SASOL MILESTONES 1990-2009

Acronyms

ASAL Arid and Semi-arid Lands
CEO Chief Executive Officer
DC District Commissioner
DfID Department for International Cooperation
GPS Geographic Positioning System
ICA International Christian Association
ICHS International Christian Humanitarian Services
ICS International Christian Services
KEWI Kenya Water Institute
IWW International World Water (IWW)
MCC Mennonite Central Committee
NGO Non-Governmental Organisation
PRA Primary Rural Assessment
SASOL Sahelian Solutions Foundation
SIDA Swedish International Development Aid
SIMAVI Dutch NGO
USAID United States Agency for International Development
Water Aid UK British NGO

BACKGROUND

The Kenya Government's first systematic policy with regard to the development of the country's arid and semi-arid lands (ASALs) was formulated in 1977. Until then some development activities had been undertaken in the relevant districts as derivatives of activities, which had been initiated in high-potential areas. The development argument during the first years of independence was that the country should use its comparative advantage to maximize production in the high-potential areas of the new republic.

Government strategy for financing activities in the ASALs was to encourage donors to commit funding for specific ASAL districts. Thus Kitui District teamed up with the United States Aid for International Development (USAID) soon after the

1977 policy was announced. However, USAID did not make a long-term commitment to financing development in Kitui District. By the beginning of the 1980s, Danish bilateral aid was invited to the district. Its first activities were focused on Mutomo division of Kitui District.

By the end of 1980s, Jaap van Der Zee, an environmentalist, served as the development coordinator for the Danish bilateral aid project in Kitui District. He had deployed Peter van Dongen, Eric Nissen Petersen and G-C. M Mutiso, among others, as consultants in water, construction and social sciences to develop an integrated development programme for Kitui District. The supervisors of Danish bilateral aid in Stockholm rejected the approach to the development of the district proposed by the above-mentioned consultants. These supervisors also terminated Jaap van der Zee's contract as the development coordinator for their Kitui project. The four then decided to create an NGO with the name Sahelian Solutions Foundation (SASOL) to implement select development activities of interest to them.

1990

SASOL was conceived, institutionally, in 1990. It was registered in Netherlands on November 29, 1991 and in Kenya on February 12, 1992 as a company, originally, and then transformed into a company limited by guarantee on July 23, 1992. It was registered as an NGO on May 04, 1994.

The original officials were:
G-C. M. Mutiso, Chairman
Peter van Dongen, Treasurer
Jaap van der Zee, Secretary and CEO.

1991

Initially, SASOL's development philosophy was essentially conventional as indicated by its focus, by its operational areas, and by the disciplines and activities included in the first project documents. Among these were the following:

1. **Schools as Entry Points to Enhance Food Security: 1991.**

2. **Enhanced Food Security, Economic Development and Resource Improvement in Kitui District's Lower Midland Zones: 1991.**
3. **Kitui/Machakos Simsim [Sesame] Development Project: 1991.**
4. **Schools as Entry Points to Enhance Ecology, Food Security, Health and Nutrition in Kenya's ASALs- Pilot Project in Kwale District: 1992.**
5. **Emergency Aid for Matinyani, Mutonguni, Mulango, and Changwithya Locations of Kitui District: 1992.**
6. **Child Sponsorships in Mbusyani and Syomunyu: 1993.**

Choices regarding this melange of development activity were informed not only by the expertise of the respective principals, but also by the need for relatively immediate and direct access to donor funds.

The largest portion of the funding in 1991 derived from fees levied on children in primary schools being served by the project. The per child fee was Ksh. 20. This levy was justified on the understanding that children would be fed in the first instance and, secondly, that they would be taught key lessons in ecology and agriculture, which would shared with parents and siblings, thereby facilitating inter–generational knowledge transfer. Further, by means of the Ksh. 20 fee, it was understood that parents were making a contribution to the community. On offer from the project were the elements of school feeding, the construction of water storage facilities and the planting of simsim in school compounds. The latter element was intended as training for cash crop farming.

Registration for student participation in this programme was to be undertaken by primary school principals. Obviously, benefits accruing to the respective participating schools would depend on the number of students registered.

There were serious problems with this approach. Firstly, the linkage between the benefits on offer through the SASOL agency and the registration of pupils was not obvious. Secondly, the teachers could not be relied upon to remit the collected registration fees to SASOL. Thirdly, in some schools there was open opposition to the SASOL project. Whereas the per student levy of Shs. 20 had been intended by the project designers to avoid the dependency syndrome, some observers of the project viewed it as taxation of the poor. Cumulatively, these issues eventually earned SASOL a negative reputation.

During the year, other sources of funds were identified through friends of the two SASOL board members who had contacts with Dutch non-governmental organisations and a variety of individual donors.

The rationale underlying the Kitui simsim project deserves additional analysis. Firstly, this cash crop was understood as a stimulant to rural development. When Sudan, a world leader in simsim production, suffered a severe drought in 1990, SASOL spotted this lacuna as an opportunity. SASOL's introduction of simsim to schools and adjacent communities was guided by the objective of achieving commercial production within one year. As a crop, simsim farming was new to Kitui and Machakos Districts. Simsim seed, obtained from Uganda in 1990 proved unviable. Seed obtained from Kwale, in Kenya, survived in 1991.

Some schools stored the seed and never planted it because they had no knowledge of this crop. Some individuals who knew about its food value in Kenya's coastal diets simply consumed the seed. In plots where the seed was planted, production was low. There was no organised marketing system and no ready market for harvested simsim. SASOL staff, who had been hired to implement the project, had little experience in agriculture and little commitment to the project.

