

EVALUATION OF EMERGENCY SMALL SCALE IRRIGATION PROJECTS

SUMMARY NOTES TO THE POWER POINT PRESENTATION

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1.0 PROJECT DESIGN AND APPROACHES

The choice of implementing partner varied from country to country with Mozambique and Lesotho using the government departments, Malawi NGOs and Zimbabwe NGOs, direct implementation by FAO and private sector. For each country it was a choice of comparable advantage and rightfully so the choices were the best given the prevailing situations. In general, each approach has its pros and cons, which are summarized in Table 1.

Table 1: Comparison of advantages and disadvantages of implementing emergency projects through government and NGOs

Direct implementation through Government (Lesotho and Mozambique)	Direct implementation through NGOs (Zimbabwe)
<p style="text-align: center;">ADVANTAGES</p> <ul style="list-style-type: none"> • Less costly as there were no overhead costs related to salaries and administration. In Lesotho, the government even went as far as meeting part of the distribution costs from district centre to the beneficiaries. • Some degree of project ownership in government that could help in continuity in project monitoring and extension support provided project inception, implementation and exit strategies were fully participatory from national to field level. • The wide spectrum of expertise in various departments of agronomy, crop protection, nutrition, conservation, irrigation and extension methods could be tapped into project. • A means of institutional capacity building through training and exposure to new technologies for government staff. 	<p style="text-align: center;">ADVANTAGES</p> <ul style="list-style-type: none"> • Better resource base of transport and could carry out activities faster. • Better skills in community mobilization, analysis and action planning. • Less biased in targeting.
<p style="text-align: center;">DISADVANTAGES</p> <ul style="list-style-type: none"> • Government capacity in human resources (numbers and technical capabilities) and other logistical resources like transport affected quality of service delivery. • Geographical and individual targeting could be manipulated for political reasons. In Lesotho the northern district of Butha Buta was a typical example. • Created competition with other government activities like field days and shows. Could also create more workload on government finance section if introduced as a project in government system. 	<p style="text-align: center;">DISADVANTAGES</p> <ul style="list-style-type: none"> • In Zimbabwe, where politics plays a significant role in rural development and NGOs are viewed as political opponents, implementation required clearance from authorities and at times choice of partner was compromised. • High overhead costs related to staff salaries and administrative costs • In the absence of a thorough institutional analysis, the technical capacity of the NGO was at times biased towards other areas like relief, HBC and nutrition. • Competition and conflicts between NGO and departments of agriculture

The fact that emergency projects are usually short term meant targets had to be realistic given the time limitation. Targets should match both institutional capacity and financial resources. In Mozambique targets set for construction of close to 900 ha in both the RAF/403/SAF and MOZ/302/BEL were an overestimates considering human resources within FAO and the implementing partner MADER. The end result was schemes were not completed on time and quality of civil works was compromised. If farmers are to take over the O&M of the projects, they need to start on a strong footing with minimum O&M requirement in the first years of the project. The same could be said with the drip kit project in Lesotho and treadle pumps in Zimbabwe. The human resource and technical capacity in MAFS and NGO partners could not provide the necessary backstopping and monitoring to the large number of beneficiaries. Under these circumstances, cluster targeting could have helped in improving support and monitoring.

An encouraging development in Lesotho and Zimbabwe was the development of projects-linkage approach all aimed to provision of further and better monitoring and technical support.

The project budget lines reflected the bias towards 'hardware' and less 'software' activities. As we move from short term emergency to developmental programs like irrigation rehabilitation and upgrading, it calls for Donors to be more supportive and flexible to the 'software' budget lines. The flexibility of such projects like RAF/510/RAF offered room to include such support. In the development of packages for new technology there is need to demonstrate and show significant change brought by intervention as stimuli for adoption. Drip projects in Zimbabwe and Lesotho could have shown better results if the impact of fertigation was demonstrated. In Zimbabwe the need for fencing for drip gardens affected adoption rate. The Lesotho project had a water resource development component with the department of conservation. Though the number of beneficiaries was small, such holistic approach helped in improving drip kit production. In Mozambique seed, fertilizer and pesticides were part of the package; the few farmers who were irrigating in the newly developed area had an excellent crop. The benefits of water can only be realized with the right inputs. Important though is the approach that would not promote a dependency syndrome on such inputs.

