Development Aid from People to People in Zambia

PUMP FOR LIFE

Improving Income Generation Capacity, Livelihoods and Environment for Families in Mpika District

END OF PROJECT REPORT

To Waterloo Foundation and GAIA Movement

DAPP Development Aid from People to People in Zambia

thewaterloofoundation

THE GAIA-MOVEMENT TRUST LIVING EARTH GREEN WORLD ACTION

1. Introduction

The Pump for Life Project in Mpika District of Northern Province of Zambia was carried out from April 2008 to April 2011 with the financial support of Water Loo Foundation and the GAIA Movement. The idea of the project was to mobilise smallholder farmers to establish wells and assist them to acquire locally produced rope pumps to supply water for horticultural production and for household uses.

The project was an example of a "self-supply" system that has great potential to assist people in rural Zambia (and other parts of Southern Africa) to achieve the Millennium Development Goals with water supply, as well as food security and poverty alleviation. Farmers are enabled to acquire pumps for irrigation and these pumps often additionally provide safe drinking water for the household use.

The project also focused on raising awareness in the communities on environmental issues, especially in relation to the use of sustainable farming methods and forest management with focus on improving farming methods from the commonly used "Slash and Burn System"

The project was carried out in areas where DAPP had other activities to promote integrated community development. The project was well established including a network of Village Action Groups and Agriculture Committees. The project goal was directly to benefit 5,000 households.

Figure 1: *The map showing the location of Mpika District where the Pumps for Life project was implemented*

2. *Project Targets*

The goal for the *"Pump for Life"* project was to target 5,000 families organised in 250 village action groups through the establishment of:

- 30 communities model gardens established with pumps, for people to learn and see the benefits of acquiring a rope pump and utilizing it to improve their living conditions.
- 50 agriculture committees trained to manage the revolving funds of rope pumps and to assist the farmers to successfully generate income, so in order to repay the loans.
- 120 farmers benefiting from initial loans of rope pumps and 120 additional through revolving loans.
- Number of pumps to produced by the trained pump producer: 270 (220 for revolving loans and 30 for model garden pumps).

The project was funded 50% of the initial application and the initial goals as well as the revised goals are found in Table 1 below. However the project did source other funds to achieve additional goals which are stated in section two of the report.

Table 1: Output table.

KEY RESULT AREA	Goal applied for	Goals related to committed funding	Achieved	Variance compared to funded targets
PUMP PRODUCTION				
Number of rope pump workshops established	2	**1**	**2**	**1**
Number of rope pumps produced for the project	550	**270**	**179**	**(91)**
Number of rope pumps produced to others	0	**0**	**222**	**222**
Number of pump menders trained	40	**20**	**25**	**5**
LOAN SYSTEM				
Number of rope pumps given on loan to private farmers from initial funds	250	**120**	**142**	**22**
Number of rope pumps given on loan to private farmers from revolving loans	250	**120**	**10**	**(110)**
ENVIRONMENTAL PROTECTION AND OTHERS				
Number of community agriculture committees participating in the project	50	**50**	**50**	**-**
Number of Village Action Groups involved in the project	250	**250**	**177**	**(73)**
Number direct benefiting households	5, 000	**5,000**	**5,115**	**115**
Number of trees planted	1, 000	**1,000**	**5,230**	**4,230**
GARDENING				
Number of model gardens established with pumps	50	**30**	**27**	**(3)**

Project activities and achievements

2.1. Rope Pump Production

Figure 2: *The rope pump workshops in Mpika*

The Pump for Life project supported the establishment of two pump workshops and by the end of the project period one of the pump producers moved to a neighbouring districts (Chinsali) and he has plans to continue the pump production there. The project has further supported the training of new pump producers in other parts of Zambia through workshops organised with funding from other organizations but facilitated in Mpika with the support of the pump producers there. These workshops were established in Mporokoso in Northern Province, Chingola in Copperbelt Province and Mumbwa districts in Central Province.

