THE KITUI SAND DAMS

Sahelian Solutions Foundation (SASOL) was created in 1990 to implement development in the arid and semi-arid regions. It undertook famine relief work in the Somali famine of the decade. Since 1990, SASOL has worked on the development of Kitui. Initially it fed school children and tried to intervene in the farming system by introducing sim sim in schools and the communities. This was not successful for the key development need in Kitui was water. SASOL initially moved into school wells and tanks construction at the end of the 1990 drought for at times there was not water for cooking the donated food for schools. Water is availed to schools through construction of wells and 45cum. tanks. There are 600-school wells, and 200 tanks. Particular school communities provide labor and materials for their construction.

For communities, water is provided through of sand dams and auxiliary wells. A sand dam is nothing more than a weir across an ephemeral river. The technology is not new. What is new in the SASOL programme is construction of the dams in a series, thereby creating a cascade of dams. This, not only keeps the water under the sand, thereby reducing evaporation and assuring high quality water, but also increasing the water held in the ground. A cascade of dams leads to recharge of a catchment's ground water.

400 communities have built a dam each. This was through a systematic participatory process of communities independently creating school or dam development committees to: mobilise their populations, identify well and dam sites, collect local materials, store and issue construction materials, manage construction labour, plant river/dam protecting plants as well as O&M of the wells, tanks or dams. SASOL fundraises, supervises construction and trains on leadership and natural resources management. Donors (SIMAVI, Wateraid, SIDA and DfID, MCC and Exchange) have evaluated these processes, through normal project evaluations, and to date they have passed muster.

As SASOL seeks funds to complete work in Southern Kitui and Yatta, which need 500 dams, it should be noted that Technical University Delft, of the Netherlands, probably the world leading university on water technologies, has evaluated dam and well engineering and found them sound. Technical University Delft was also involved in documenting the ground water recharge effects. In 2002 DfID funded a socio-economic impacts study, which incorporated a baseline survey of the drier Yatta and Southern Kitui areas. This data has assisted SASOL to improve the delivery of production water as the programme area shifts to the drier western and southern parts of the district where humans, livestock and wildlife compete for water and biomass in a landscape, whose physical characteristics and demographics are extremely problematic compared to the more endowed Central Kitui.

Project impacts have been dramatic. In Central Kitui, where the first dams were build from 1995, distance to reliable water sources have been reduced from more than 5 km. to below 2 km. Women and girl children chores of water fetching have been reduced. There is water all year round. Vegetable farming is afoot. Health has improved, driven by higher quality water and better nutrition. Building with bricks has increased for there is water for making bricks. In some villages, for example Kamale, incomes from the new activities are in the order of million of shillings. The UN has recognized the impacts of the technology for SASOL was awarded the Dubai Best Practices Award in 2005. It is the global leader in this technology, which is being extended in Marsabit, Machakos, Homa Bay, Nyakach, West Pokot, Tanzania, Ethiopia, Sudan, Chad, Central Africa Republic, Cameroon, Ghana, Zambia Zimbabwe and many other places by people who have learned of the Kitui Sand dams. It is expected that an independent socio-economic study will be undertaken from June 2005 to detail the return on investment.

We conclude by emphasizing that unique to the work in Kitui is community contribution. Normally this is taken as labor. In the Kitui case it includes the collection of building hardcore, sand and water. Typically, it forms 46% of the dam cost. We believe that this community contribution ensures

that the community owns the project outputs. Attached is comprehensive dam costing based on February 2005 prices.

DAM COSTING MAY 2005

S/No	Item Description	Unit	Unit Rate	Quantity	Total Ksh.	Total Euro
1.	Cement	50 kg bag	600	350	210,000	
2.	Reinforcement bars ½ Dia'	Pieces	13	500	6,500	
3.	Reinforcement bars ½ Dia	Pieces	13	300	3,900	
4.	Barbed wire	Roll	3200	5	16,000	
5.	Timber 2"x 2"	Foot	17	100	1,700	
6.	Polythene Paper g 1000	Meter	100	200	2,000	
7.	Skilled Labour	Man days	450	105	47,250	
8.	Training	Training	20,000	4	80,000	
9.	Site Management					
	• Mobilisation	Item			35,000	
	• Sitting	Item			25,000	
	• Site Preparation				15,000	
	• Construction Supervisor	Item			45,000	
10.	Transport				30,000	
11.	Office Extension				10,000	
12.	12.5% Overhead Administration office costs				66,500	
					593,850	62%
1.	Hard core	Ton	400	210	84,000	
2.	Sand	Ton	300	105	31,500	
3.	Water	Litre	0.50	45,000	22,500	
4.	Unskilled Labour	Man days	100	2,100	210,000	
5.	Community Feeding	Day	10	2,100	21,000	
6.	Support to Artisan	Day	80	105	8,400	
					377,400	38%
	Total				**971,250**	