The role of FAO in coordination and influencing policy change was identified to be limited. Zimbabwe through the garden working group is making strides in harmonizing garden intervention. In Malawi there seemed to be competition between government and NGOs in the treadle pump projects with each institution using different approaches and specs. The unavailability of clear irrigation policies in Zimbabwe was seen as a major hindrance in enforcing scheme bylaws and general scheme operation and maintenance.

2.0 TARGETING

Technology adoption is also determined by how adaptable it is to the current farming system and general environment. Any technology that is in conflict with the prevailing farming system normally ends up in total failure. It is therefore critical to understand the farming system of an area before introducing any technology. The general failure of drip kits projects in Zimbabwe and treadle pumps in the green zones of Mozambique could be attributed to this. The traditional garden farming system in Zimbabwe is that farmers take the garden to the water and in Lesotho the gardens are in the backyard. The introduction of the drip kits required some measures against possible theft and vandalism in some areas. In the end new gardens were established in the backyard for security reasons. The threat of domestic animals especially chickens required further investment in special fencing which the project did not budget for. In addition drip system could not bring good results in the generally sandy soils around most homesteads. They also created conflict in the 'multiple uses' village water source. In the green zones of Mozambique, the treadle

pump were an inconvenience to the farmer as the water sources were too close to the irrigated area. The combination approach for treadle pumps and drip kits has limited use and can not be promoted as a package simply because these technologies can not be targeted in same area.

Beneficiary targeting for smallholder irrigation has the greatest influence on sustainability of an irrigation intervention. The level of adoption has been found to be proportional to the amount of capacity building requirement, in emergency programs, time for capacity building is normally limited. The fact that irrigation is a high capital and recurrent cost intervention requiring better skills in production and financial management tend to works against more vulnerable members of society who in general have less resources and skills. This calls for low O&M irrigation systems like the gravity fed systems in Masinga district of Mozambique or supporting such farmers with bucket systems for a start. The pumped Chiduachine project in Gaza province was a good example. Farmers could not afford the diesel and the scheme was not operational. An alternative approach would be to address irrigation development in the broader framework of emergency interventions. Those individuals who are regarded to be below the irrigation capacity requirements could be targeted in other low input crop diversification projects like cassava, sweet potato, cowpeas and sorghums. Traditional bucket irrigation system still has a major role in micro irrigation and should be afforded the necessary support.

3.0 ENVIRONMENTAL IMPACT ASSESSMENT

EIA was never considered in any of the interventions for the simple reason that the projects were small and time was not available. Findings in the field revealed high environmental threats especially under treadle pumps and small holder irrigation. In Mozambique most the two schemes in Masinga district are in situated in wetlands. Farmers had already started complaining of illnesses related to excessive exposure to the cold muddy water and long distances of up to 10km that some had to travel to the schemes. The unavailability of toilets, protected water sources on schemes over 100ha could be a health hazard. The effects of floods and extensive use of agrochemical needed further investigations. The same could be said of Hama Mavhaire irrigation scheme in Zimbabwe whose water source is under great siltation threat. Treadle pumps in Malawi and Zimbabwe were increasing stream bank cultivation and erosion. There is need for at least an Environmental Screening or Environmental Audit for such projects.

4.0 PROCUREMENT AND TECHNICAL SPECS

There was a general technical deficiency within FAO and implementing partners to provide technical specifications that would provide efficient and durable equipment. The treadle pumps specifications in Malawi and Mozambique were more determined by what was available on the market. Some farmers complained on some of the pumps being too stiff to operate and too high for women users. The improved version of pump in Mozambique had inlet and outlet pipes of 25mm and cylinders of 15cm in height. Because galvanizing facilities were not available in the country, the pumps were painted with red oxide and rust was inevitable. Some of the mountainous sites in Lesotho required pressure compensatory emitters without which resulted in poor water distribution. Water was dripping from the lower laterals only.