The workshops in Mpika produced 179 Rope Pumps for the Pump for Life project (152 for loans to individual farmers and 27 to demonstration plots). The producers have additionally produced 25 pumps to private farmers not part of the project as well as 197 to the Connect International Supported Community Water and Sanitation Project in Mpika and Mporokoso districts. In total the number of pumps produced for small holder farmers and community water points in Northern Province is 401.

2.2.Rope Pump Promotion and Marketing

The promotion and marketing of Rope Pumps was done in the communities where Rope Pumps have been installed as community members were able to see how the pumps are working especially in the demonstration gardens. In addition further promotions have been done through participation in district events e.g. District Agricultural Show, as well as through distribution of brochures about the low cost technology. Customers visited the DAPP Child Aid project offices where the necessary attention was given to them in order for them to buy the Rope Pumps from the producer. Community meetings were also a good platform to promote the Rope Pumps during the discussion to disseminate

information on access to clean drinking water. The promotions were mainly done by the Project staff, Area Leaders and other community stakeholders within the operation areas.

Figure 3: *Promotion of rope pumps (left within the community, right during agriculture show)*

2.3.Installation and maintenance of the pumps

The project trained 25 pump menders (see annex 3 for details) from the communities within the Pumps for Life project areas. The training has imparted them with skill that earns them an income for every Rope Pump installed and for every Rope Pump serviced and repaired. By the end of the project 15 pump menders were still very active providing services to the pump owners.

Figure 4: *Training of pump menders were done both in theory and practical exercises. Left: Some trained pump menders with their new bicycles. Right, pump menders learns to install the pump.*

After pump installation, maintenance is of great importance to the life of pump. Trained pump menders provide repair service to pump beneficiaries, in order to improve their mobility the project provided the pump menders with bicycles.

Pump beneficiaries are also taught to do some minor but vital maintenance works such as oiling of friction points especially on the handle and frame, checking any signs of rope and pipe tear and also protecting the water point from animals. The pump owners can buy spare parts such as the rope, which with normal use has to be shifted yearly, from the pump producers in Mpika town.

Figure 5: *Preparing concrete top-lid for the rope*

Figure 6: *Mounting the rope pump on concrete*

2.4.Training of Agriculture Committees

The project trained Community Agriculture Committees (CACs) through co-operation with Camp Extension Officers from the Ministry of Agriculture. The CAC's consisted of 2 representatives (a man and a woman) from each of the participating Village Action Groups. The training included topics like record keeping, farming methods which are profitable and sustainable with emphasis on productivity, and environmental sustainability. The CAC members were trained as trainers and carried out lessons in all the target villages after their training.

The CACs were also trained on how to manage the loan systems and the members facilitated the selection of productive farmers, with a well or interested in digging a well for irrigation and domestic use, to receive loans for pumps. The members were also responsible for the loan recovery but it proved to be a very difficult task for them and they did not manage to get in the loans. The project first tried to provide additional training to the CAC member but later realised the necessity to change strategy and ended establishing a system managed by DAPP project staff in cooperation with the extension officers from Ministry of Agriculture.

Figure 7: *Farmers in the area have been taught about conservation farming methods including growing of legumes, making compost and to avoid the slash and burning method.*

2.5.Loan Program for Pump acquisition

2.5.1. Model Gardens:

The project established 27 model gardens in the project area (see Annex 2 for details). The idea was to use the model gardens to promote the rope pumps and as training ground for the communities. Model garden pumps were given as loan to individuals that were willing to commit themselves to the task of being a model to other farmers within their village. The loan was not paid in cash but through services such as production of tree seedlings and vegetable runners.

Figure 8: *Pictures show two types of pumps used in the project – Left, the A model and right, the pole model. The project set up both types for demonstration with the model farmers.*

2.5.2. Revolving Loans:

The project issued 142 rope pumps to farmers as initial loans against the goal of 120. A further 10 were issued through revolving loans making a total of 152 pumps given to farmers as loans. In order to improve garden yields and to receive value for the produce, the project has been providing training to beneficiaries through the Village Action Groups on good farming methods including crop diversification and marketing strategies. The acquisition of rope pumps by farmers is assisting them to use less effort in drawing water for irrigation, thus increasing the garden potions and therefore more and better yields to raise income and promote nutrition and food security.