SASOL learned from this exercise that the introduction of a new crop requires extensive knowledge with regard to its extension and production. SASOL also learned that development workers must possess a thorough understanding of the host or implementing community. Successful new development initiatives could only be undertaken on the basis of systematic community organisation, not depending on existing community/state institutions such as schools as entry points. Most importantly, SASOL learned that committed staff are absolutely essential to successful engagement with communities.

1992

The failure of the Kitui simsim project prompted the idea of launching a simsim project in Machakos District in collaboration with the Wamunyu Dairy Farmers Cooperative. This shift was based on the logic that a rural commercial cooperative would better serve as entry point for innovation than a typical school. In this regard, the Wamunyu farmers had undertaken remarkable initiatives in dairy animal farming. However, the cooperative's adviser blocked the proposal because

it would have shifted focus from the Dairy's core business of milk production. After this stillborn initiative, SASOL made the decision to concentrate its activities in Kitui District in order to minimise operating costs.

Accepted wisdom in Kenya assumed, historically, that districts such as Kitui, underlain as it was by basement rock, contained little exploitable ground water. SASOL decided to challenge this accepted wisdom. Funds were sought from, a Dutch non-governmental organisation, both to build school water tanks and also to undertake a survey for promising well sites. In this regard, several creative principals taught their primary school pupils to locate wells with divining rods! Less helpful was the tendency of communities surrounding the target schools to 'take possession' of the 45 cubic meter SASOL built school water tanks. In the event, potential sites for wells were surveyed and eventually 125 wells installed.

For purposes of launching the school-feeding programme during the extreme hunger years of 1990-1992 in Kitui District, funds were sought from International Christian Services (ICS) Netherlands, a Dutch NGO related to the International Christian Humanitarian Services (ICHS) in collaboration with International Christian Association of Canada ((ICA). Food was bought in Nairobi, transported by contractors and distributed locally by smaller vehicles and allocated to schools following formulas based on enrolment.

Management of the school feeding programme proved problematic. Because of food shortages at the national level, the food available to the SASOL programme was often of questionable quality; the supply chain was insecure; storage and handling were problematic--individual transporters as well as SASOL and staff members of schools siphoned off some of the food. More seriously, some of the available food was rendered political; with the connivance of SASOL staff, the ruling party, Kenya African National Union (KANU), appropriated and diverted some of the food to its electioneering campaign during the 1992 general elections.

Nineteen ninety-two was also the year of the famous Somali famine. ICS Netherlands requested SASOL to access and distribute UNIMIX--a fortified high-energy food--to combat malnutrition in the children of Somalia. UNIMIX was purchased in Nairobi and consigned to CARE International for distribution in Baidoa, Somalia, under the supervision of a consultant made available by SASOL. CARE International undertook accounting and reporting for the whole of the

distribution exercise in Somalia. However, almost a year later, CARE sent an invoice to SASOL reflecting the demurrage and storage costs incurred at Mombasa port for a UNIMIX consignment, which had proven unfit for human consumption! The lesson learned: henceforth SASOL would not be drawn into non-core business or used as an intermediary for initiatives undertaken by donors.

The drought in Kitui District was devastating, leaving many families without planting seeds for beans, cowpeas and simsim. A seed distribution initiative was undertaken. At this point SASOL was still committed to schools as entry points for development initiatives. Children were to take the seed for beans and cowpeas to their respective homes but the simsim seed was intended for planting only on the school compounds. SASOL obtained free tree seedlings from the Kitui District Forest Department for planting both in school compounds and at the homes of students.

SASOL soon learned that schools used as entry points for development initiatives often functioned as confusing and contradictory gatekeepers. At this point, SASOL's operative question became: What is the major limitation to the development of Kitui District?

1993

The formative events and processes of the year 1993 provided the foundation for the agency SASOL has since then become. Nineteen ninety-three was also the year during which Jaap van der Zee, a founder member of SASOL, moved on.

SIMAVI, the Dutch NGO, had provided funding for the hydrological studies related to the proposed school wells and subsequently funded the construction of 320 such wells. Because SASOL was perceived to be a young, inexperienced organization, SIMAVI was prepared to release the funds to SASOL, but under the condition that claims for the recovery of costs incurred could only be submitted after completion of construction.

SASOL hired its first masons in 1993 to begin construction of school wells funded by SIMAVI, a process that continued until 2004 when the donor decided to restrict it's funding to projects located in Western Kenya. By means of this early, experimental activity, SASOL demonstrated that shallow wells could be dug and

did in fact yield water, even in areas underlain by basement rock. Today there are many shallow wells in Kitui District, confirming SASOL's early findings.

In keeping with the prevailing wisdom within the large international NGO community regarding child sponsorship, SASOL supported the Schools Improvement Programme with financial assistance from the Canadian International Christian Association (ICA). Children sponsored by this programme, enjoyed benefits, which were not available to their siblings and certainly not to their parents. Such benefits included shoes, clothing, school uniforms, school fees and food.

SASOL changed this model, applying the available sponsorship money toward the improvement, initially, of six schools. Now the money provided lunches, uniforms, books and teaching aids for all the children! Kwa Kyee Primary School, with its seven classes and three classrooms, was typical. Continuing on its remedial course, SASOL built and equipped four classrooms, an approach which the donor did not accept. When in 1994 the donor representative insisted that school children sing for him, SASOL promptly terminated the relationship with the agency and returned the donor's funds.

Through these difficult experiences, SASOL learned that the accepted child sponsorship model had become dysfunctional, generating envy within families and conflict with interlopers who offered specious direction regarding the application of the available funds.

1994

During this year SASOL made the decision to concentrate on the provision of water. By this time, SASOL had had three years of experience developing water supply systems for schools. It had demonstrated that shallow wells served as viable water sources for schools. This was an improvement on the 45 cubic meter school water tanks--usually emptied by members of the community within days. Now SASOL was ready to accept the challenge to build water supply systems, which catered for the needs of a community of people.

