

Buffelsdraai Landfill Site Community Reforestation Project

[eThekwini Municipality]

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Timeframe: Phase 1: November 2008 to June 2010; Phase 2: July to December 2010

Funding: Phase 1: R2.5 million; Phase 2: R2.3 million

Category: Sustainable Energy and Climate Change

Objective

The project involves the planting of trees to re-establish a forest within the 787 hectare municipal-owned buffer zone of the Buffelsdraai Landfill Site in order to create a carbon sink that will contribute to offsetting the carbon footprint of the 2010 FIFA World Cup. The first phase of the project aimed to plant 62,500 trees. The second phase of the project, which is co-funded by DANIDA UEMP and the eThekwini Municipality, aims to plant a further 100,000 trees.

Background and Context

The eThekwini Municipality's Environmental Planning and Climate Protection Department (EPCPD), through its Municipal Climate Protection Programme, investigated potential sites within the municipal area for reforestation projects. Reforestation is an approach involving the re-establishment of forest habitat on land which has been cleared within the past 60 years (usually for agriculture, but occasionally for infrastructure or development), with the main aim of protecting global climate through sinking carbon dioxide as the trees grow. Reforestation projects also create biodiversity assets, protect river catchments, and can become important sources of natural products for local communities. So, while reforestation offers climate mitigation benefits, it also results in important climate adaptation benefits.

The Buffelsdraai Landfill Site and its buffer zone were shortlisted as a priority reforestation project site for the following reasons:

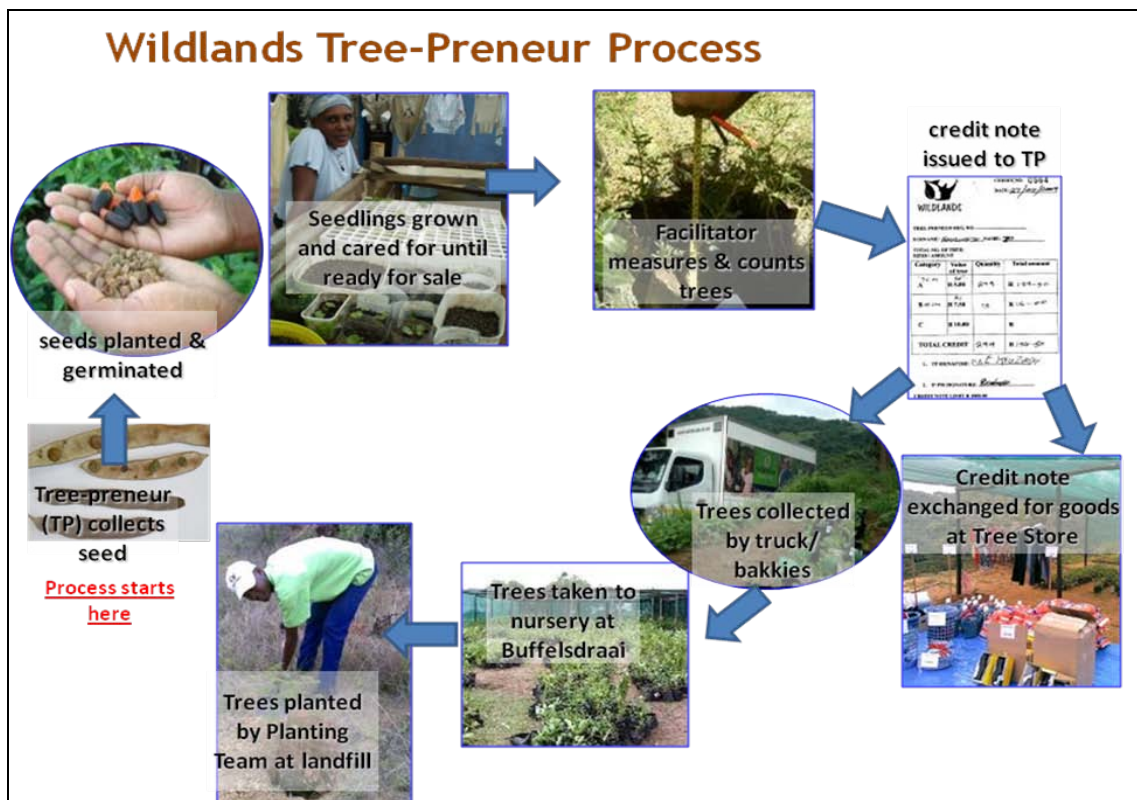
- The area was previously forest / woodland, which was cleared many years ago for sugar cane production.
- The sugar cane production still taking place on site is considered to be marginal, and the farmers have indicated an intention to cease farming it due to the diminishing economic viability of the operation.
- The constitution of the Buffelsdraai Landfill Site includes the establishment of a "nature conservancy" on the landfill footprint and in the entire buffer area. Reforestation activities in these areas would thus contribute to this aim.
- The landfill footprint and buffer zone areas are owned by the eThekwini Municipality. The transaction costs and risks associated with investing in the restoration of a forest on this land were thus significantly lower than other potential sites where land was communally or privately owned.

