

and micro-catchments; (ii) Enforcement of regulations to ensure the safety and protection from depletion of underground water sources; and, (iii) Use of land use plans to ensure that activities are not sited in wrong places.

2.4 Action Plan for Rain Water Collection From Ground Surfaces - Small Reservoirs

2.4.1 *Target for Technology Transfer and Diffusion*

The main target groups for actions on climate change adaptation in the water sector with respect to this technology are communities of Region I to address the challenges faced by communities of accessing clean water for domestic use, irrigation and livestock. With respect to small dams and micro-catchments, the pilot project will target 1,500 HHs for water supply and animal watering (see Table 1 above).

The economic benefits of the technology arise from the opportunities that stored water presents for various uses including for irrigation, watering of livestock, fish farming, etc. Besides this is the potential for accessing safe water for domestic use. Environmental benefits include how widespread rainwater storage capacity can greatly reduce land erosion. The cost of a typical project for a small dam, i.e. below the depth of 10m, is estimated at US\$284,000, for a medium dam (between 10 to 15m depth) US\$378,000.00 and US\$1,133,000.00 for a large dam.¹ Annual maintenance cost was assumed at 10% of the total investment cost. However, the actual cost depends on geographical location, soil type-sandy or rocky and distance to site.

2.4.2 Proposed Action Plans for Rain Water Collection From Ground Surfaces - Small Reservoirs and Micro-Catchments

Barrier	Root cause(s)	Proposed Measure(s)	Justification	Relevant Agency	When	Funding Sources	Indicators for Success	Possible Risks
The cost of adopting this technology is very high	The price of construction/building materials is very high	<ul style="list-style-type: none"> Promote investments in the manufacturing of building materials Accelerate investment in infrastructure such as housing Promote a access to finance by encouraging commercial banks to rely less on physical collateral when providing credit for construction 	<ul style="list-style-type: none"> To create competition & increase supply to reduce price Reduce infrastructure deficit and demand for cement in the long run. Difficult for many SMEs firms to mobilize collateral for security. Will allow construction companies arrange credit to buy cement and other materials 	<ul style="list-style-type: none"> Min of Commerce & Industry, ZAM, ZACCI, CBs, BOZ Min of Commerce & Industry, ZAM, ZACCI, CBs, BOZ BOZ, CBs, NBFIs, MOF 	<ul style="list-style-type: none"> 2014 & ongoing 2014 & ongoing From 2013 but ongoing 	<ul style="list-style-type: none"> Budgets of relevant agencies As above Budgets of relevant agencies 	<ul style="list-style-type: none"> Volume of investment in the mfg of building materials Reduced infrastructure deficit such as houses Proportion of loans given without physical collateral 	<ul style="list-style-type: none"> Difficult to regulate markets Global & domestic factors Over-regulated financial sector
	Mobilization costs are very high due to high cost of fuel	<ul style="list-style-type: none"> Streamline fuel procurement process & reduce number of taxes. --Promote transparency in oil procurement Promote use of alternative and cheaper sources of fuel 	<ul style="list-style-type: none"> Will reduce the final price paid by oil consumers Will reduce the cost of fuel 	<ul style="list-style-type: none"> Min of Com & Industry, ERB, MEWD, CBs, BOZ Min of Com & Industry, ERB, MEWD, CBs, BOZ 	<ul style="list-style-type: none"> 2014-ongoing 2014 & ongoing 	<ul style="list-style-type: none"> Budgets of relevant agencies As above 	<ul style="list-style-type: none"> Procurement of fuel is tendered to credible bidders Alternative sources of fuel promoted & used 	<ul style="list-style-type: none"> Failure by Government to adhere to tender procedure Alternative fuels not accepted by users

	Construction equipment is very expensive	<ul style="list-style-type: none"> Promote conditions for access to affordable finance for the procuring of equipment Encourage commercial banks not to use physical collateral as the only requirement when giving out loans. 	<ul style="list-style-type: none"> Efforts to bring down interests failed despite inflation falling. Now require a more interventionist interest policy SMEs face problems to arrange collateral. Other criteria e.g. sound business plan & cash flow projections should be sufficient in some cases. 	<ul style="list-style-type: none"> BOZ, CBs, NBFIs, MOF BOZ, CBs, NBFIs, MOF 	<ul style="list-style-type: none"> 2014-18 2014-18 	<ul style="list-style-type: none"> Budgets of relevant agencies Budgets of relevant agencies 	<ul style="list-style-type: none"> A policy on subsidy on excavation equipment Falling and low interest rates Loans be awarded without having physical collateral 	<ul style="list-style-type: none"> Over-regulated financial sector Difficult to regulate financial market
.Inadequate technical skills in the design and construction of dams	Culture (that rejects some skills)	<ul style="list-style-type: none"> Review current education system to change people's mindset to value every sector and job 	<ul style="list-style-type: none"> Learners and society in general has mindset that does not appreciate construction related skills 	<ul style="list-style-type: none"> Min of Education, TEVET, Trade Schools, Colleges/Universities 	<ul style="list-style-type: none"> 2014-18 	<ul style="list-style-type: none"> As above 	<ul style="list-style-type: none"> Tertiary education system reviewed 	<ul style="list-style-type: none"> Inadequate funds
		<ul style="list-style-type: none"> Introduce career guide courses at tertiary level 	<ul style="list-style-type: none"> To create a pool of career guide specialists in schools, colleges & universities 	<ul style="list-style-type: none"> Min of Education, TEVET, Colleges & Universities 	<ul style="list-style-type: none"> 2014 & ongoing 	<ul style="list-style-type: none"> Budgets of relevant agencies 	<ul style="list-style-type: none"> Career guide programs introduced 	<ul style="list-style-type: none"> Failure to implement
		<ul style="list-style-type: none"> Promote outreach programs for awareness and sensitization 	<ul style="list-style-type: none"> The need for awareness creation & sensitization is high 	<ul style="list-style-type: none"> Min of Education, TEVET, Colleges & Universities 	<ul style="list-style-type: none"> 2014 & ongoing 	<ul style="list-style-type: none"> Budgets of relevant agencies 	<ul style="list-style-type: none"> Outreach programs initiated 	<ul style="list-style-type: none"> Failure to implement due to inadequate funds
	Inadequate training facilities	<ul style="list-style-type: none"> Promote easier conditions for accessing loans – less reliance on physical collateral 	<ul style="list-style-type: none"> Training institutions face problems to arrange adequate collateral. Other criteria should be sufficient in sometimes 	<ul style="list-style-type: none"> BOZ, CBs, NBFIs, MOF 	<ul style="list-style-type: none"> 2014 & ongoing 	<ul style="list-style-type: none"> Budget of relevant agencies 	<ul style="list-style-type: none"> Loans awarded to training institutions without collateral 	<ul style="list-style-type: none"> Difficult to regulate financial markets
	High cost of training	<ul style="list-style-type: none"> Provide scholarships for skills training in dam construction 	<ul style="list-style-type: none"> Will give incentive for people to choose training in these skills 	<ul style="list-style-type: none"> MOE, TEVET, Tertiary institutions 	<ul style="list-style-type: none"> 2014 & ongoing 	<ul style="list-style-type: none"> Establish GRZ bursary for training in dam construction 	<ul style="list-style-type: none"> Number of students GRZ bursary for dam construction 	<ul style="list-style-type: none"> No funds to establish dedicated GRZ bursary