The loan recovery by the end of the project was only 5% against the goal of 100%. The main contributing factor as previously mentioned was that the Community Agriculture Committees responsible for the loan recovery failed to recover the loans.

Reasons for the failure has been identified as follows:

- People in the villages are related and the loan committee members are always in some way related to those who got the loans. It is therefore difficult for them to put force behind the loan repayment request.
- DAPP took over loan recovery in a late stage of the project and the loan recovery was not felt within the project period.
- Many beneficiaries did not manage to sell the vegetables grown but mainly used them for home use as they failed to implement the lessons learned in regard to marketing in practice. They did improve nutrition and food security but not income to pay back the pumps.

DAPP will continue to monitor the loan system and continue to train farmers and support farmers' initiatives to sell vegetable in order to ensure loan recovery and recycling of the loans to other farmers and in this way continue to support irrigated gardening for income and food security among farmers in Mpika Districts.

See Annex 1 showing the number of loans given out, the amount of funds provided to farmers as loans and the loan recovery.

2.6. *Improved income and food security*

The project carried out household surveys in the beginning and in the end of the project. The surveys were carried out among 90 households randomly selected among the benefiting households. These surveys shows very good results obtained in regard to food security and environmental management as seen on the following graphs.

Figure 9 below illustrates an increase in households owing a private well before and at the end of the project. The increased numbers of households with own water source is expected to improve their general health, wellbeing and income generation.

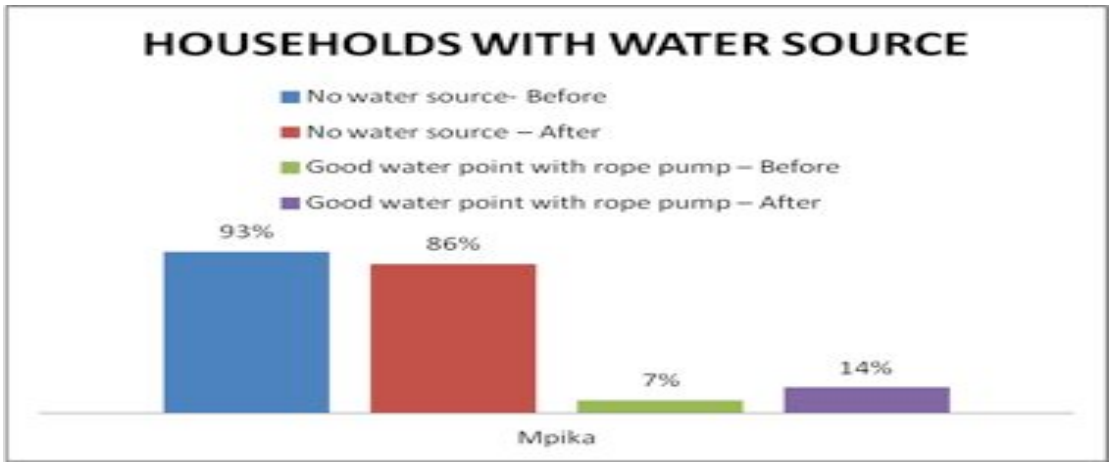

Figure 9: *Households with water sources*

Figure 10 shows the reduction in children under five having frequent diarrhoea. The rope pumps put up by the private families under Pumps for Life as well as the rope pumps produced by the pump producers trained by Pumps for Life and placed at public wells under the Connect supported project has contributed to the success. The % of children in the target households with children under five having diarrhoea at least once a month dropped from 78% to 41%.

