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FORGING THE LINKS BETWEEN HISTORICAL RESEARCH AND THE POLICY PROCESS

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A Critical Evaluation of Large Scale Development Projects and Programmes South Africa

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A Critical Evaluation of Large-Scale Development Projects and Programmes in South Africa

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Introduction

In South Africa the levels of unemployment and poverty are extremely high and unemployment is one of South Africa's most pressing problems. According to the Federation of Unions of South Africa (Sowetan, 1999) acceptable levels of social development, economic growth and a decrease in high crime levels will only be achieved if the 35 per cent unemployment is decreased dramatically. The high unemployment rate will undermine the democracy if it is not reduced. At the same time there is a great need for physical infrastructure in both urban and rural areas. According to the World Bank (1994 :2) infrastructure can deliver major benefits in economic growth, poverty alleviation, and environmental sustainability - but only when it provides services that respond to effective demand and does so efficiently. In addition there is a lack of capacity and skills at institutional, community and individual levels. From a theoretical perspective supported by experience elsewhere in Africa, there are reasons for considering that properly formulated employment creation programmes based on the use of employment-intensive methods could be established to construct and maintain the required physical infrastructure, thus creating employment, skills and institutional capacities.

Prior to the 1994 election the African National Congress's (ANC) proposed the Reconstruction and Development Programme (RDP) was a result of several years of careful deliberation and widespread participation. One of the main thrusts of the RDP was to link reconstruction and development through an "infrastructural programme". The key area where special measures to create jobs could link to building the economy and meeting basic needs would be redressing apartheid-created infrastructural disparities. It was stated that there "must be a co-ordinated national public works programme to provide much needed infrastructure". One of the qualifying statements read "co-ordinate with and link to other job creation and labour-intensive construction initiatives
Since the early 1980s many large scale projects and programmes related to infrastructure development \ employment creation were carried out. Billions of Rands had been spent in such projects and programmesHowever these projects \ programmes have been poorly

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documented and evaluated. Where documentation does exist severe shortcomings have been identified. After it came to power, the Government of National Unity initiated several large projects and programmes, under the National Public Works Programme (NPWP). These are collectively known as the Community Based Public Works Programme (CBPWP). Several programmes and projects fall under the CBPWP. The paper will critically evaluate large-scale development projects which were initiated by the Nationalist Government. The paper will concentrate on the Soweto Upgrading Project as a case study. Have the projects and programmes since 1994 been better documented and evaluated?

Given the socio-economic conditions and political objectives (regarding development, employment creation and alleviation of poverty) it is anticipated that future large scale projects and programmes will be proposed by the public sector (National, Provincial and Local Government). What are the lessons that can be learned from past experience, both international and South African, to improve such future projects and programmes?

According to a review by ILO and CASE in Everatt et al (1997), South Africa has probably one of the best Public Works Programmes (PWP) anywhere. Certainly, in terms of technical design standards and the quality of completed physical infrastructure, the CBPWP surpasses anything that the International Labour Organization members of the team have encountered in more than 30 developing countries in Africa, Asia and the Pacific. Not only this, but the level of professional integrity among most role players in the CBPWP is in international terms, outstanding . Nevertheless, the CBPWP has its share of shortcomings and problems.

The past decades have brought about greater demand for the utilisation of project management in the execution of development projects; especially in the public sector. This has culminated from a realisation that project management is focused on maximising efficient and effective use of available resources. This is vital in developing countries where resources are often scarce and therefore their maximal and efficient utilisation becomes crucial. Project management aims at providing ways of structuring management and adapting special techniques to obtain better control and use of available resources. The changes in technology, management issues, and market forces have brought about a need to have dynamic and flexible management forms. Such forms should be able to adapt and respond timeously enough to the changing environments.

Reconstruction and Development Programme (RDP)

In 1994 the African National Congress produced the final draft of their RDP. Later that year (after winning the elections), the RDP was redrafted in the form of a White Paper and brought before parliament and approved . The RDP is a programme that seeks to redress the inequities and deprivation caused by the former government's apartheid policies. One of the main thrusts of the RDP White Paper remained "to link reconstruction and development: to reduce poverty and create employment through programmes of infrastructure construction and maintenance."

