



28th WEDC Conference

Kolkata (Calcutta), India, 2002

SUSTAINABLE ENVIRONMENTAL SANITATION AND WATER SERVICES

## Sullage – irrigated household latrine woodlots

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WITHIN TWO YEARS from August 2001, more than 400 refugee households in each of the three Dadaab Refugee camps, in North Eastern Province of Kenya, will begin to cater for their own wood pole requirements for pit latrine superstructure construction and other shelter – related needs. This will cut down CARE's latrine materials support to the refugee households by at least USD 5 per latrine per year.

This is through the household latrine woodlots initiative which entails planting a woodlot of 20-30 fast growing trees around existing and backfilled family latrines. The trees are irrigated with wastewater (sullage) from the latrine slabs as well as kitchen waste splashing. The idea is attractive because the community is able to participate actively in environmental rehabilitation while gaining woody resources for household needs. Owing to the fact that the region (Dadaab) is semi-arid and has scarce range resources, the initiative will bring about significant positive impacts on the environment.

### Ecological set up

Dadaab is located in an arid area. It is hot and dry much of the year, receiving scant rainfall in the range of 150- 300-mm annually. The temperatures range between 30- 42 degrees Celsius (maximum) and 18- 24 degrees (minimum). The weather becomes cool and windy between June and August. Long rains (lasting 1-2 weeks) normally come in April-May and short rains in October/ November. Evaporation is high, averaging 2100-2500 mm annually.

The soils are predominantly sand, ranging from dark red collapsing sand in Hagadera, 'sandy-clayey' in Dagahaley to 'loamy-clayey' in Ifo areas. The vegetation comprises of range- land covered with shrubs and trees like *Acacia tortilis*, *Acacia seyal* and *Balaniites aegyptiza*. The main vegetation is thorny bush with dominance of *Jatropha* and *Commiphora spp.*- with seasonal undergrowth.

### CARE Refugee Assistance Project (RAP)

CARE Kenya has been the lead-implementing partner for UNHCR in Dadaab since 1991. Through its RAP project, CARE supports four livelihood programmes for the refugees, namely; Food Warehousing and Distribution, Water and Environmental Sanitation (WatESan), Primary and Secondary Education, and Community outreach and Rehabilitation. At the beginning of 2002, the registered refugee population in Dadaab stood at 134,436, comprising of Somali (97%), Sudanese, Ethiopian, Eritreans, Congolese, Tanzanians, Ugandan and Burundian nationals. The ma-

majority of the population are Muslims. The refugees are settled in three camps (Hagadera, Ifo and Dagahaley) each hosting approximately 45,000 people.