Deep boreholes were not a viable option because both the initial construction costs and the subsequent operational costs were beyond the means of the average community. Most of Kitui District's existing boreholes were in any case

saline. Yields from shallow wells were too modest to support micro-irrigation schemes or to provide water for livestock all year round. Open pans and small earth dams were not considered viable in a district, which typically received less than 800 millimetres of rainfall. Evaporation from exposed earth pans was estimated, in most parts of the district, to be more than a meter per year.

In the wake of the Sahelian drought of the 1970s, water-harvesting technologies were receiving attention. Many schemes--including one in Kenya, which could be spotted by passengers in a commercial jet flying to Europe--were total failures. Not only was the applied technology in this scheme both capital and labour intensive, the prevailing high rates of evaporation had not been taken into account. What the situation required was a cheap technology, which could collect and store large quantities of water with minimal loss to evaporation.

To satisfy these and other requirements, SASOL chose the option of sand dam technology. This decision was to haunt SASOL, subsequently, when it was argued that host communities had not participated in the choice of the technology. Early on, SASOL personnel had become acquainted with the pioneer sand dam construction undertaken by the Utooni Self-Help community in Machakos District under the leadership of Joshua Mukusya. By this time, Utooni Self Help Group had already built 80 sand dams within the district and beyond. Other sand dams had been built by the colonial government, by Eric Nissen Peterson in Mutomo, by USAID, by the Catholic Diocese of Kitui—over a 40 year period. Some of these had been washed away but others were in good condition. SASOL chose sand dam technology because of its simple design and because the structure itself required virtually no post-construction maintenance.

Against this backdrop, SASOL began submitting project proposals to a variety of donors. The first response came from Water Aid UK, noting in its early communication that a representative of theirs was based in Nairobi. After making contact with the representative, SASOL quickly submitted a proposal to the Nairobi Water Aid office. As it happened, a newly appointed CEO of Water Aid UK was travelling from India to the UK to take up his responsibilities. He agreed to pass through Kenya on the way to his new assignment and examine the site of this, admittedly, unusual proposal. He authorised Water Aid support for five dams before leaving Kenya for onward travel to London. To this day, SASOL honours Water Aid's remarkable executive officer for giving whole-hearted support to sand dam construction at a time when other donors were still nursing their doubts.

1995

By 1994, SASOL's development philosophy was being expressed in increasingly articulate form. A small book with the title *Kambiti Farm: The Role of Water in Capitalising Drylands by G-C. M. Mutiso and Sam M. Mutiso. (Nairobi; Lectern Publications, 1995*) identified the absence or paucity of water as the primary limiting factor to agricultural production in Kenya's ASAL areas. It is a study of one farm in the drylands covering a 100-year period. Further, the same authors prepared an illustrated manual sketching out the technical requirements for sustained production in these lands. The manual was entitled: *Sustainable Agricultural Production in Arid and Semi-Arid Lands (SAP in ASAL).* In the absence of a willing publisher, the manual remains in manuscript form to this day

These documents pointed toward the firm conclusion that water is the precursor to any and all development in Kenya's ASAL regions. On the basis of this understanding, SASOL then made five strategic decisions:

***Firstly*, SASOL's core activity for a fifteen-year period would be devoted to the creation of a foundational water resource.**

***Secondly*, sand dams would be built in 'cascades' [i.e., a series of sand dams—respectively separated by several hundred meters within a single water course]. From the available evidence it was believed that this construction/placement pattern of the dams would maximize water retention and at the same time provide community access to water for household and livestock use throughout the year. SASOL had not yet acquired knowledge regarding the phenomenon of ground water recharge!**

***Thirdly*, all SASOL programmes would be concentrated in Kitui District to minimise costs. The 23 simsim related staff had become an onerous liability. At times they were paid from the directors' pockets. Their dismissal, due to incompetence and irrelevance to the new programme direction, reduced staff costs. The transport mode for the two remaining staff was an old bicycle! The office served as sleeping quarters!**

***Fourthly*, the utilisation of the cumulative water resource available from the sand dam construction would serve as the foundation for SASOL's second-generation development activity,**

***Fifthly*, Joshua Mukusya, of the Utooni Self-Help Group, would function as SASOL's sand dam engineer consultant.**

An initial sand dam pilot project--funded by Water Aid UK--was constructed in the Kiindu River, beginning at a downstream site known as Kamumbuni. The local Kathambi leaders had denied access to this excellent site to both the colonial government and the independent government. For this was the site of their religio-cultural shrine.

Who were the Kathambi leaders? They were the traditional female custodians of the goddess/divinity of water; the keepers of the taboos, which protected water sources. In the interest of peace and harmony, SASOL was obliged to negotiate with the Kathambi women, agreeing that sand dams would not obstruct all water flow for according to Kathambi belief, when the flow of water stops, all life stops. Consequently when the dam was complete, the Kathambi leader presided over a ritual, punching a small hole near the top of the dam, which allowed a small amount of water to flow downstream, unhindered! It was a case of religio-cultural understandings regarding water resources taking precedence over the designs of construction engineers and interlopers like SASOL! Eventually, the river featured a cascade comprising 35 dams.

It was at the Kiindu catchment site where SASOL trained the first masons in sand dam construction. The teacher was known as 'British' (David Ngui Kithuku), a senior mason, who had learned the skills under the tutelage of Eric Nissen Petersen in the Mutomo Danish bilateral project.