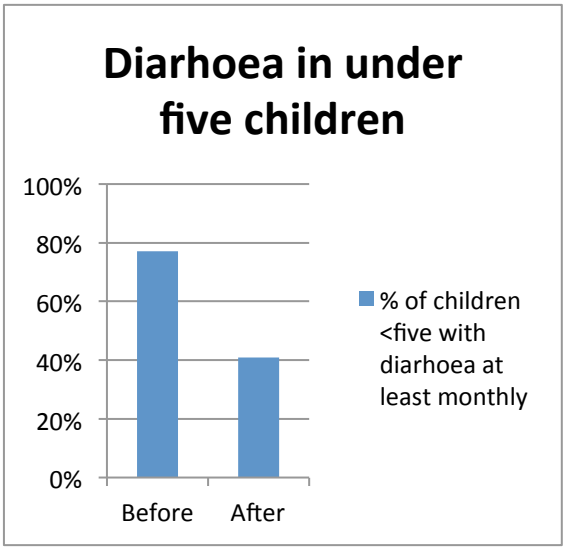

Figure 10: *Diarrhea in children before and in the end of the project*

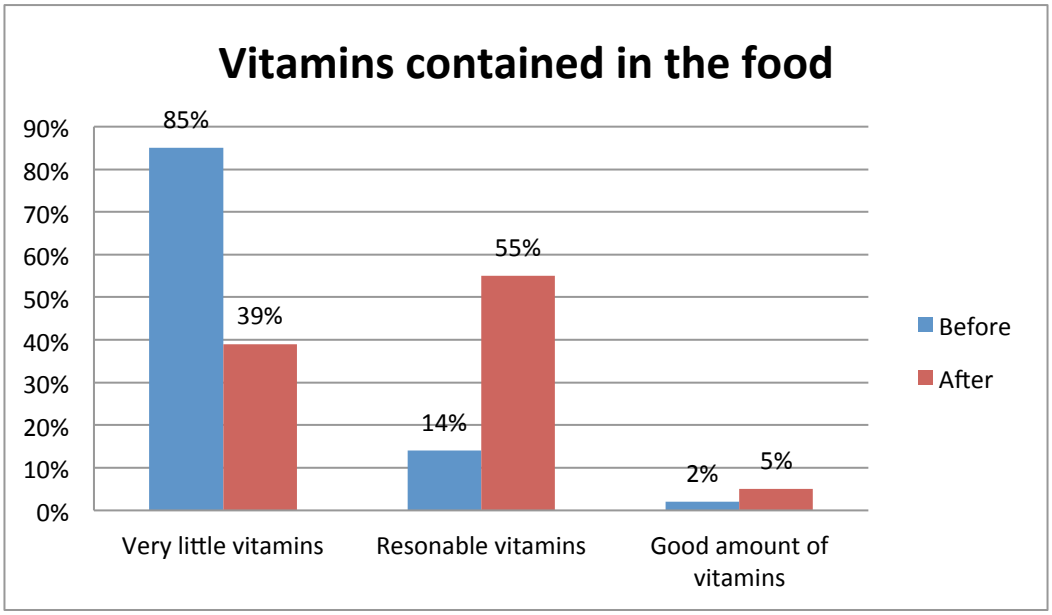

Figure 11: *The amount of vitamins contained in the daily meals in target households*