The programme is founded on six basic principles, linked together which make up the political and economic philosophy that underlies the whole RDP:

- the use of all available resources in a coherent and purposeful effort that can be sustained into the future;
- a people driven process;
- peace and security for all;
- nation building;
- reconstruction and development; and
- democratisation of South Africa.

These principles are indicative of the strong emphasis the RDP places on community participation methods. The RDP advocated the linking of an infrastructural programme that will provide access to modern and effective services like electricity, water, telecommunications, health, education and training for all our people. This programme will both meet basic needs and open up previously suppressed economic and human potential in urban and rural areas.

The key area was special measures to create jobs that can link to building the economy and meeting basic needs in redressing apartheid-created infrastructural disparities. There must be a coordinated national public works programme to provide much-needed infrastructure, to repair environmental damage, and to expand and contribute to the restructuring of the industrial and agricultural base. Such a programme must include: the provision of education and training; the involvement of communities in the process so that they are empowered to contribute to their own governance; the construction of technically sound assets; the maximisation of the involvement of women and youth in the poorest rural households and most deprived provinces; coordinate with and link to other job creation and labour-intensive construction initiatives; a national coordinating agency to ensure that the public works programme is based on the capital programmes at national, provincial and local level, give priority to job creation and training, target the most marginalised sections of society, and, where possible, encourage and support self-employment through small- and medium- enterprise creation to ensure sustainability of skills.

Problems Affecting Large Scale Projects

According to Bastani (1988) the failure of development initiative, where this has occurred, has been linked to a lack of project success, which in turn has been caused by failures in economic policy, project design (and implementation) and a lack of institutional capacity. International experience with large infrastructure development projects has been disappointing (Bastani, 1988). According to Bastani (ibid) what is significant is not only that after three decades of involvement in development the experts are still unable to determine 'correct' and workable policies for development, but rather the recognition that even if the initial policy is correctly envisaged, development projects and as a result, the development process can fail because of inappropriate design and implementation or a lack of institutional capacity on the part of local governments entrusted with the task of project implementation.

The World Bank (1984) in its tenth Annual Review of its Project Performance Audit results considers institutional failure to be the most fundamental reason for lack of project success, with project design and policy failures being named as the other two

major contributing factors. It should be noted that policy failures include sector and macro-economic policy decisions by funding institutions as well as by local governments agencies (a top-down process). Project design on the other hand includes the identification of specific projects, their detail design and, in the case of capital projects, the management and coordination of the construction phase. Kalbermatten et al. (1992) asserts that in many development projects in Developing Countries, the conventional approach to infrastructural development adopted from urbanised, western, developed countries was found to be unsuitable because it was overly centralised and did not reflect local traditions and the needs for community participation.

According to the World Bank (1990) the physical components of programs had generally been more successful than the institutional development components. The bank reviews of past activities have consistently arrived at the conclusion that the physical components of programs have been successful about twice as often as have institutional development components. The difficulties intrinsic to these institutions make success even more problematic and highlight the need to improve the effectiveness of institutional development programs. The bank further highlight that although many policymakers are aware of the importance of institutions in a development strategy, they still do not give it the necessary priority, in part because they believe that there is no clear way of going about it.

In addition the World Bank (1990: 11) asserts that institutional development is synonymous with institution building and is defined as the process of improving an institution's ability to make effective use of the human and financial resources available. This process can be internally generated by the managers of an institution or induced and promoted by the government or by development agencies.

Based on both the international and local experiences, the problems of recent (1980s) South African large-scale public works programmes can be attributed to the following factors which must be avoided in order for large-scale projects to be successful in South Africa: (Abedian and Standish, 1986; UNDP and the ILO, 1987 and 1989; Ligthelm and Kritzinger van Niekerk, 1990; McCutcheon, 1990; 1992 and 1994; and Greyling, 1994).

- Lack of clear objectives linking the short and long-term visions of the programme.
- There were no pilot projects with extensive training programmes or lead in time to allow for proper planning at a national scale. This could have allowed for sufficient time to develop the necessary technology, establish training programmes and develop both the institutional and the individual capacities.
- The programmes have seldom been scaled to the magnitude of national manpower needs. Very often they have been introduced in an unsystematic and fragmentary style. This often led to technical hastiness, which was compounded by incompetence and inappropriate technology selection.
- There have been organisational infirmities and inappropriate administrative arrangements.
- There has been a lack of political and government commitment to the projects and programmes.

