

SOWETO'S CONTRACTOR DEVELOPMENT PROGRAMME : 1988-1998

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For years Soweto was neither peri-urban area nor official city. Ron Watermeyer was closely involved in the creation and implementation of the Soweto Contractor Development Programme, which enabled the city and its community to achieve real and sustainable social benefits as well as improved infrastructure.

INTRODUCTION

Soweto's Contractor Development Programme (CDP) is a unique programme which embraces labour-intensive methods and labour-based technologies. It furthermore encourages and trains the community to participate in the managerial, commercial and administrative aspects of construction. The programme, by its very structure, increases the labour-content of a construction project and, at the same time, trains local entrepreneurs in labour-based construction methods of installing services. In this way, technical, commercial, managerial and administrative skills are developed within the community with a concomitant increase in earning capacity. At the same time, the community retains and cycles a significant proportion of the money spent on a project. Local entrepreneurs, who are from the outset employers in the community, can with sufficient technical, financial support and instruction, become fully fledged contractors and, as such, provide greater earning opportunities for others in the community. Thus the project may be described as a job creation programme with the potential for sustainability through entrepreneurial development.

The programme objectives of the CDP may be described as being to structure and to execute construction projects using labour-based technologies and labour-intensive methods in such a manner that through the construction process :

- Employment and entrepreneurial opportunities are created for members of the community.
- Skills and competencies in technical, commercial, managerial and administrative areas are transferred to participants.

- The percentage of the construction cost retained by the community is maximised.

Project objectives, on the other hand, may be described as being to have the Works constructed to specification within a specified period and a given budget using community-based contractors and labour-based construction practices in such a manner that :

- Opportunities for employment and training are created for the local community.
- As much as possible of the project expenditure is retained for the local community.
- Community-based Contractors (local entrepreneurs) are developed from within the community.
- A sense of participation within the community is fostered.
- Members of the local community are, as far as is practicable, employed by the third party management support to assist them in the execution of their duties.

BACKGROUND TO THE PROGRAMME

During the early 1980's, hundreds of millions of Rand were spent in Soweto on services upgrading projects. From an engineering management point of view, the project was a huge success, as it was completed on time, within budget and to the correct quality standards. However, from a community point of view it was a dismal failure in that :

- Unemployment levels were the same after construction as they had been before construction.
- Little or no transference of skills took place, particularly in the commercial, managerial and administrative fields.
- The amount of project expenditure retained

within the community was insignificant.

The Council, following some work done by the City Engineer's Department in a hostel conversion project where local artisans were employed, decided that an entirely new approach, integrating the lessons learned, was required, viz. :

- Community-based contractors should be employed for reasons of community development and productivity.
- Professional management, supervision and training is essential to improve skills and to ensure satisfactory progress on projects.
- Commercial skills are an important part of a contractor's success. Such skills have to be taught.

A civil engineering project involving the upgrading of approximately two-thirds of the secondary water reticulation of the city was identified as a project suitable for the implementation of a labour-based Contractor Development Programme (CDP). The Soweto City Council's primary objectives in implementing the CDP were to :

- Create employment opportunities for Soweto residents.
- Stimulate the development of competent contractors from amongst the local Soweto population.
- To retain as much possible of the expenditure within Soweto.

THE APPROACH

At the outset, it was recognised that no Sowetan either owned, or operated a civil engineering construction company. It was also recognised that the calling for tenders for the construction of services and structures, albeit by means of labour-based construction methods, from the community would not necessarily result in the production of local contractors. Nor would it elicit any response whatsoever, since the community lacked commercial and managerial skills in addition to the necessary resources. The approach whereby established contractors are required, in terms of the conditions of contract, to engage local sub-contractors, wherever possible, to execute specific aspects of the Works was equally considered to be rather

meaningless, since this approach assumed that sub-contractors existed within the community. It was therefore decided to develop contractors within Soweto in terms of a programme which could address the barriers to entry which precluded local entrepreneurs from participating in the proposed upgrading project.

The barriers to entry were identified as being :

- Tendering and contractual requirements, such as the provision of sureties, the inclusion of penalty clauses and the tendering of rates.
- The prevalence of plant-based construction practices.
- The lack of financial resources to purchase materials, hire plant and tools and to pay wages.
- The lack of credibility in commercial circles.
- The lack of commercial, managerial and administrative skills.
- The lack of technical competence.

To address these barriers to entry, it was recognised that changes in the construction methods had to go much further than merely substituting people for equipment as technologies had to be altered to render the construction process appropriate for manual construction methods, using relatively, unskilled workers. In addition, the very construction process had to be changed to eliminate the remaining barriers to entry which faced local entrepreneurs. Technical, managerial, commercial and administrative skills had to be taught as an integral part of the process, the requirement for sureties had to be waived, access to reliable sources of materials and plant had to be provided, and finance for wages, etc. had to be made available. In short, resources had to be provided and developmental support furnished.