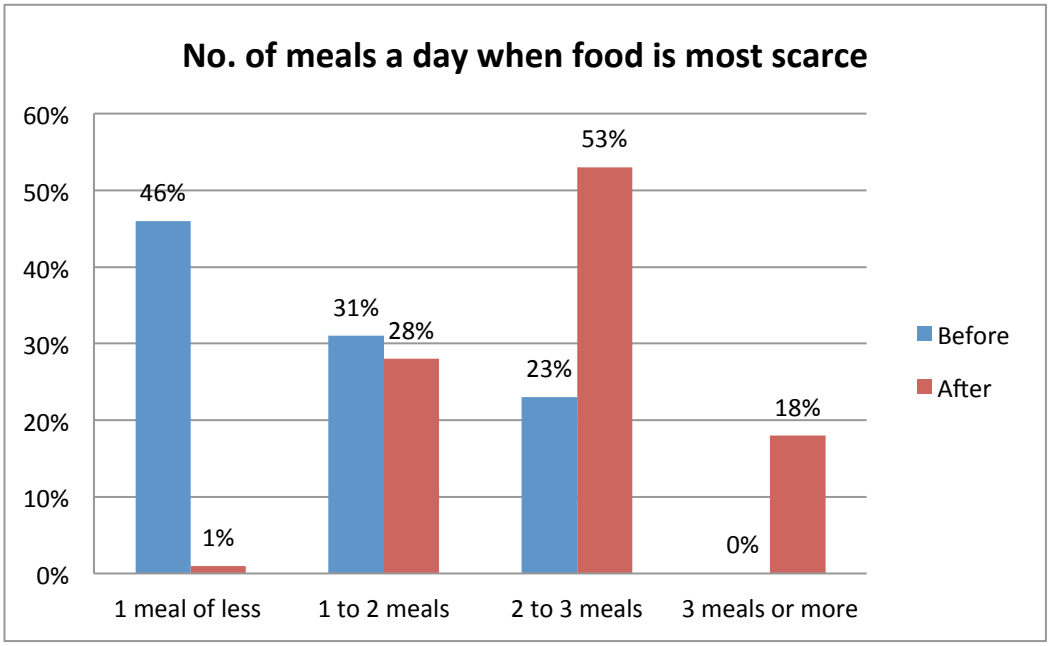

Figure 12: *The number of meals served daily in target households in the end of the rain season*

Table 11 and table 12 shows that the nutrition and food security has improved very much during the project period. The number of families eating good or reasonable amount of vitamins in their daily diet has doubled due to increased production and use of vegetables and fruits. The number of families eating 1 meal a day in the end of the rain season has dropped from 46 % to 1%

2.7.Environmental protection

The main environmental issue identified during the project implementation was to improve the farming methods related to soil conservation. The locals practiced a traditional farming method called Chitemene system which involved cutting of trees and shrubs on virgin land apportioned for cultivation. This system is against the conserving of natural environments as residual is also burnt and cultivation is only done were there are trees to cut. Therefore, the project embarked on sensitization and promotion of good farming methods such as the use of compost, crop rotation, mulching etc. The project also promoted forest management and tree planting. The tree species promoted were partly to improve the environment around the homes providing shade and windbreak but as well for nutrition. The main tree promoted for nutrition was Moringa which is a multipurpose tree with a huge amount of nutrition in form of vitamins, minerals, amino acids as well as anti oxidants.