The key ingredient to success, it was learned during this pilot undertaking, was community organisation to ensure understanding of and commitment to sand dam construction. SASOL quickly discovered that wherever good local leadership was in evidence, community construction efforts moved forward with alacrity. The community was expected to collect the building stones, the sand and the water in addition to housing the masons. These activities, monetised, comprised approximately 50% of the total cost of the dam construction. Donors were taken

aback when SASOL reported the monetised community contribution as part and parcel of the overall accounting procedure for donor funds received and expended.

For purposes of becoming acquainted with the relevant technology, visits to the Utooni Self Help community were organised. On these occasions, Utooni households hosted the SASOL community members for the duration of the exposure visits.

Skills related to Primary Rural Assessment (PRA) were acquired by SASOL through a contract with World Neighbors—an NGO with on-going projects in Kitui District and established relationships with Utooni. At this point, SASOL's establishment comprised only two permanent staff and five masons.

1996

During this year, all SASOL staff and some board members learned the meaning of hard work; they learned how to site dams; they learned how to organise communities; they learned how to mobilise for construction on sub-locational basis; they learned to trust communities with the custody of construction materials; they learned to leave matters of access to specific dams to the discretion of respective communities; they learned how to ignore political propaganda and systematic opposition from district government and NGO personnel. Rumours about SASOL had been circulating, claiming that SASOL was collecting money from donors but mobilising people from rural communities as slave labour.

At the district level, officials from the Ministry of Water constantly complained that their design expertise—with regard to the dams—was not being used. In an effort to demonstrate SASOL's deficient designs, an official from the Ministry of Works drove a D 8 Caterpillar tractor onto a dam, attempting to break it. The dam survived intact. People from the community who had participated in the construction of the dam marched to the District headquarters to register a protest to the District Commissioner (DC). Their spokesperson was a very old lady who insisted on using the Kamba language when addressing the DC who hailed from another ethnic community in Kenya. She insisted that the engineer be transferred from Kitui District on that very same day because he had

committed an abomination against water. He was transferred that very day. To all and sundry the lesson was very clear: Community members possessed power and had the courage to deploy it to their own benefit.

Former SASOL staff, who had been summarily dismissed from the simsim programme, had participated in orchestrating local opposition.

Even more insidious were attacks from members of the community who had benefited from sand dams built exclusively by and for church groups. When senior officials of a local diocese discovered that the church dams were costing 20 times more than the SASOL dams, funding for the church-sponsored dams was withdrawn. Meanwhile, SASOL-sponsored dams benefited all and sundry community members who participated in the construction.

With regard to the important process of selecting and hiring prospective staff persons, SASOL learned how to check in systematic fashion the respective backgrounds of candidates and to assess their commitment to the community approach. SASOL also learned how to identify and deploy staff for multiple roles. For example, masons became skilled community mobilizers and some board members developed skills related to selecting appropriate sites for the construction of sand dams.

Perhaps SASOL's most ingenious praxis relates to donor-community relationships. Representatives from donor agencies were encouraged to become engaged directly with the respective benefiting communities without the inhibiting presence of SASOL staff or officers. This policy of transparent, open access to communities effectively deflected the clandestine probing of SASOL's activities by national politicians and their cohorts. During this time, two national politicians were sent to investigate SASOL; for the duration of the investigation, both SASOL management and board members suffered sleepless nights.

1997

World Neighbours, deploying its well-honed PRA skills, carried out the first impact assessment of sand dams built by SASOL. The results were impressive; no sand dam had been washed away and no sand dam had been damaged. Meanwhile, it became evident that the availability of water in the Kiindu catchment was

improving every season, for under Kitui District's erratic rainfall regime, sand dams require at least five years to reach 'maturity', i.e., optimal water re-charge/storage capacity.

During this year, SASOL became engaged, for the first time, with bilateral donor funding. A proposal had been prepared and forwarded to the Swedish International Development Aid (SIDA). It was quickly assessed and a decision was made by SIDA to provide funding for sand dam construction. However, cross-cultural protocol genies interfered! SIDA expected SASOL to follow up its submission of the funding request while SASOL assumed that SIDA would immediately communicate its positive or negative response. Eventually, after an impatient telephone call from SIDA, SASOL's Chairman and Treasurer were summoned and required to make stylistic and budgetary revisions to the already submitted proposal—to be effected within two working days! Two days after the revised proposal was submitted, the two SASOL Board members were called by SIDA to sign the formal contract and to receive the funds!

Lessons learned from this bilateral funding experience prompted SASOL to refine its internal systems and its relationships with benefiting communities. In the original proposal submitted to SIDA, the respective sand dams had been assigned names. However, sometimes the construction committees and members changed the names of dams after the construction of the sand dams had already commenced. So, when SASOL reported to SIDA on its project activities, it used the names of the dams assigned by the construction committees and members. SIDA became suspicious! In subsequent pre-project planning exercises, SASOL insisted that all involved agree upon the names of the dams before any proposals were submitted to funding agencies. Since entering the new century, SASOL has adopted a new 'naming' procedure; each sand dam site is now assigned its respective GPS (Geographic Positioning System) number. It has been copied by other organisations building sand dams.

Funding from SIDA with its rather stringent procedures, led, interestingly, to improvements in SASOL's project implementation. Early on, it had been determined that SASOL-built sand dams be accompanied by open off-take wells—a structure which could easily become contaminated. SIDA's funding mechanism allowed for improvement in overall sand dam design by building sealed off-take wells.

There was also significant improvement in SASOL's community training regime. During the 1990s, community training was essentially PRA-based with each community designing and implementing its own PRA exercise. Could the PRA routines become more standardized—applicable to the needs of multiple communities, informed by the broad goal of creating a regional foundational water resource? To address these issues, SASOL developed a manual entitled: *Integrated Water Management Based On Sand Dams*. This document in turn led to the formulation of two new SASOL community organizing training regimes for implementation in the following year.