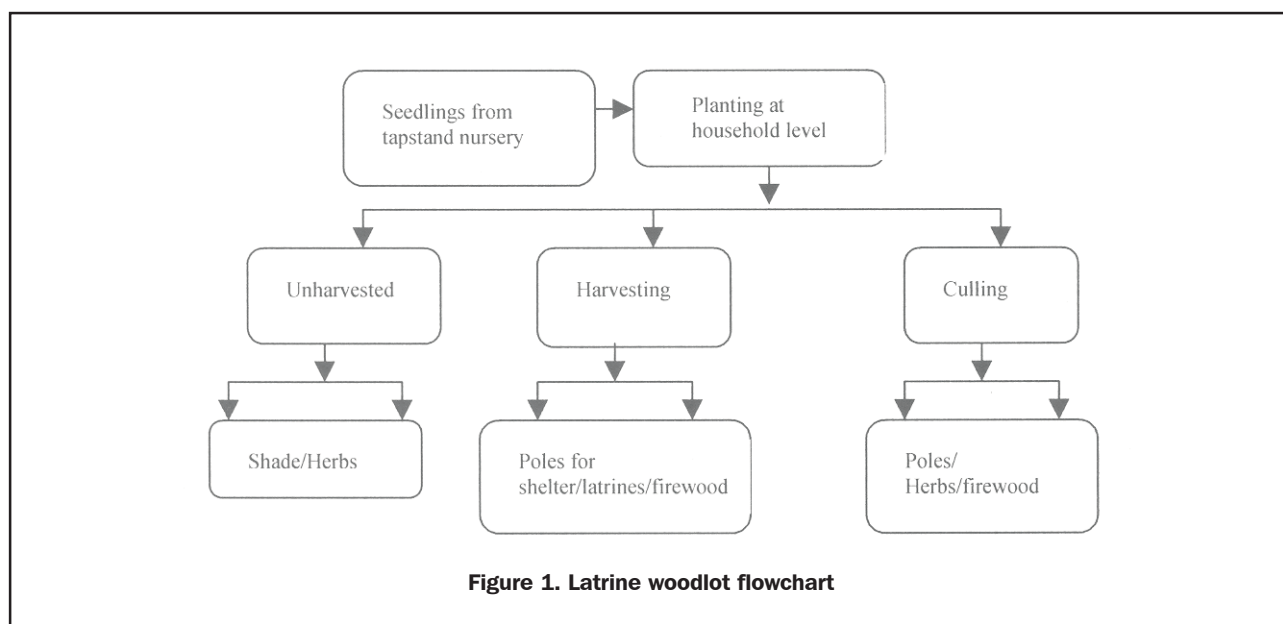
The core activities of the WatESan sector are water supply, environmental sanitation, health education, and refuse recycling with income generation. The bulk of sanitation work comprises latrine construction and maintenance support. Households dig pits and construct latrines while CARE provides material support and technical backup in the form of cover slab, poles and wall screen, siting and construction standards enforcement, latrine larva monitoring, and hygiene education. In January 2002, there were 9,595 latrines in the three camps, with a per capita coverage of 1:14 (latrines to users).

One latrine serves 3 households on average and lasts 2 – 3 years. The slab, normally a concrete dome, is then shifted to a new pit. A minimum of six poles (or posts) is required for the walling framework. One hardwood pole, 3-4 inch diameter and 2.5m long costs Kenya Shillings (Ksh) 150 thus total of Ksh 900 (USD 11) for a complete latrine unit. The poles last 2 years on the average, after which they have to be replaced. Annual pole replacement needs are about 30% of existing latrines, (2,880 latrines or 17,280 poles). At least USD 31,680 is required annually to meet the demand.

### Objectives of the latrine woodlot

With shrinking donor funding to refugee missions worldwide, the budget allocation to CARE for latrine construction support has been declining over the years. It is mainly for this reason that WatESan initiated the household latrine woodlot. Besides sustainability, other driving factors include the scarcity of wood resources in and around Dadaab, and the essence of refugees contributing towards environmental rescue at the household level. By the end of 2005 when 75% of all the estimated 27,000 refugee households in Dadaab are expected to have fully adopted the household woodlots initiative, a projected saving of USD 24,300 annually will be realized by phasing out free wood pole distribution to refugee families for superstructure construction or maintenance of some 2160 latrines.

The initiative also fits in well with the WatESan sector's strategic direction on environment friendly programming, which entails forest micro-catchments and waste reuse/recycling. This is as it involves the use of wastewater from different places e.g. at the latrines, which also double as showers. Besides latrine construction, the woodlots may also provide much needed shed and breeze, and may also be



culled for hut construction and firewood. The predominant species adopted are *Cassia* and *Neem*, both of which are fast growing and can be harvested in 1 1/2 to 2 years. *Neem* is also a popular multi ailment herb among the refugees and locals.

### The pilot

The woodlot pilot started in one of the camps, Dagahaley, in August 2001. A total of 3,700 seedlings were planted around existing or backfilled latrines in 370 homesteads. (Most of the latrine slabs in Dadaab also double as bath slabs). Being a predominantly Muslim community, most of the refugees use water for anal cleansing<sup>1</sup>. The soil around pit latrines is therefore moist and fertile). The seedlings were supplied free by GTZ, which is the sister agency responsible for general camp environment rescue and fuel wood supply to the refugees.

### GTZ Rescue

The GTZ-Rescue project was initiated in 1993 after vast degradation of the camp environs was noted. Its main focus is appropriate management of resources and the rehabilitation of environmentally degraded areas. To date, the programme has restored 15-20% of the degraded land in and around the camps. The process has entailed establishment of green belts and promotion of tree planting; environmental education, promotion of local management of natural resources, and distribution of energy saving stoves.