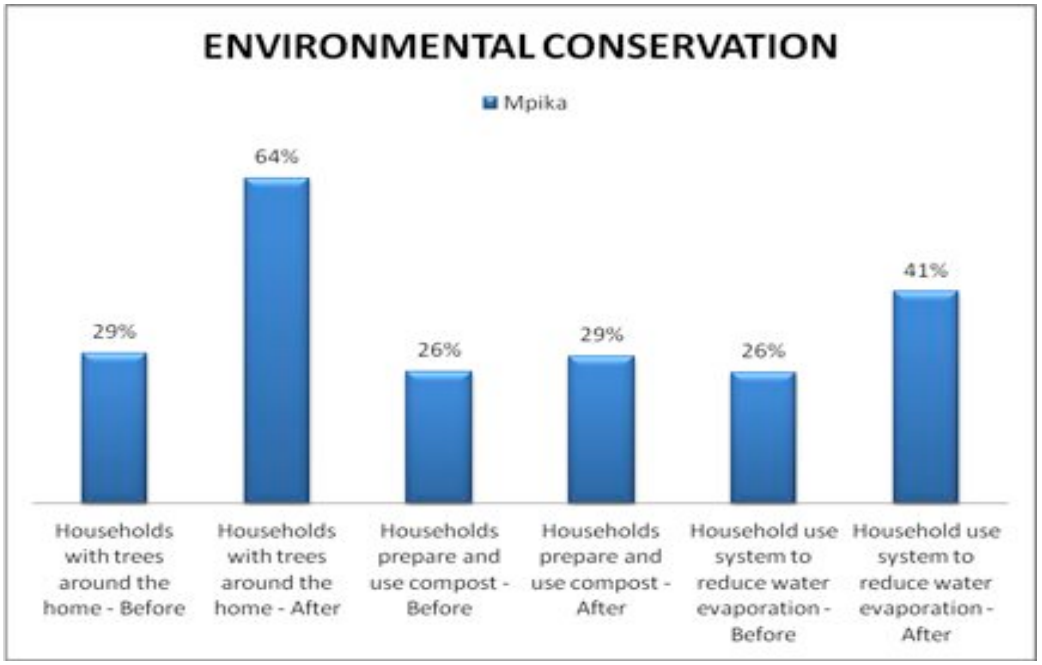

Figure 10: *Households practicing conservation farming. The project carried out training in sustainable farming methods in village action groups*

Households with trees around home stead: *The graph from the household survey shows increase in households planting various trees around their homes. This is the effect of village action group lessons and awareness campaigns in the communities on environmental issues, and specifically to enable them to mitigate the impacts of global*

warming such as falling groundwater tables and increased frequencies of drought. The project also promoted planting of tress such as Moringa in the project areas.

Households preparing and using compost: *The graph shows slight increase in households using compost manure before and after the project.*

Household using systems to reduce soils fertility: *This means there is increase in the numbers of households taking reasonable actions to reduce erosion and water runoff either by leaving grass strips, plant trees, use minimum tillage and any other good measures.*

3. Project monitoring and technical support

The project provided field visits to farmers to provide technical advice on how to plant, when to plant, what kind of crops or vegetables to grow etc. The support visits were mainly carried out in cooperation with the government agriculture extension workers from Ministry of Agriculture and Co-operatives – MACO.
The government staff also provided technical support to farmers about irrigation and improved farming methods. MACO has applauded the improved water supply for gardening and improved farming methods where more farmers would benefit through acquiring of Rope Pumps.
Area leaders (Community Mobilisers) were involved in support visits to farmers and supported the establishment of gardens, digging of wells and putting up gardens as well as supporting farmers in improved garden management.

The project leader collected data mainly supplied by the Community Agriculture Committees (CAC's). It was later found out that due to lack of good record keeping in the communities the collected data in some instances were not correct especially in regard to loan recover. This attributed to late actions to improve the methods of loan recovery, when it was found that the CAC's failed to obtain a good loan recovery.

4. Challenges

- The project delayed in completing the expected goals and in providing the final report to the partner as the project leader who was in charge of the project proved to be incompetent to do his work and finally left the project and DAPP, leaving no records in the project office for easy tracking of what was implemented.

- DAPP headquarters did not have adequate control measures put in place to secure that everything was done properly to achieve the desired outcome.

- Data and record keeping at project and community level has been a challenge leading to many errors and consequently resulting in inaccurate interpretation of what was happening on the ground.

- The project took longer time to be completed due to factors such as farmers contribution towards providing upfront materials to use in the improvements and installation of rope pumps that was very slow.

- Lack of an efficient loan recovery system as the Community Agriculture Committees responsible for this failed to take adequate action and the project went in late to substitute the committees when it was realised that they were not managing. This resulted in low loan repayment by beneficiaries and poor loan recovery

- Farming in Mpika is not well developed and farmers in Mpika have less agriculture culture compared to some parts of Zambia, for example Southern, Central and Eastern Provinces. This has also been an implementing factor as it has taken longer time to install behavior change in people related to farming methods and the issue of taking up marketing challenges.

5. Lessons Learnt

- The Community Committees and Village Action Groups trained by the project has successfully managed to train members of the programme and significant changes in relation to improved farming practices and improved food security has been found in the household surveys carried out. However the same committees were entrusted to run the loan programme, which has proven to be a wrong demand to them, as they failed to recover the provided loans. Where possible it will be good to give the loan responsibility to a micro finance organisation (not existing in Mpika) or if not possible, the project (as started in a late stage for the Pumps for Life) has to take the responsibility.

- The project has not sufficiently managed to train farmers in marketing and to install the sense of business in the farmers who mainly has been used to producing for own consumption. This has been a main contributing factor to the low repayment rate. DAPP will continue this training after completion of the project.