1998

During this year the first milestone achieved was the conceptualisation, testing and initial training in Health and Sanitation with the assistance of Water Aid Uganda.

Two new training manuals were formulated and developed in-house and subsequently launched. They were titled respectively; *Natural Resource Management* Manual and *Project Management Manual*. The *Natural Resource Management Training* manual focuses on the identification of a community's natural resources; how a community destroys or contaminates such resources; how such resources can be deployed to ameliorate poverty; how communities imagine and image the future. This genre of training enabled SASOL to engage communities regarding the centrality of water to tree planting, to crop production, to livestock production, to health and even to formal education.

SASOL's manual entitled *Project Management Manual* focuses on training toward the creation of new community institutions with the capacity to undertake specialized projects. Issues such as participation, constitutions, functions, failures, successes and leadership are discussed in detail. As communities become more cohesive and more engaged with a variety of development activities —more complex than but auxiliary to sand dam construction—the training programmes evolve accordingly.

By 1998, Water AID UK had decided to terminate its Kenya programme, but staff in what had served as its Kenya office decided to continue the functions of the

office under the name, Maji na Ufanisi. Subsequently SASOL and Maji na Ufanisi submitted a jointly prepared proposal to the United Kingdom's bilateral aid programme in Kenya, seeking funding for the construction of 100 sand dams. The proposal was accepted, but the funds would be sent to and administered by Maji na Ufanisi which was under British leadership. This joint SASOL/Maji na Ufanisi relationship survived for barely a year before being overtaken by technical and financial problems.

Even though SASOL did not have a formally qualified engineer on its staff, its practical experience and knowledge with regard to sand dam construction exceeded that of Maji na Ufanisi. At one point an engineer from Maji na Ufanisi inappropriately ordered a mason to raise the height of a dam with the disastrous result that the river created a by-pass around the dam. In the wake of that experience, it was agreed that SASOL staff assume responsibility for making all operational decisions; any instructions from donors or well wishers become subservient to SASOL decisions.

Other problems arose from the fact that SASOL and Maji na Ufanisi operated two quite different accounting systems. Following consultation with the British High Commissioner—the in country watchdog of British aid funds—it was agreed that its funds for sand dam construction would be sent directly to SASOL, bypassing the Maji na Ufanisi's office.

1999

The most significant milestone in 1999 took the form of an external evaluation of the Kiindu cascade by Professor D. B. Thomas.

SASOL was in need of a reality check, not only with regard to sand dam engineering, but also with regard to community response and acceptance of the SASOL intervention. With his long experience as a large-scale farmer and as a dryland researcher and agricultural engineer, as well as his genial humanness, Prof. Thomas was the ideal person to undertake the desired 'reality check'. Prof. Thomas is one among the few non-SASOL personnel who has repeatedly walked the whole length of the Kiindu cascade of sand dams. His detailed evaluation, entitled: *Where There Is No Water*, provided encouragement to SASOL's initiatives and legitimated sand dams in the wider development world. SASOL is

quite certain that this evaluation opened doors to subsequent successful fundraising.

Later it was determined that SASOL would undertake a discussion of sand dams in a national context. A national seminar under the theme, *Sand Dams And Subsurface Dams*, was convened in Machakos, October 4-6, 1999, hosted by the Kenya Rainwater Harvesting Association, with the assistance of Prof. D. B. Thomas. During this conference, SASOL was taken aback by the systematic hostility expressed in the meeting against sand dam technology and by the refusal of the officials responsible for water and agriculture to take the technology seriously. That hostility still obtains in 2009. So much for NGOs influencing policy!

In 1998, unusually heavy short rains had damaged six of the Kiindu cascade dams. MCC provided rehabilitation funds as well as funding for the construction of an additional 7 dams within the cascade. As part of its Good Wood Project—focused on the provision of alternative carving wood—MCC supplied tree seedlings to the sand dam communities.

2000

During this year, UK bilateral aid extended its funding for SASOL sand dam construction. More significantly, it agreed to provide funding for a socio-economic study of the area's river valleys and adjacent communities. This study was intended to collect publicly available statistics as well as data available through on-the-ground survey work. Twenty-five Kenyan students were deployed to walk all Kitui Rivers, collecting data upon which basis SASOL could develop its long-term strategy for the implementation of sand dam technology in all small rivers of the district.

For purposes of extending the technology, the SASOL made a video on how to construct sand dams. It is titled *The Sand Dams Of Kitui-Where There Is No Water*. The video is available from Ukweli Studios, Nairobi.

SASOL had become aware, particularly after the national sand dam workshop, that many engineers were not convinced with regard to the viability of sand dam technology. They cited issues such as downstream water flows, fluctuations in

hydrology, silting, appropriate construction materials and techniques and community participation. Engineers who were raising these issues were not undertaking any research in a quest for answers. Against this backdrop, SASOL solicited the expertise of TU Delft University—the premier university in water studies in the Netherlands--to undertake research on issues being raised regarding sand dam technology.

A team of 4 TU Delft students was dispatched to Kenya to initiate studies regarding sand dams design. They produced two reports: *Building Sand Storage Dams* and *Improved Design Of Sand Storage Dams.* Subsequently, a team of two students launched a study on hydrology as related to sand dam construction.

2001

The year was marked by major expansion in the number of sand dams constructed, facilitated by a commensurate increase in the number of skilled masons. From this year and up to 2008, SASOL doubled staff and work every year.

An in-house document titled *Institutional Factors: Kitui Sand Dam Programme* was written as a general guide to the programme.