As part of the eThekweni Municipality's event greening programme for the 2010 FIFA World Cup (Greening Durban 2010), a target was set to completely offset the carbon footprint of the event in Durban. As part of the strategy to achieve this, a reforestation project was conceptualised for the Buffelsdraai Landfill Site, which would sequester a proportion of the event-related carbon emissions (estimated to be 6.5% of the total).

Process

Wildlands Conservation Trust was appointed by the eThekweni Municipality's Environmental Planning and Climate Protection Department (EPCPD) in **October 2008** to implement the reforestation project, which became known as the Buffelsdraai Landfill Site Community Reforestation Project. The EPCPD has maintained an active role in directing and overseeing the project implementation process.

The implementation model that has been used for this project was developed by Wildlands Conservation Trust, and is called **INDIGENOUS TREES FOR LIFE (ITFL)**. The ITFL model teaches community members (referred to as '*treepreneurs*') how to grow indigenous trees from seed at their homesteads. Wildlands then collects the trees from their homesteads once they have reached a certain minimum size, in exchange for credit notes. Treepreneurs can shop for a range of basic goods including food, clothing, gardening equipment, building materials and school fees at organized '**Tree Store**' trading days using their credit notes. All trees planted for the Buffelsdraai Landfill Site Community Reforestation Project have been grown by community treepreneurs using locally available seed. The ITFL process is depicted below.



The project process was as follows:

- Identification of project site through scoping of potential reforestation sites throughout eThekweni Municipal Area. This was undertaken by EPCPD.

- Wildlands Conservation Trust engaged with Ward Councillor, Ward Committees, and Osindisweni and Buffelsdraai Local Communities adjacent the project site.
- Wildlands Conservation Trust initiated its Indigenous Trees for Life (ITFL) programme at the Buffelsdraai Landfill Site project site, which engages local communities to grow trees.
- Establishment and active trading of trees from 270 Treepreneurs in the Osindisweni and Buffelsdraai communities, and 348 Treepreneurs in KwaMashu and Ndwedwe communities adjacent the landfill site (note that KwaMashu and Ndwedwe communities had already been engaged through previous Wildlands Conservation Trust initiatives and were simply supported and expanded through the Buffelsdraai Landfill Site Community Reforestation Project).
- Treepreneurs are supported by Community Facilitators employed by the project to supply them with locally sourced seeds which they propagate at home, and assist them to care for until they are ready to be purchased by the project. Treepreneurs are issued with “credit notes” for seedlings they wish to sell to the project (the value of the credit notes increase with the size of the seedlings). The credit notes are then exchanged at “Tree stores” for basic goods pre-selected by the Treepreneurs, such as food or school fees.
- Sub-contracting of specialists by Wildlands Conservation Trust to monitor tree growth rates and amount of carbon sequestered, and to take the project through registration under the CCBS¹.
- A Rewards Programme has been established and implemented for Treepreneurs, which creates incentives for them to grow and sell more trees. Treepreneurs that sell large numbers of trees into the project are given experiential rewards that assist in building their confidence and capacity such as trips to Nature Reserves (overnight or day), courses on environmental protection, trips to Imax Movies or visits to Ushaka Marine World. The rewards are scaled according to the level of achievement of the Treepreneurs (sell more than 100 trees / 200 trees / 300 trees etc into the project at a Tree Store).