Seed packs suited local conditions, farmers' experiences and taste and nutritional requirements in all countries although Mozambique went too far in introducing three crops at once. Farmers were faced with the technical challenges of cultivating and utilization of new crops like cucumber, carrots and green beans. Introduction of new crops should be gradual and substitutes from traditional crops like amaranths species should be encouraged. In Zimbabwe winter and summer

seeds were procured at the same time and could only be delivered with the treadle pumps that became available after a year. By that time most seeds were close to expiry date.

The absence of a detailed procurement plan in all countries resulted in late delivery of inputs. Projects came to an end with most of the inputs unutilized. Where possible, procurement of gardening tools and inputs should coincide with the end of the rain season. FAO country offices need to share the vast expertise at its disposal and irrigation testing facilities in some countries.

5.0 PRODUCT AND EXTENSION SUPPORT

Product support and extension support-private sector participation and implementing agents' capacities are critical in provision of spare parts, inputs, technical advice and monitoring. With the general economic decline on the increase in the sub-region, the private sector, governments and NGOs have not been spared in their capacities to deliver. The integration of the input support components through the Cassa Agraria and Total Land Care cost recovery and micro finance programs in Mozambique and Malawi respectively could be the way forward in improving access to inputs. The private sector especially the suppliers of treadle pumps and drip kits seemed content with tenders coming from NGOs and governments. Any extra effort in marketing strategies was regarded expensive. Drip kit and treadle pump suppliers had nothing in stock except in Malawi where one of the major suppliers Deltech had thousands of pumps in stock. The human resource, technical capacity, morale and mobility in the government institutions can no longer be fully relied on as a partner to dump inputs and hope for quality extension support. Their involvement remains important especially when limited support is still required as always during and after the project.

6.0 SYSTEM PERFORMANCE

The technical performance of the three interventions was a result of all the factors discussed above. For each system, the following factors were identified to be critical.

Treadle Pumps -rusting, height, stiffness, use of grease, inlet & outlet diameter, height of cylinder, irrigation system design.

Drip kits- it was common to see kits laid out but farmers using buckets for irrigation. Technical problems were in kit layout, primary filter, pressure compensatory emitters, size of tank & filling frequency, water mgt, crop mixes and plant populations.

Smallholder irrigation- designs, quality of works and supervision.

7.0 PROJECT IMPACT

In the absence of a functional M&E system at farmer, implementing partner or FAO level, it was difficult to quantify input use, yields and nutritional, social and income benefits brought by these interventions. However during the field walk and talk process with farmers, extension agents, local leaders and observations, it was clear that a positive change was there for all interventions. A general increase in area under irrigation, food security and income was witnessed. The treadle pump project in Malawi showed the greatest impact. Farmers narrated how assets like bicycles, televisions and better housing had been acquired from on a yearly basis since the introduction of the treadle pump. The drip kit had the lowest uptake rate in terms of utilization. On top of the list affecting drip kit adoption were targeting, extension support and its limited capacity beyond nutrition security. The small holder irrigation was promising though efforts to improve institutional capacities at all levels are important.

If crop mix could be used as a proxy for access to balanced nutrition, then again a wider range of energy, protein and vitamin sources were accessible to some beneficiaries. The impact of some projects was difficult to assess as they were in their infancy stages but evidence on increased irrigated area, crop mix, cropping intensity, and thus general productivity was evident.

8.0 CONCLUSION

Small scale irrigation will continue playing a significant role not as a source of vegetables only but food security and income as well. The long term sustainability of small scale irrigation as given in this report is based on participatory holistic approaches, quality delivery of goods and services, development of appropriate legal and policy framework and consideration of health and environmental issues.

For smallholder irrigation development, emphasis should be placed on small gravity fed systems supported by appropriate organizational and management capacity building programs. Access to inputs and viable markets is also important for scheme sustainability. The same could be said for treadle pump irrigation. Treadle pump irrigation offers an extra advantage as they normally face group dynamics problems. The drip kit program needs to be taken back to the drawing board taking some of the above recommendations into consideration.