2002

Drawing on the accumulated work of the TU Delft student teams, TU Delft, the Westerveld Conservation Trust, the Catholic University of Belgium, the University of Nairobi, the University of Dar es Salaam, the University of Amsterdam, PROTOS (a Belgian NGO) and the International Water and Sanitation Centre prepared a proposal for presentation to the European Union Knowledge Unit (!) for a project entitled, *Re-hydrating the Earth.* The objective of this undertaking was to study water conservation techniques together with community organisation within the larger ecological context, with the objective of bringing this distilled knowledge to the attention of the European Union. Sand dams were central to this undertaking.

As far as SASOL was concerned, the whole of this high-minded activity proved to be a failure. This because unequal relationships were in competition; unproductive conferences were convened; the large core team--expected to

contribute specialised knowledge—refused to collaborate with other actors and TU Delft, the grant holder, ignored protocol. SASOL abandoned the project when the TU Delft engineer wrote nonsense about SASOL's community organising capabilities in 2004. Unfortunately, this sequence of dynamics made it difficult for SASOL to attract serious TU Delft graduate students for subsequent research.

Before the separation from TU Delft, Exchange-The Profit of Learning, a Dutch NGO, visited Kitui District. With its arrival, SASOL was able to begin sand dam construction in the very dry extreme southern portion of the district. Additionally, Exchange-The Profit of Learning was providing Dutch students attachments in Kitui. These students from middle and lower level Dutch schools raised funds to cover their own costs, thus providing free expertise to the SASOL programme. SASOL had anticipated, unrealistically as it turned out, that Kenyan students would go to the Netherlands as part of a cross-cultural exchange experience. Unfortunately, Kenyan students were not able to raise funds to cover the costs. Consequently, Exchange-The Profit of Learning Exchange agreed to support Kenyan students who worked with Dutch students attached to SASOL.

SASOL identifies Kenyan students to be attached to the Dutch student teams who came to work or do research with the Kitui communities. To date (2009) more than 300 Dutch students have come to Kitui and 150 Kenyan students have served as their counterparts. Kenyan students, who have worked with Dutch students, have become an excellent personnel pool from which SASOL recruits both masons and management staff.

The Exchange project has enabled SASOL to research issues and technologies integral to its current and future programmes. For these purposes, students have tested pumps and they have participated physically in the construction of dams. They have researched Kitui agriculture and its marketing systems. They have also tested water and established a water analysis laboratory. However, by far their most important contribution was in the form of research into various aspects of the SASOL programme. Through this project SASOL has tapped into the Dutch private sector with its capacity to reflect on and facilitate access to alternative building systems, alternative energy sources and the computerisation of schools. The collaboration of Dutch and Kenyan students has enabled SASOL to accelerate its planning for Second Generation SASOL. It had been envisaged that beginning 2010, significant time would be devoted to the collection of planning data in

support of capacity building activities. To date (2009) not only has significant data been collected, but some community capacity building is already part of the programme being implemented,

During this year MCC started funding sand dam construction beyond the Kiindu catchment. The new funding enabled SASOL to initiate work in the recently settled Yatta area of Kitui District.

Also this year witnessed the beginning of a relationship between SASOL and the Acacia Institute of the Free University of Amsterdam. Albert Tuinhof, working as a World Bank consultant, was the contact person. Subsequently SASOL engaged with specialists within the international arena who argued that the earth functions as the most efficient receptacle for water storage. They argued, additionally, that ground water storage functioned in the realm of hydrology rather then in the realm of water engineering with its preoccupation with water distribution.

Significant support for these arguments was contained in a document titled *The Significance Of Subsurface Water Storage In Kenya* by Sam Mutiso, the then SASOL CEO. This document provides a detailed review of water harvesting technologies in Kenya and their potential for future expansion. The core argument is that sand dams are the preferred water development technology. This document attracted the attention of hydrologists and climate change experts in Netherlands in settings as diverse as Amsterdam Water, Acacia Institute and the Free University of Amsterdam, all this in addition to the earlier collaboration with TU Delft University. SASOL participated in a global conference in Amsterdam in November 2002, where the salience of groundwater storage as an antidote to global warming was the focus. SASOL participated in the International World Water (IWW) forum in Tokyo the following year. Together, these engagements introduced sand dam technology into the precincts of the global climate change lobby.

Ukweli Studios made a video evaluating the impacts of sand dams in Kitui District titled *Sand Dam Water-A New Life*. In it community members discuss how water from sand dams has influenced and changed their lives. The video is still available.

2003

On the strength of instructions from its headquarters, this year marked the end of UK bilateral (DFID) funding for SASOL's water development programme. To mark the occasion, a terminal evaluation of the funding for Kitui sand dams, titled *Snapshot Review: Sahelian Solutions (SASOL) Kitui Water Retention Sand Dams Project*'s was undertaken by Christian Odhiambo. SASOL is grateful to him for pushing it to clarify the theory and assumptions underlying its work.

Also in this year, unknown persons nominated SASOL as candidate for the Dubai Award, funded by the Dubai Municipality and administered by UN HABITAT. The award served as an acknowledgement of SASOL's global best practices. Oddly, a community representative who travelled to Dubai at SASOL expense, sought to claim the prize money!

In the IWW forum in Tokyo, interestingly, when senior Kenyan officials walked into the conference hall, they asked, 'Who is speaking Kikamba?' They were hearing a SASOL video on the impacts of sand dams!

2004

During the year, SASOL participated in a reflection process undertaken by MCC, focused on MCC's understanding of and approaches to development. The findings of this discussion were captured in a document entitled, *Kitui Sand Dams: A Development Paradigm*.

Through Acacia Institute, SASOL took part in the climate change conference organised by the International Water Association (IWW)] in September 2004. An essential finding in this conference: ground water storage mitigates the effects of climate change.