THE STRUCTURE OF THE DEVELOPMENT SUPPORT PROVIDED

A development team was appointed to provide the necessary professional and third party management support. Consulting firms and large contracting firms, depending upon the expertise required, were appointed as Design Engineers, Engineers, Construction Managers and Materials Managers. The team, apart from providing conventional consulting services, advised, trained and assisted local community-based contractors in the administration and execution of their contracts, procures, supplies, issues and delivered materials to the various construction sites and arranges fortnightly payments. At the same time, the development team employed members of the local community to run stores facilities, monitor progress, assist with administration, etc.

Contractors entered into contracts directly with the employer. The development team, on

the other hand, was separately appointed by the employer on a fee basis. Thus the development team in effect were construction facilitators who arranged for the provision of resources which a contractor lacked. The ownership of the contract, however, remained with the community-based contractor

The CDP apart from addressing the Council's objectives, afforded members of the community the opportunity to participate in various levels and capacities in construction activities, i.e. as labourers, semi-skilled workers, skilled workers, foreman, contractors, storeman, inspectors, clerks, transporters, etc. The programme provided for 5 levels of contract (see Table 1), viz :

- Level 1 : labour only
- Level 2 : labour plus transport of materials to site
- Level 3 : labour plus transport plus materials (assisted)
- Level 4 : labour plus transport plus materials (unassisted)
- Level 5 : labour plus transport plus materials plus full surety

At each successive level, the contractor's responsibility is increased and the management function of the developmental (professional) team is diminished (see Tables 1 and 2).

The programme is structured in such a manner that contractors can also be developed through the support provided. This is possible as the Construction and Materials Managers, in terms of their appointments, are to employ members of the community as far as is practicable to assist them in the execution of their duties. In this manner, site agents and managers of material are developed in an positive manner. Movement between being a contractor within the programme and being part of the construction manager's staff is also possible.

PROGRAMME OUTPUTS

The programme commenced in 1988 and was terminated in 1998 due to severe cut backs in the Council's capital works programmes which was precipitated by an unprecedented financial crisis. During this period approximately 375 km of secondary watermains were laid in road reserves to replace the old mid-block watermains, some 40,000 erven were disconnected from the old water mains and connected to the new mains, several kilometres of primary watermains having a diameter of 400 mm or less were laid and approximately 50 000m² of surfaced roads constructed.

The typical breakdown of costs in Level 1 contracts is tabulated in Table 3. A comprehensive evaluation of the project was performed by Watermeyer et al in 1995. This analysis quantified the labour-intensiveness of

the programme (see Table 4), quantified the employment opportunities generated in respect of each activity (see Table 5) and provided statistics on the expenditure per unit employment generated (see Table 6). The cost of construction retained by the community was also established (see Table 7). This study found that there was a potential cost premium paid in respect of the road construction works (less than 15%) and significant cost savings in the construction of secondary watermains. This study also concluded that the project provided employment at half the average cost for the civil engineering industry in South Africa.

The project peaked with employment levels of about 900 people. Several contractors graduated from the programme and are operating fully fledged civil engineering companies. They have purchased plant, have access to credit and finances and have credibility in commercial circles. The project was replicated in several other towns, cities and rural areas in South Africa.

LESSONS LEARNED

The approach adopted in Soweto shifted the focus in the project to the means used to achieve the desired end. Modifications to the construction methods and the provision of third party management support facilitated the construction process to the extent that all the barriers to entry faced by local entrepreneurs who wished to participate in the project were overcome. The programme demonstrated that it is possible to use the upgrading of a city's infrastructure to:

- Promote the economic development of a community.
- Channel a significant proportion of the expenditure into the community.
- Build up the resources of the community
- Enable community members to acquire technical, commercial, administrative and managerial skills, which in turn can lead to a diversity of employment opportunities.
- Develop local contractors who are capable of upgrading and maintaining a city's infrastructure.

The programme also demonstrated that it is possible to achieve community objectives without compromising the absolutes of project management, namely cost, quality and time.

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TABLE 1: FOR EACH LEVEL OF CONTRACT

LEVEL OF	TYPE OF SUPPORT RESPONSIBILITIES	CONTRACTOR'S CONTRACTUAL	DEGREE OF DEVELOPMENTAL OF CONTRACT SUPPORT PROVIDED
1	Construction and Materials Manager	Provide labour. Provide small tools.	Offer advice, practical assistance and training. Provide and transport materials to site. Provide plant other than small tools. Arrange for specialist work. Arrange for fortnightly wages.
2	Construction and Materials Manager	Provide labour. Provide small tools. Transport materials from yard to site. Provide certain materials.	Offer advice, practical assistance and training. Provide most materials. Provide plant other than small tools. Arrange for specialist work. Arrange for fortnightly wages.
3	Construction and Materials Manager	Provide labour. Provide small tools. Provide site office and certain storage facilities. Provide all materials.	Offer advice, practical assistance and training. Provide plant other than small tools. Offer materials for purchase. Arrange for monthly wages. Arrange for specialist work.
4	Mentor	Provide labour, materials and plant. Provide 5% surety. Engage specialist contractors. Finance all contractual obligations.	Conduct a tender workshop. Advise, coach, counsel, guide, teach, instruct and tutor the Contractor. Render assistance in the setting up of proven systems to enhance management and business skills.
5	Mentor	As for level 4 Provide 10% surety.	As for level 4.