Challenges, lessons learnt, experience

Key challenges encountered by the project have included:

- Securing the supply chain for tree seedlings: The reforestation project requires a substantial volume of tree seedlings which must be produced from local seed / vegetative stock.
 - The Long lead times in getting community “Treepreneurs” established, and ongoing investment into the support and training of this community supply chain to ensure sufficient seedlings are produced in a short space of time.
 - Compounding the challenge is the need to ensure that sufficient quantities of seed across a broad range of forest tree species is sourced locally for the seedling supply chain.
- Specialist expertise needed for hardening off the seedlings: The large areas of land planted up with tree seedlings creates a significant challenge in terms of watering and maintenance of the trees. Specialist expertise has been needed to ensure that seedlings are correctly hardened off to limit the need for extensive maintenance after planting out.

¹ The Climate, Community and Biodiversity Standards (CCBS) is a project design standard and offers rules and guidance for project design and development. It is intended to be applied early on during a project’s design phase to ensure robust project design and local community and biodiversity benefits. It does not verify quantified carbon offsets nor does it provide a registry. The CCBS focus exclusively on land-based biosequestration and mitigation projects and require social and environmental benefits from such projects.

- Involvement of local communities: The project creates a large number of income generation opportunities for local communities in seedling production, planting out and maintenance. A key challenge has been ensuring that these opportunities are equitably distributed between all communities surrounding the project site in order that the selection of community members for jobs does not create conflict within or between the communities.
- A non-mechanised approach: Owing to the fact that the reforestation project aims to sequester carbon, a low-carbon implementation approach has necessitated the avoidance / minimised use of machines and vehicles that create emissions, which often has meant slower implementation timeframes than could otherwise be achieved.

The key area of opportunity for job creation through reforestation projects is in the tree seedling supply chain. The numbers of local people that can benefit significantly from the production of seedlings on a part-time basis at home is significant (there are 618 people supplying the Buffelsdraai Landfill Site Community Reforestation Project). In contrast, the bagging up, hardening off and planting out of the tree seedlings are tasks which require specific skills and expertise, and tend to be more effectively undertaken by specialised teams (which can also include labour from local communities provided that sufficient skilled supervision is provided).

It is easy to underestimate the time needed and resources that must be invested into securing the high numbers of tree seedlings needed for a reforestation project. Although the model used in this project involved a community seedling production system which has been effective, it would be unlikely that any amount of scouring of local nurseries could ever have produced the vast numbers of trees produced from locally sourced seed / vegetative stock that is needed – unless sufficient lead in time (years) were allowed for the production chain to be established.

Although it is not a difficult task to estimate the cost of implementing a reforestation project, the maintenance phase (which must often last as long as 20 years to account for the carbon sequestration benefits) must also be considered in terms of budgets and resources for the monitoring, protection and management of the forest as it becomes established, but are somewhat more difficult to estimate. Fire control, poaching and alien plant invasions are the key challenges that need to be factored into a long-term maintenance programme. Any opportunity to trade or maximise on the various ecosystem services produced by the forest in addition to the carbon sequestration service should be considered as a means of securing longer term sustainable funding for the maintenance of the forest.