Students from the Free University of Amsterdam, supervised by its staff and Acacia Institute staff, launched hydrological studies tracing ground water flows in and around the Kitui sand dams. Other students studied the socio-economic impacts of the sand dams.

Harry Rolf from the Amsterdam Water Company, which uses sand to filter water, was so intrigued by the sand dam technology that he made repeated visits to sand dam sites in Kitui District. He participated in student supervision and authored a paper entitled, *The Hydrology Of Sand Dams.*

The premier milestone this year was the in-house publication of a document titled *Kitui Sand Dams: Construction And Operation* by Julius Nzomo Munyao, Joseph Muinde Munywoki, Mathew Ikuthu Kitema, David Ngui Kithuku, Joseph Mutinda Munguti and Sammy Mutiso. This very important SASOL document is detailed, based on actual field experience of ten years. It also pushed the frontiers of sand dam hydrology.

2005

MCC had been funding sand dams in small tranches for some time, but until this year, no external evaluation had been undertaken. Prof. H. Rempel from the University of Manitoba (Canada) together with two local consultants and one foreign consultant undertook such an evaluation. His evaluation report was entitled *Water In The Sand* and his related five-year-funding-plan was entitled *Water Is Food*. Both activities led to funding commitment by MCC for 350 sand dams in Kitui District and 150 in Machakos District.

To date (2009), MCC has provided the largest portion of the funding available for the construction of SASOL sand dams. Additionally, this new funding enables SASOL to include trees and land terracing as well as on site food-for-work. It has long been accepted that the presence of trees and the terracing of land in areas contiguous to sand dams increases capacity for ground water recharge.

The Institute of Environmental Studies of the Free University of Amsterdam prepared a video, featuring evidence of the impacts of sand dams on climate change. The video was shown in the 2006 World Water Forum (WWF) in Mexico.

2006

Some of our partners and associated researchers seemed to have different ideas about what community organising was in our context. In house, it was deemed important that SASOL states its approach to community development as part of its long-term mandate. Thus the documennt *Community Participation* was

prepared. These differences continue to date since there is a sense in which development work is like the proverbial elephant!

The Acacia Institute expressed interest in up-scaling SASOL's sand dam technology. During the IWW meeting in Mexico, it assembled a cluster of institutions to prepare a proposal for the construction of sand dams in Ethiopia and Burkina Faso, financed by the Swiss Reinsurance conglomerate. SASOL is serving as consultant to this collaborative undertaking.

SASOL was pleased to receive funding from the APA Insurance company for the construction of three sand dams. Until now, (2009) this is the only funding for sand dam construction received from a Kenyan organisation. But not for lack of trying!

2007

During this year, Eric Starre, a retired engineer from Meppel, Netherlands visited Kitui on the recommendation of a friend. He had financed a very complicated water purification plant in Laikipia (Kenya), but it had proven non-functional. During his visit to Kitui, he liked what he saw in the sand dams. By 2009 he had funded 43 dams. He raises funds by mobilising the local Netherlands Rotary Club to sponsor Dutch primary school children who carry five litres of water for a distance of several kilometres, creative imitation of the arduous work of fetching water in Kitui!

SASOL was invited to contribute to a book *Water Voices From Around The World* edited by William E. Marks.

2008

The Gronigen Rotary Club joined Eric Starre's fund raising efforts through the Meppel Rotary Club. SASOL uses these funds to build sand dams in the drier areas of southeastern Kitui--now Mutomo District, an area, which needs many more sand dams. Here water sources are few; on occasion SASOL has found it necessary to transport construction water for more than 100 kilometres.

2009

Sam Mutiso who had led SASOL for many years retired and was replaced by a newly appointed CEO.

The following Strategic Plan was formulated under the guidance of Washington M. Njuru a very experienced consultant.

SASOL STRATEGIC PLAN 2009 – 2020

Developed in Masinga Dam Resort, April 6-9 2009

1. **Vision**

To be a leading organisation in enhancement of sustainable community development in Africa

2. **Mission**

Empowering and supporting communities' structures and skills relevant to sustainable utilization of resources to improve their livelihoods.

3. **Core Values**

   a. **Integrity**

   b. **Professionalism**

   c. **Innovation and creativity**

   d. **Client First**

   e. **Equity and Equality**

4. **Mandates**

1.That all programs be done in a participatory manner with respect to target communities.
2.That program activities be planned with the partners.
3.That the overhead and operating costs be kept at a minimum so as to support activities, which are of benefit to the target communities.
4.Those activities are based on knowledge and not development whims.
5.That local and external knowledge be utilised to solve problems.
6.That all activities protect humanity and ecosystems with impartiality.

5. **Key Stakeholders**

   a. **Community**

   b. **Institutions**

c. **Development Agencies**

d. **Collaborating Agencies**

e. **Donors**

6. **SWOT**

a. **Strengths**

i. **Committed, competent multidisciplinary staff**

ii. **Accountable and transparent track record**

iii. **Good internal governance systems**

iv. **Focused policy and program formulation**

b. **Weaknesses**

i. **Donor dependency**

ii. **Inadequate office space, equipment and property**

iii. **Lack of follow up programs (M&E)**

c. **Opportunities**

i. **Extension of sand dams as an appropriate technology to mitigate climate change effects.**

ii. **To expand programs in ICT, vocational education and renewable energy sectors.**

iii. **To trade the water platform**

iv. **Proper utilization of existing resources for income generation.**

v. **Offering consultancy services based on research, innovation and accumulated knowledge and experience.**

d. **Threats**

i. **National political instability**

ii. **Economic turbulence**

iii. **Drought / famine**

iv. **Climate change (global warming)**

v. **Different approaches by other agencies offering incentives for participation in development activities in same areas**