Greater Soweto Upgrading Project: Case Study

The paper will then look at the Greater Soweto Upgrading project which was initiated by the former Nationalist Government in the 1980s.

Stated objective: To eliminate the backlog of civil engineering services in Greater Soweto Area. Another intention with the GSUP was development (increasing living standards) through infrastructure engineering. The project objective (elimination of backlog) did however not refer to any socio-political or cultural intentions. From the objective it is clear that the project focussed on physical infrastructure, and did not acknowledge that "development is more than the passage from poor to rich, from a traditional rural economy to a sophisticated urban one. It carries with it not only the idea of economic betterment, but also of greater human dignity, security, justice and equity" (The Independent Commission of International Development Issues, 1980).

If at least some of these factors were addressed by the project objective, chances are that the project might have gained support from all kinds of other sources, including socio-political, cultural, human rights and economic groups. This would have contributed to the creation of a sustainable project.

Secondary objectives:

- To achieve this programme as soon as possible.
- To promote the welfare of Soweto residents.

The researcher believe that the main objective stated was secondary to the hidden agendas pursued by the government.

Hidden agenda

To upgrade civil engineering services in Soweto as a show-case to overseas countries and black South Africans as an illustration of what the government was doing something in an effort to quell violence and unrest.

The methodology of attempting to do this is also somewhat suspect. The official reaction to the unrest in the late 1970s was to upgrade services which were not the primary cause of the violence in the first place. The political objective was not achieved in that the government could not redeem itself in others eyes purely by upgrading civil engineering services in one township. The needs of the residents were ignored in setting up project objectives. This had been confirmed by the author through conducting interviews with 24 Soweto residents who were present during the 1980s. The residents told the author that rather than tarred roads, extensive kerbing, overdesigned bridges etc., the Soweto residents were in want of:

- political freedom
- equal education
- subsidised transport
- property ownership
- upgrading health facilities
- recreation facilities
- political recognition.

From the point of view it is clear that the project was completely misguided. The only objectives that could be met was the provision of a high standard of services without any regard for the well-being of the residents. The three local authorities in Soweto were the

only representatives from the community involved in discussion with the project team. However, the priorities of the local authority is usually dependent on their own political goals such as representation. The Soweto upgrading was financed by an international consortium and the services supplied were related more closely to what the white community wanted than the black community needed or determined as a priority for themselves.

Preparation

Instead of the suggested one to two years a project spends in the pipeline, the bulk of the planning was done in the six weeks after the GS TPA AP was formed. It is largely due to this time restriction that objectives were not critically analysed, that project briefs were vague and that planning was incomplete.

Services identified and what was achieved

TABLE 1 A

TOTAL INFRASTRUCTURE BACKLOG
ROADS, STREETS AND STORMWATER DRAINAGE

Infrastructure	Size/ Distance	What was Achieved?
Stormwater Drainage	385 km	131 km
Mountable Kerbing (300mm)	427 km	145 km
Four lane Arterial (14,8m wide)	9 km	3, 06 km
Arterial Roads (7,4 metres wide)	5 km	1, 7 km
Rebuilding of Existing Surfaced Roads	34 km	10 km
Resurfacing of Existing Roads	173 km	59 km
Construction of Heavy Duty Pavement	220 000 m^2	74 800 m^2
Intersections Upgrading	50 000m^2	17 000 m^2
Construction of 6 metres wide roads	14 km	5 km
Construction of 5,5 metres wide roads	130 km	44, 2 km
Construction of 4,5 metres wide roads	380 km	129,2 km

TABLE 1 B

SEWERAGE SERVICES

Infrastructure	What was Achieved?
The Upgrading of the existing reticulations where necessary	Some reticulations were upgraded
Extensions to the Bushkoppie Sewerage Purifications Works Phase 1	The Extensions to Bushkoppie Sewerage was not completed (completed after 1987)
Construction of the Bushkoppie Outfall Sewer Phase 1	It was completed after 1987
Construction of the Relief Sewer of the Olifantsvlei-Dube Outfall Sewer	It was completed