Outcomes

- During Phase 1 of the project, 104,000 locally grown, indigenous trees were planted on 82 hectares of land in the landfill buffer zone to recreate forest habitat. This represented 166% of the original target of 62,500 trees to be planted before the kick-off of the 2010 World Cup in June 2010. The additional trees were planted through contributions from the Comrades Marathon Association and KZN Scouts, who help their tree planting drives at the project site.
- The above is estimated to be able to sequester around 20,000 tonnes of CO₂ over a 20 year period, 6.5% of the carbon footprint of the 2010 World Cup in Durban.
- Phase 2 of the project is well underway, and by October 2010 more than 40,000 trees had already been planted on around 40 hectares of land.

- 618 local community “Treepreneurs” were established in the neighbouring communities of Buffelsdraai and Osindisweni, and nearby KwaMashu and Ndwedwe, to grow the trees for the project and trade these for food, school fees and other basic goods. Phase 1 of the project saw R248,413 worth of school fees and basic goods go to these Treepreneurs in exchange for the seedlings used in the reforestation project.
- 13 full time jobs were created for local community members during this first phase of work, including a 9-member tree planting and tree nursery management team and 4 community facilitators to run the Treepreneur programme. The second phase of the project saw this team reconfigured to a permanent 6-member tree planting team, and 4 full time community facilitators.
- 3 permanent part time jobs were created for an additional community facilitator and a firewatch team.
- 220 temporary jobs were created, resulting in R218,000 being earned by local community members.

This approach to carbon sequestration was unique amongst South African 2010 World Cup host city Greening Programmes. Many of the other host cities also planted trees, but these formed part of urban greening programmes rather than reforestation initiatives. Both approaches have merit, but Durban’s community reforestation approach assisted the municipality to achieve greater gains in biodiversity conservation, catchment protection and direct rural social-economic upliftment, which would not have been achieved in urban tree planting programmes. The project has demonstrated that reforestation is a useful climate mitigation approach that also results in important climate adaptation benefits such as river catchment protection.

Scorecards

- **Criteria for assessment of activities, rank 1 to 5 as follows:**
- **1 - inadequate, 2 – needs improvement, 3 – adequate, 4 – good, 5 – excellent**

| INPUT | 1 | 2 | 3 | 4 | 5 |
|---|----------|----------|----------|----------|----------|
| 1. Did you have adequate internal resources to implement your project? | | | X | | |
| 2. Did you have adequate funding for your project? | | X | | | |
| 3. Did you have adequate technical expertise to implement your project? | | | | | X |

Total 10

| UEMP VISION & GOALS | 1 | 2 | 3 | 4 | 5 |
|--|----------|----------|----------|----------|----------|
| 1. To what degree did your project have a focus on poverty reduction? | | | | | X |
| 2. To what extent was this project relevant to the targeted beneficiaries? | | | | | X |
| 3. To what extent will this project be replicated sustainably in the future? | | | | | X |

Total 15

| EXTERNAL | 1 | 2 | 3 | 4 | 5 |
|--|----------|----------|----------|----------|----------|
| 1. To what extent did the project impact on vertical national - provincial - municipal linkages? | X | | | | |
| 2. To what extent did this project improve linkages (horizontal) with similar UEMP partners? | X | | | | |
| 3. Did the project have a higher than expected impact on stakeholders? | | | | X | |

Total 6

| INTERNAL | 1 | 2 | 3 | 4 | 5 |
|---|----------|----------|----------|----------|----------|
| 1. Did you have adequate support from management to implement this project? | | | | | X |
| 2. To what extent did the project link with other priorities of the organisation? | | | | | X |
| 3. Did the project have a higher than expected impact in your organisation? | | | | | X |

Total 15

| OUTPUT | 1 | 2 | 3 | 4 | 5 |
|---|----------|----------|----------|----------|----------|
| 1. To what extent did your project have tangible benefits? | | | | | X |
| 2. To what extent did your project fulfil its aims? | | | | | X |
| 3. Was this project a cost effective response to the problem addressed? | | | | | X |

Total 15