### Implementation of latrine woodlot

At the commencement of the initiative a survey was carried out to identify and suggest approaches for establishment of latrine gardens. After that a pilot was conducted to mobilize and build the capacity of refugee households to establish woodlots based on the latrine garden concept. It



involved diagnosis of factors that could promote the culture of tree growing within a refugee assistance context. The rationale lay in encouraging the refugee community to be partners in conservation and in transition towards self-sufficiency in the provision of wood resources and resultant benefits of sustainable forestry practices.<sup>2</sup>

By the end of 2001, the initiative extended to the other two camps, Hagadera and Ifo. In December 2001, a total of 1620 seedlings were planted in all the three camps. The species planted were the *Neem* and *Cassia*. Later on in April 2002, another 1120 seedlings were planted in all the camps. Some 60% of these seedlings are thriving according to a survey carried out in May 2002. The tree planting will be a continuous cycle every rainy season in the year so that the initiative is entrenched in the community.

### Tree species

The species used have most often been dependant on availability from the GTZ central nurseries. Other factors that have had to be taken into consideration are the growing rate and resilience to the climatic conditions of the selected species. Currently the most common species used

are *Cassia* and *Neem*. This is because of their real and presumed benefits as cited by the community. Another fast growing species that may be used is *Acacia* but it is not preferred since it is thorny. The community has also expressed interest in planting fruit trees such as pawpaw and guavas.

### Constraints

There were a number of constraints faced as the initiative got underway. Among them is the fact that participants will only use the tree species that GTZ can offer. To circumvent the problem, tapstand nurseries<sup>3</sup> have been introduced to supplement the seedlings given by GTZ.

Reluctance to participate on the part of some of the community members was also noted. Some of their quoted reasons include the fear to touch human waste as they plant these trees. Also, the hope of return to their respective countries holds back some of the refugees as they feel they will not stay in the camps long enough to see the fruits of their labour. This has been addressed by raising awareness on the eventual benefits of the initiative to the environment.

Problems such as damage to seedlings by livestock and improper planting were dealt with by conducting trainings for different groups on tree establishment (laying of ground-work, propagation, planting), management techniques as well as nursery establishment and maintenance.

### Lessons learnt

Through this initiative, it has emerged that the refugee community can give as much- if not more- as they are getting from the available natural resources. Of importance is that through innovation, practical and environment friendly approaches, agencies can design and implement more cost effective and sustainable sanitation and related programmes for rural or other populations in precarious situations.

Another lesson in this silvicultural initiative is that for sustainability, refugees need to carry it out without monetary or material incentives. It is common practice for some of the community members to point out that they need incentives (or payment) to plant trees. This is something which has long been discouraged as it leads to the need to planting trees being looked at as external to the community, an insinuation that tree planting is for the agencies and not for the community. It has been suggested that a reward scheme could be introduced at later stages of implementation. This would be for those showing exemplary performance; based on the number of seedlings that survive after planting. Such households could be given tokens of polymats (toilet screens) or any other thing deemed sufficient to motivate.

### Way forward

There are other initiatives currently in place promoting silvicultural practices by using recycled wastewater. These



Figure 3. Borehole micro-catchment



Figure 4. Tapstand nursery

include the borehole micro-catchments where pockets of green areas have been established (around boreholes) to improve their microclimate and on the long term, support the hydrological cycle through recharge of the aquifers.

The other is the tapstand nurseries where optimization of scarce water resources is undertaken by utilization of spillage water at the camp tapstands. These will also serve as seedling production sites for trees to be planted in the households.

The initiative could be applied in several ways for example to promote the kitchen garden concept which is being explored by WFP as a means to supplement the community's food basket- Kitchen garden agriculture

### (Footnotes)

<sup>1</sup>In place of toilet tissue paper.

<sup>2</sup>Mwai Samuel. *Where are we now: The status, Constraints and Possibilities for Community Forestry in a refugee camp set-up*. Dadaab, 2001

<sup>3</sup>Tapstands are the water collection points in the camps.