TABLE 2: RESOURCES REQUIRED BY CONTRACTORS AT EACH SUCCESSIVE LEVEL OF CONTRACT

LEVEL OF CONTRACT	ADDITIONAL RESOURCES REQUIRED
2	Transport or access to transport. Finances for transport and the supply of minor materials.
3	Finances for fortnightly wages. Credit with materials suppliers.
4	Finances for wages. Credit for plant hire and purchase of materials. Access to a surety equal to about 5% of the value of the Works.
5	All the resources of a conventional contractor. Access to a surety equal to 10% of the Works.

TABLE 3: TYPICAL BREAKDOWN OF COSTS FOR LEVEL 1 CONTRACTORS

ITEM	ROADWORKS	PLUMBING	SECONDARY WATERMAINS
Labour contract	28	32	22
Materials	36	29	34
Plant and transport	8	11	12
Specialist services	13		7
Construction and materials management inclusive of on-site training	25	28	25
TOTAL	100	100	100

TABLE 4: 5 m WIDE WATERBOUND MACADAM ASPHALT SURFACED ROAD

LAYER	TYPE	MANHOURS REQUIRED TO CONSTRUCT A SQUARE METRE OF ROAD		
		Plant-based	Labour-based	Soweto's CDP
Surfacing	20 mm	0,12	0,99	0,12
Basecourse	125 G2/WMB	0,17	1,72	1,72
Subbase	125 G6	0,13	0,60	0,60
Boxcut		0,20	1,85	1,85
Rip and recompact subgrade		0,03	0,35	0,35
Kerbing	Mountable	0,44	0,59	0,44
TOTAL		1,09	6,10	5,08

TABLE 5 : ESTIMATED NUMBER OF MANHOURS GENERATED IN SOWETO'S CDP

Type of construction	Unit	Estimated Number of Manhours/Unit (Hours/Unit)			
		Materials	Site Labour	Management	TOTAL
Road construction (Waterbound macadam and stormwater)	m ²	0,5	6,8	1,8	9,1
Road construction (concrete block paving and stormwater)	m ²	0,7	8,0	1,8	10,5
Secondary water mains	m	0,4	5,9	0,9	8,2
House connection	erf	0,6	31,4	6,0	38,0

TABLE 6 : EXPENDITURE PER UNIT OF EMPLOYMENT GENERATED IN SOWETO'S CDP

Type of construction	Unit	Estimated expenditure / manhour (rand)
Road construction (waterbound macadam and stormwater)	m ²	17,9
Road construction (concrete block paving and stormwater)	m ²	18,4
Secondary water mains	m	17,4
House connection	erf	17,1

TABLE 7 : PERCENTAGE OF CONSTRUCTION COST RETAINED BY THE COMMUNITY IN SOWETO'S CDP

DESCRIPTION	ROAD CONSTRUCTION	SECONDARY WATERMAINS	HOUSE CONNECTIONS (PLUMBING)
Labour contract	26	22	33
Transport	2	8	9
Materials management	2	3	2
Construction management	7	6	6
TOTAL	37	39	50

WAITAKERE CITY: BECOMING AN ECO CITY? THE ROLE OF AGENDA 21

Bob Harvey

Bob Harvey is the President of the New Zealand Labour Party. As Mayor of Waitakere, he instigated the pioneering approach leading Waitakere to become an eco-city, where community vitality and natural environment were priority issues. The success of this experiment has brought sustainable urban development to national prominence throughout New Zealand.

The City of Waitakere forms part of the conurbation of the Auckland region (New Zealand's largest urban area). It enjoys a spectacular physical environment, almost enclosed by harbours and the vast ocean of the Pacific and the Tasman Sea. It enjoys and is challenged by the diversity and intensity of cultures engaging, fusing and defining themselves as tangled histories and their social legacy of distance, distrust - and interdependence - are reworked locally. It is a place coming to terms with the impact of nearly

200 years of commercially successful development in farming, forestry, harvesting the oceans and making cities. The State of New Zealand's Environment report (1997) clinically described the destructive impact on water, air, land and biodiversity. Many New Zealanders faced for the first time the gap between the reality and the image of a clean green New Zealand, "on the whole" environmentally responsible. Not so. Consumption levels close to those of the USA and rising waste generation per capita figures reflect indifference to and

ignorance of the impact a very small population can have on resources and natural capital. In the neo-liberal environment in New Zealand in the 1990s controlling regulation has been ridiculed. However, in critical areas in the neo-liberal policy repertoire (road pricing to influence car use etc), user charging to limit waste generation and excessive water use have been applied reluctantly, unevenly or not at all. In terms of making significant progress in the cities, neo-liberalism could be seen as offering the worst of all worlds, lacking leadership, coherent vision and a supportive policy mix.

Waitakere City (165,000) in the early 1990s reflected all of these cross currents. A small "city", it is very much the product of the subsidised development (housing, roading, cars, regional-wide water/sewerage systems) that occurred in New Zealand in the 50s, 60s and 70s. At the west of the Auckland region,