TABLE 1 C

WATER SUPPLY AND RETICULATION

Infrastructure	Size/ Distance	What was Achieved
Building Reservoirs	Dobsonville Chiawelo Diepkloof Meadowlands	Completed Not Completed Not Completed Not Completed
Augmentation of the primary distribution system		Not completed
Upgrading secondary reticulation replace all 50 mm pipes by either 75mm or 100 mm pipes		25% of the upgrading was done
Installation of water meters		20 of the waters meters were installed
Repair all leaking tapes and fittings		This was not done

Source: Trissler (1997); Viljoen, P.S. 1988

Evaluation of the Project

The World Bank (1990: 15) states that evaluation is hampered by a poor definition of objectives and by the lack of baseline data and accepted methodologies for undertaking these evaluations. It is questionable whether the Upgrading project should have been undertaken at all. What was needed at the time was extensive political change designed to afford the black population their rightful position in society. Political change occurred a decade later but this in itself seems to have aggravated township violence. It is therefore imperative that political change and upgrading of living conditions go hand in hand to approach on acceptable solution. From the civil engineering and planning perspective, the following objectives should have been set to ensure success of the Upgrading Project:

To make Soweto acceptable to its inhabitants

The majority of black township dwellers are dissatisfied with their existing standard of living. This is not surprising as the complexity of class cleavages and racial division in South Africa bedevils many a theoretical explanation. Dissatisfaction also more acute in established residents than in recent immigrants who probably increased their living standard by moving from rural areas into Soweto.

Acceptance of the township by its residents would have had the effects of:

i. producing a more stable community with increased home ownership' initiation of local development projects by residents;
ii. increased willingness to pay rates and taxes and setting up capital investment;
iii. reducing crime and civil interest.

To ensure affordable levels of service to local residents

Appropriate technology

Theory

Urban development in South Africa has to date reflected Western values in social standards often without much thought to long-term economic implication. The appropriateness of the specifications on which a design is based should be evaluated by assessing the needs and objectives for the project in question. The purely scientific basis for Engineering solutions has to expand to encompass deeper understanding and consideration of socio-political circumstances present in the project environment.

Appropriate technology is often seen to be of inferior quality and clients might be loathe to accept alternative engineering solutions. It should be understood that appropriate technology provides the most economically, financially and technically apt solution to a problem, without compromising quality; quantity being value for money.

SOWETO

Arising from the Government's concern at the exorbitant prices of ever and dwelling houses as well as the delay in the establishment and development of residential townships, investigations were conducted to identify the reasons for this state of affairs. It was found that the variety of norms, directives and regulations applicable to the provision of engineering services in such townships contribute largely to this end. In order to bring

about greater uniformity in this regard and thereby facilitate the establishment and development of residential townships, the CSIR was requested to investigate this matter on behalf of the Department of Community Development and to make recommendations for rational norms in respect of engineering services. This document provides guidelines for services of a high standard applicable to first world circumstances.

The design of all facets of the GSP was based upon this document "Guidelines for the provision of engineering services in residential townships". Apart from being technically inappropriate in terms of levels of service adopted, the document was drawn up on the basis of a total design of planning and layout of a new township while Soweto was already populated. The standards recommended in the document are appropriate for lower, middle and higher income groups within the sub-economic as opposed to the sub-economic housing market. In other words it was targeted at white local authorities and the Provincial township boards. Another item that did not receive adequate attention is the trade-off between quantity and quality. If less stringent specifications had been applied to e.g kerbing and finishing on bridge piers, many more stands could have been serviced. In fact, the project commenced construction without time being spent in planning the project and considering whether it was applicable and practicable.

Recommendations

i. Access roads should have been designed as earth or gravel roads with only main and arterial roads tarred.
ii. Stormwater drainage design along low-trafficked access roads should be based on 1 in 2 year floods. This would cause some inconvenience in event of such a storm but the capital savings compensate therefore in the form of affordability.
iii. The primary distribution system for water should be maintained at the standard pipe size as this system is critical to the fighting regulations. The secondary distribution system could have been reduced in size resulting in a slight pressure drop during peak times only.
iv. The reservoir capacities could have been reduced to a 36 hour or even 24 hour storage capacity instead of 48 hour.
v. Waterborne sewerage could have been replaced by a small solid-free system, or if this was still expensive, with ventilated pit latrines.
vi. The design should have been such that a more substantial part of the works could have been economically achieved by labour-based construction methods.
vii. Alternative construction materials and standards should have been considered during the design phase.

