmental Problems:**

1. Sandy soil in some villages caused pits to start caving in before they could be completed.

The solution put forth by villagers was to build a retaining wall using branches or pieces of wood bound together with vines to hold the sand back.

2. Water tables were too close to the surface in some villages to allow the pit to be completed.

Although the solution of building up the base of the latrine to 50 cm above the ground is a commonly known one, the suggestion came from the villagers themselves.

3. Renamo soldiers often attacked villages, burning all buildings, including newly built latrines.

Since the thatched roofs were the most flammable part of the houses, villagers had already started constructing houses with no roofs to minimize damage from burning. The same modification was applied to the latrines. Of course, the VIP model could not be used in this case - a simple latrine with a pit cover was used instead.

**D. Government Ministry of Water policies:** these were opposed to the VIP model at the start of the project. They stated that the latrines were too expensive to construct and materials for cement flagstones, ventilator pipes and meshes to cover the pipes were not locally available.

Alternatives put forth by villagers during the first year of the latrine project included the following:

1. Cement flagstones: to replace these, materials had to be sought that could withstand the regular washing required in the latrines.

a. In parts of Zambezia, the clay was of such good quality that when dried in the sun and then baked over the fire, it was nearly as strong as cement. This clay was used for the area directly surrounding the latrine hole.



b. Old discarded pans were used to line the latrine hole. The bottom was cut out, and the pans served as a perfect cylinder which facilitated the cleaning of the latrine.

c. Pieces of scrap metal or tin were embedded on one side of the hole (the side on which the latrine user squatted). This facilitated cleaning of the most frequently soiled area of the latrine.

b. Ventilator pipes:

a. Bamboo stalks were split, the dividing sections hammered out of them, then firmly tied back together with vine.

b. In areas without bamboo, thick grass reeds were tied together forming a rectangular mat. The two long edges of the rectangle were then fastened together to make a cylinder. Sticks were bent and tied into a circular shape and inserted into the cylinder at intervals to add support. The reed cylinder was then plastered with clay and allowed to bake in the sun.

c. Netting to cover the pipes:

1. Zambezia province boasts the world's largest coconut plantation (from Portuguese rule). The lining between the shell and the meat of the coconut has the consistency of thin burlap mesh. When this is spread over the top of a ventilator pipe, it is porous enough to allow light and air to pass, but too fine for flies or larvae to get trough.

2. Beer cans are ubiquitous, even in the most poverty stricken areas. The "drinking" end of the beer can is cut out; holes are punched into the other end with a small rock or nail. The can is inserted over the ventilator pipe and serves as an excellent trap for flies while allowing light and air to pass through.

3. Pieces of tin or discarded metal were used in the same manner as beer cans: holes were punched in the metal, and the piece was attached to the top of the ventilator pipe with vines and/or plastered clay.

These innovations were presented by WV Water/Sanitation technicians at the National Conference of Water and Sanitation in Mozambique. Based on this presentation as well as input from the guest speaker (a VIP latrine proponent from Zimbabwe) the government changed its stand and has adopted VIP latrines as one of its officially accepted models.