- Poor record keeping of productions by farmers as they do not perceive it as an impotent aspect in farming business. DAPP will continue to train farmers using other funds in record keeping for their produce.

- Poor records kept by the project leader and insufficient quality of monitoring of project beneficiaries have led to incorrect reporting to the partner in regard to results achieved especially in relation to the loan recovery. The project leader trusted verbal reports from Community Committees but did not have adequate systems for control of the provided information as well as systems to keep and to analyze data received. The lesson learned is that the DAPP Headquarters must have more close hand on the project to support and control correct data collection.

- Though the project has facilitated the establishment of workshop producers, production has been mainly initiated by the project. The demand for pumps has not really taken of and the number of pumps sold to private people has been relative low. The project has not sufficiently managed to increase the demand for the pumps and more publicity and sharing of best practices and success stories will continue after the completion of the project.

- The rope pump workshops are outlets for spares for rope pump maintenance. It is essential that the pump producers take this as a serious responsibility. The income earned from the sold spares is an incentive for the pump producers. However entrepreneur ship training has been essential in order to make the pump producers realize the importance of good customer service to those already having pumps in order to further spread the technology.

6. Conclusion

The Pumps for Life project has reached 5,115 families organised in 179 Village Action Groups with information and access to services out of the targeted 5,000 families. Communities have received training in sustainable agriculture farming methods and the training has already shown impact in regard to improved food security and the use of improved and sustainable farming methods. Notable results include

- Increase in families who eat meals containing sufficient or reasonable amount of vitamins from 16% to 60%.
- Number of families who always eat 3 meals in a day also when food is most scarse in the end of the farming season increased from 0% to 18 % of those reporting eating at least 2 and sometimes 3 meals a day at the same time of the year increased from 23 to 53 %.
- Families who use improved farming methods to reduce water runoff and hereby reduce use of water and also reduce soil erosion increased from 26% to 41%.

The above methods will in the long run improve family economy and conserve the environment. The established water points provide all round farming and hereby income opportunities which have resulted in the above mentioned improved food security and nutrition and which also will impact on the family economy. The same water points have improved health for the families as they mainly are used for domestic purposes additional to irrigation. This can be seen from the result that the number of children under five reported to have diarrhoea at least once a month fall from 78% to 40%.

A total of 179 families out of the goal of 240 (75% of the goal) have benefited from pumps bought with assistance of small loans, while additional 27 families are running demonstration gardens with rope pumps. The loan recovery to date has been very low with only 5% of the total loan amount being recovered. The goal was to recover 100% of the first loans provided, which would have facilitated to purchase another 120 pumps to give out to farmers. (The goal was to procure 120 pumps from the initial loan fund and 120 pumps from revolving loan funds). Only 10 pumps have to date been purchased using the collected loan revenue. However improved record systems, moving the management of the loan recovery from community committees to DAPP project management, coupled with increased training of farmers in marketing of produce is expected to improve the loan recovery. The funds to be recovered will ensure continuation of the loan fund for provision of additional loans for more families to set up wells with pumps.

The rope pumps production in Mpika has been successful. From the time the first workshop was set up in 2008, 401 rope pumps have been produced and sold to both individuals and organizations partly through the "Pump for Life" project and partly to organisations and individuals not part of the project.

A survey carried out in 2010 showed that 85% of the pumps were functioning well at the time of the survey. The pump producers sell spare parts to the pumps and pump menders living in the target communities have been trained to support the repair of the pumps.

The project delayed in completing the expected goals and in providing the final report to the partner as the project leader who was in charge of the project proved to be incompetent to do his work and finally left the project and DAPP, leaving no records in the project office for easy tracking of what was implemented.

DAPP Headquarter assigned a new project leader to establish data and to complete project outputs that was not in place when the previous project leader left.

May 2012

Elise Soerensen
DAPP Acting Managing Director

ANNEX 5:
SUCCESS STORIES

Rope pump turning fortunes of a vulnerable single parent

Vegetable garden in Mpanshi

Henrietta Shilia has been trampled by her husband never meant, she should lose focus and direction. On the contrary, it meant she should work even harder to fend for herself and her single child, she was left with.