vi. Interference by mining companies

7. Trends and Impacts

External Trends

a. Climate change

b. Environmental degradation

c. Demographic Changes

d. Evolving Social Structures

e. New business patterns

f. Global and national recession

Internal Trends

g. Demand of sand dam technology

h. Increased programme sectors and specialisation

i. Wider geographical area coverage

j. Gender equity in employment

Impacts

k. Food Insecurity

l. Creation of more dams

m. Skills training

n. Increased community income and better livelihoods

o. Increased budgetary requirements

p. More regional and global contacts

8. Major Strategic Planning Issues

a. Dry land agriculture

b. Value addition processes

c. Entrepreneurship skills training

d. Vocational education training

e. ICT centres

f. Life skills development

g. **Community organization**

h. **Catchment protection**

i. **Water harvesting**

j. **Facilities' development**

k. **Renewal energy development**

9. **Strategic Initiatives**

a. **Dry Land Agriculture: January 2010**

i. **Resource mobilisation**

ii. **Training farmers on appropriate farming methods**

iii. **Promotion of draught resistant and traditional crops**

iv. **Establishment of contact and demonstration farms**

v. **Linking farmers to other relevant institutions**

vi. **Promotion of waste water recycling**

vii. **Monitoring and evaluation**

b. **Value Addition Processes: January 2010**

i. **Community training on traditional and modern food preservation methods**

ii. **Training and promotion of traditional food preparation methods**

iii. **Training and promotion of resource use and management (wood carving, quarry stone, etc)**

iv. **Monitoring and evaluation**

c. **Entrepreneurship Skills Training: January 2010**

i. **Baseline data and training needs assessment**

ii. **Curriculum development**

iii. **Development of training manual**

iv. **Training of target group on identified skills needs**

v. **Linking target group to relevant institutions for more training, exposure, financial and technical assistance**

vi. **Monitoring and evaluation**

d. **Vocational Education: August 09**

i. **Mapping the market**

ii. **Resource mobilisation**

iii. **Selection of approaches**

iv. **Curriculum development**

v. **Trainee selection and placement**

vi. **Linkage to market and institutions**

vii. **Alumni formation**

viii. **Monitoring and evaluation**

e. **I.C.T. Centres: September 09**

i. **Mapping the market**

ii. **Resource mobilisation**

iii. **Establish physical, hardware and software infrastructure**

iv. **Curriculum development**

v. **Selection and placement of trainees**

vi. **Alumni formation**

vii. **Monitoring and evaluation**

f. **Life Skills: August 09**

i. **Mapping the market**

ii. **Resource mobilisation**

iii. **Establish physical, hardware and software infrastructure**

iv. **Curriculum development**

v. **Selection and placement of trainees**

vi. **Alumni formation**

vii. **Monitoring and evaluation**

g. **Community Organisation: On-going**

i. **Needs assessment survey**

ii. **Resource mobilisation**

iii. **Development of training materials**

iv. **Identification of target groups**

v. **Training approach selection and implementation**

vi. **Linkage of the trained groups**

vii. **Monitoring and evaluation**

h. **Catchment Protection: On-going**

i. **Identification of catchment areas**

ii. **Baseline data collection**

iii. **Organisation, mobilisation and formation of catchment groups**

iv. **Training of catchment groups (NRM)**

v. **Layout and digging of terraces**

vi. **Establishment of grass and tree nurseries**

vii. **Trees and grass planting**

viii. **Monitoring and evaluation**

i. **Water Harvesting: On-Going**

i. **Identification of areas of operation**

ii. **Baseline data collection**

iii. **Mobilisation of target groups**

iv. **Identify approaches**

v. **Monitoring and evaluation**

j. **Facilities Development: On-going**

i. **Needs assessment**

ii. **Site identification and confirmation**

iii. **Architectural design development and approval**

iv. **Resources mobilisation (materials and human)**

v. **Construction of MPCs, offices, labs, etc**

vi. **Monitoring and evaluation**

k. **Renewable Energy Development: On-going**

i. **Needs assessment**

ii. **Technology identification**

iii. **Sites identification**

iv. **Resources mobilisation (materials and human)**

v. **Construction and installation**

vi. **Monitoring and evaluation**

10.Human Resources Needs

SASOL has, within its current staff establishment, sufficient and capable staff to carry most of the planned initiatives. However there will be need to recruit ICT/Data Analysis anchor staff for the ICT initiative

11.Financial Resources

Most of the planned activities are about expansion and deepening since there are already on-going activities in most of the initiatives with some seed money. All the initiatives are about building upon the already developed Water Platform to intensify 'trading the water' made available through the over 700 sand dams. There is need to raise more funds for the expanded programs.

i. Attendance List

1.	Evans M. Ngava	Board Member
2.	Mathew I. Kitema	Community Trainer
3.	Franciscar K. Kimangau	Intern from KEWI
4.	Kennedy Paul Mutati	Technical Assistant
5.	Peris Mumbi Munyaka	Community Trainer
6.	Onesmus K. Mwangangi	Sasol Exchange Coordinator
7.	Fredrick P. Kimwilu	Community Organiser
8.	Aziz S. Bajaber	Executive Chair Designate
9.	Bernard N. Muendo	Technical Supervisor
10.	Elisah Mweti	Board Member
11.	Elijah Kamama	Community Organiser
12.	Francis Maluki Katua	Executive Chairman
13.	Anna E. Mutuku	Exchange Assistant Coordinator
14.	G-C M. Mutiso	SASOL National Chair
15.	J. Mutinda Munguti	Manager
16.	Jemima Sila	Board Member

Away with Apologies

1.	Peter van Dongen	Executive Treasurer
2.	Pauline Mwalali	Board Member
3.	Mrs Wayua Muna	Designate Chair

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20/08/09