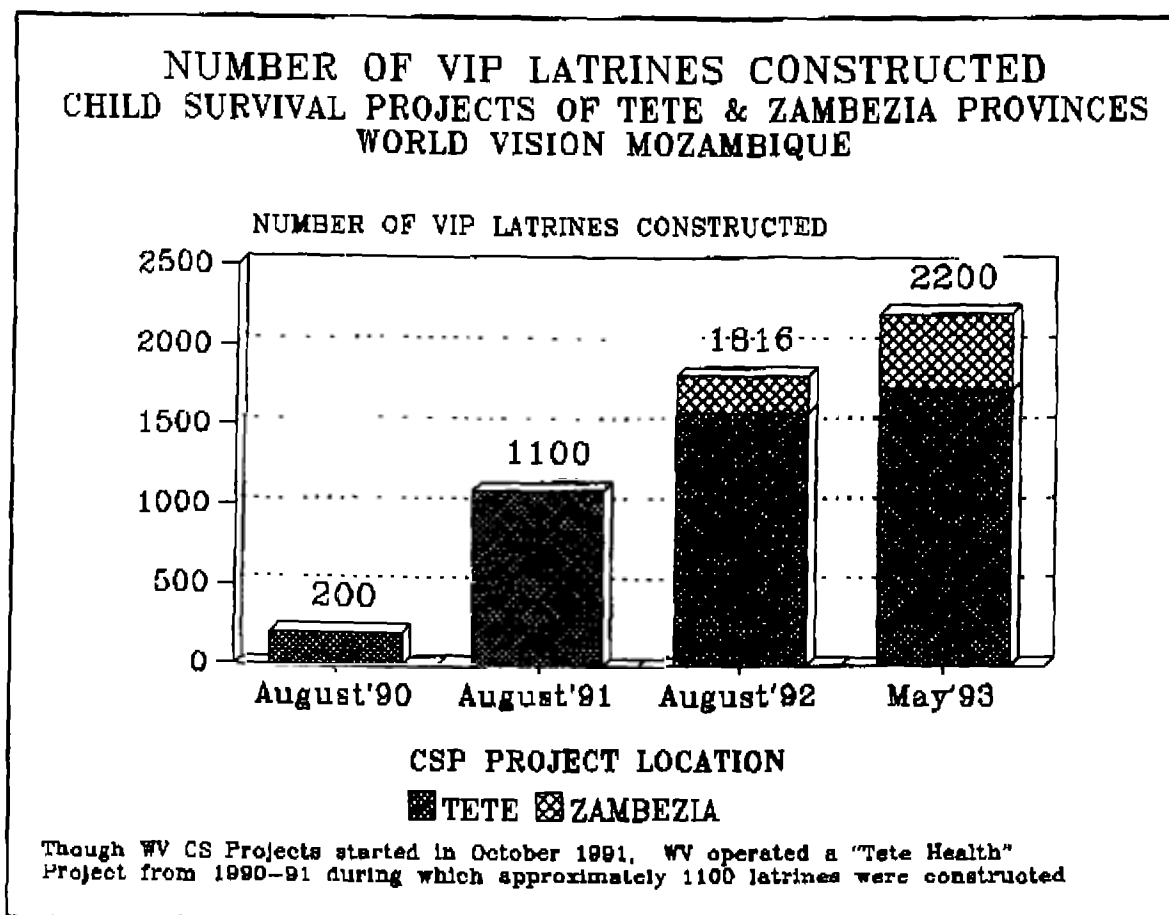




#### IV. RESULTS:

##### A. Latrines Constructed:

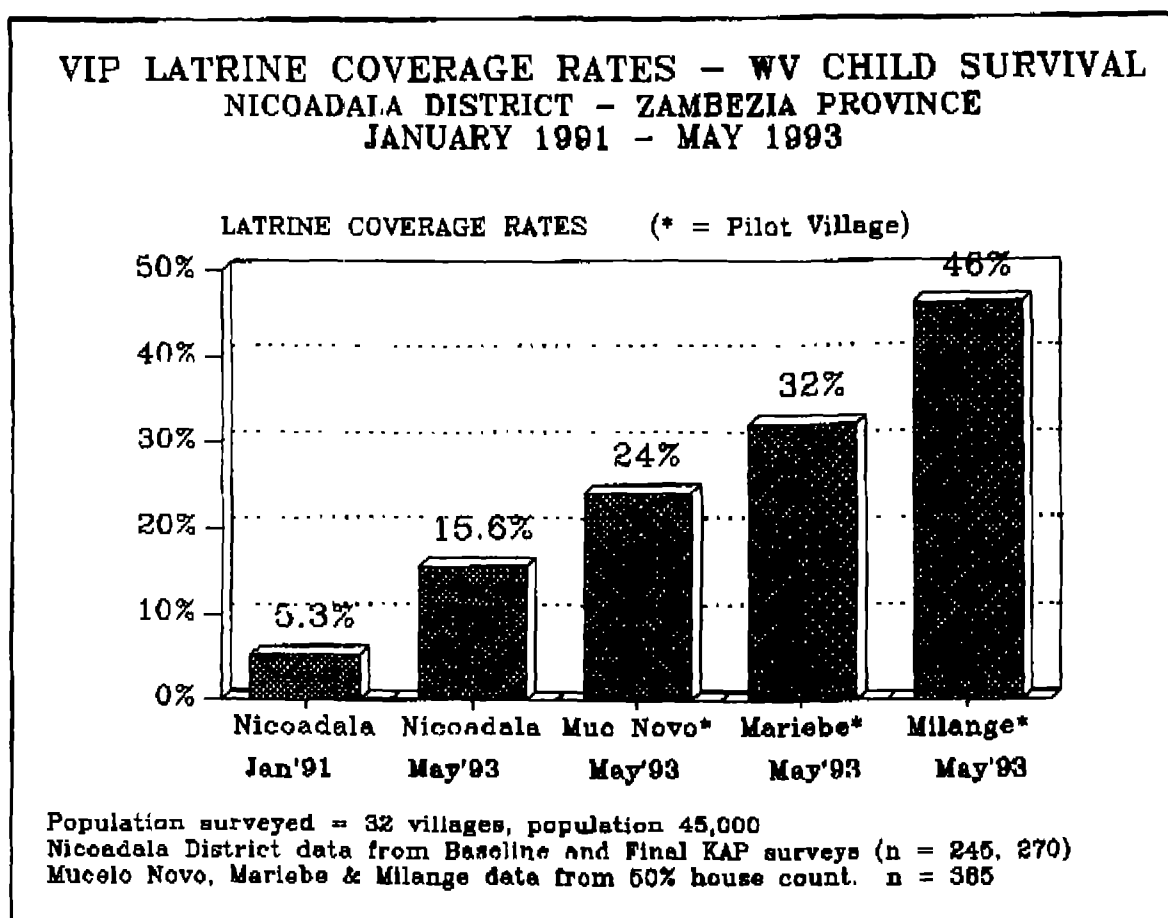
As the graph below shows, 2,200 latrines have been built since the start of the initiative over 3 1/2 years ago.



The "Tete Health" initiative mentioned in the above graph preceded Tete CSP but used all of the above mentioned principles for community mobilization. No cement flagstones were given during this period.

These figures underestimate the true number of actual latrines, as only VIP latrines were counted and registered. There were significant numbers of villagers who constructed simple latrines in response to the WV community mobilization program. Though actual numbers are not available, overall latrine coverage rates (shown on the following page) give an idea of how many additional simple latrines were constructed.



**B. Latrine Coverage:**

Although an overall increase from 5 to 16% latrine coverage in 2 1/2 years may not seem like much, when one considers the population size, constraints and absence of material inputs the progress is quite significant. Villages with increased community participation through Health Committees and Community Facilitators ("Pilot villages") have much higher rates of latrine coverage. It is hoped that during the project extension (from 1993 - 96) more villages can receive WV input to form Health Committees and Community Facilitators.

Unfortunately, current latrine coverage rates are not available for Tete at the time of the presentation of this paper; Tete completed its final KAP survey on June 21, and is still tabulating data.

In summary, community participation is the most important factor in successful VIP latrine construction and use. Community participation leads to innovations that increase the appropriateness of materials and latrine design. With strong community mobilization, a significant latrine coverage impact can be made with very few materials and staff. VIP latrine construction is an extremely sustainable component of Child Survival activities.

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Date: December 16, 1993

To: Cor Dietvorse  
Fax. No. 31-70-38-140-34

From: Anne Henderson  
Director of Health  
World Vision Mozambique

17.12.93 62870
DIETV

Subject: VIP latrine paper presented at NCIH

Greetings from Mozambique! I am sending the paper which you have requested on VIP latrines. I hope the information will be useful as you prepare for the Ministerial Conference on Water and Environmental Sanitation to be held in March 1994. If we can provide any further information please let us know.

Sincerely,