This is a tale of one Henrietta Shilia, who hails from Mpika District in the Northern Province of Zambia.

Ms Shilia is a member of the Village Action Group and a beneficiary of the pass on loans of rope pumps provided by Child Aid Mpika.

She has benefitted from trainings in business management, sustainable farming methods, improved gardening management, environmental conservation and many more. The trainings helped her come up with a garden where she has been cultivating vegetable varieties such as rape, eggplants, okra, tomatoes, and many others.

However, she used to garden along the riverbanks and when the river went dry, she could stop gardening until the rains came back.

"Initially we were having our gardens away from home in the riverbanks. When rivers dried up, we had no option but just to wait for the rains to come," she says.

It was only until June 2009, when she got a pass-on loan of a rope pump, that her gardening fortunes began to manifest.

She says; "Since June, I have been working together with my relatives and children to improve the garden we just started."

Ms Shilia has installed a rope on her well near her home and has established 2 gardens near the pump where she cultivates round the year.

From each sale of vegetables, she realizes an average of K260, 000. She expects her income from the produce to go up to K450, 000. Her loan repayment is going on fine, as she has not defaulted.

"I will continue paying back when I harvest the tomatoes which are in the garden and are getting ripen now. So far I have paid about K460,000 toward the loan of K650,000 which I paid through the Community Agriculture Committee," she states.

She boosts that she now affords three meals a day because of the income from the vegetables and has plans to take her child back to school after selling her tomatoes.

Ms Shilia thanks the project for providing her trainings in business management, sustainable farming including gardening and a loan for a rope pump as these have gone a long way in improving her livelihood and that of her only child.

Retiring from retirement with rope pumps...

A successful story of the Mumba family

Retirement benefits are always tricky especially because the money comes in larger amounts. It is far trickier to those whose salaries were very low and could not afford to find such an amount while working.

Some waste the money through beer drinking and for just a few days, leave very luxurious lives. When the money is finished, it is back to square one, as they had never invested the money in any economic activity for their financial sustainability.

However, to others, the money provides an opportunity to establish businesses that could otherwise not have been set up whilst working. This is the path that Mr. Maxwell Mumba, a Mpika resident based in Sabwa, took. After retiring from working for Tazara, Mumba got his retirement package and decided to buy farmland in Sabwa. He and his family decided to grow vegetables and other crops.

In Sabwa, Mumba joined the Village Action Group (VAG) and replied for a loan for a rope pump to the Community Agriculture Committee (CAC).

"It was through the CAC that we got the rope pump valued at K750, 000 in December 2009. I got interested in getting the pump because I already had bought a farm which I wanted to use for vegetable growing and the pump would be used for watering that garden and so far so good," Mumba said.

His wife, Charity concurred with her spouse adding that they have benefited a lot since acquiring the rope pump.

"The pump is not only useful in the garden but also at home because we use it on drawing water for domestic purposes. We have paid back the loan, some money is used as school fees and we also use it to pay hospital bills when one falls sick," Charity says.

She adds: "I now don't go to the market to buy vegetables because I have plenty of them in my garden. In fact, I now sell the vegetables."

One interesting thing is that the rope pump enables the Mumbas to grow vegetables throughout the year which was not the case before acquiring it.

The Mumba family has been undergoing trainings by the Pump for Life, Child Aid project on vegetable production, sustainable farming methods, business management as well as maintenance of the rope pumps. Thus, thus the Mumba family maintains the pump well and it seldom break down. A locally trained pump mender is available to repair the pump and spares are found in Mpika.

The family also learned sustainable farming methods that are benefiting them, when growing the field crops during rainy season. Currently, the Mumbas are harvesting tomatoes from their garden.

Apparently, Mumba has retired from his job to venture into gardening, which is more rewarding than his previous employment.

The rope pump has made his gardening a lot easier and rewarding as well, thanks to the Pumps for Life, Child Aid Mpika, which introduced him to this locally produced low cost technology.