Standard used alternative

- Premix	- Chip and Spray or gravel
- Reinforced lined channels	- Gabions / mass-concrete
- Concrete lined channels	- Stone pitching
- Stormwater pipes	- Open channels

- Precast elements	- Bridgework or locally precast elements
- Mechanical excavation	- Manual excavation

Appropriate Technology should be seen as synonymous with sound engineering and not a second class solution. Before expecting clients and beneficiaries to accept alternative technology, the engineering profession has to embrace the concept and realise its full potential. For any project to be economically viable, the beneficiaries must be willing and able to pay a reasonable charge for the services they receive. This implies that provision of a minimum level of service for which no charge is made, with increasing charges for higher levels of service.

Recovery of funding should have been planned for if it was to be implemented spin-offs created by the payment for services could have included:

- the community involved would have taken pride in items paid for by themselves and would be concerned about maintenance of these services.
- a tax-base would have been created - something Soweto was and still remains in dire need of a larger upgrading initiative could have been achieved if investment was ensured a fair of return involvement of the community in selection of service affordable to themselves.

Subsequently they would have been more willing to pay therefore.

To utilise a much local labour as is economically efficient and technically feasible

Theory

Employment-intensive can be defined as "the economically efficient employment of as great a proportion of labour as is technically feasible produce as high a standard of construction as demanded by specification and allowed by funding available". The advantages of labour-based projects over capital intensive projects in development programme are many:

- community participation is inherent in the project structure
- entrepreneurial skills are developed through e.g locals becoming small contractors or fabricating precast elements.
- both males and females become involved
- public relations are greatly improved.
- more money stays inside the community.
- where land is occupied, machinery cannot access existing services to upgrade them whereas labour can.

Labour based construction could also lead to a multitude of problems if thorough planning is neglected and when the project environment has been misjudged. Some pre-requisites for successful labour based programmes are:

- a sufficient labour supply
- a minimum wage low enough to make labour based a viable alternative

- acceptance of the community that they are getting an appropriate rather than inferior product
- a well documented management strategy with programmes committed to project success.
- sufficient interest in the project for locals to become involved as contractors or labourers.

SOWETO

Construction of the upgrading project was purely capital intensive. The project failed due to the lack of acceptance of the product by the beneficiaries as they were not involved at any stage during the project. Given the time frame, it is not surprising that Labour Based construction was not considered. The objective was not to develop skills and competence in Sowetans but to have a showpiece to show the world. This was to be achieved in the shortest time possible, not providing time for careful consideration or appropriate design. The township, the project and the attitude of the locals among others all made for a politically charged environment. The two locals appointed to handle public relations had a negligible impact on informing and building good relations with the approximately 1 million strong community. According to the interviews conducted with 25 members of Soweto they highlighted that the project was not meant to reduce the unemployment rate and retain most of the money within Soweto area. The Soweto members alluded that the project was meant to serve the interest of the government but not that of the people of Soweto. Some of the community members highlighted that some of the people employed to work on the project were from outside Soweto. This workers came with the construction company from other areas where the different contractors had been working.

Capital intensive construction methods were not appropriate to the Greater Soweto Project. A few goals were achieved e.g. the services were constructed in an acceptable period and to a high standard, but the opportunity of improving social structure and developing entrepreneurial and other skills were ignored.

Recommendations

- Contracting is the recommended route to achieve the maximum potential benefit of labour-based construction. The temptation to use existing capacity and hire more labourers must be resisted as this excludes the development of entrepreneurs and mostly results in low productivity.
- It is further recommended that labour should have been paid on the basis of task work, as this results in high productivity without space for self-exploitation.
- Detailed task descriptions should have been drawn up clarifying exactly what was to be done, why it was necessary, the tools and equipment needed for task execution, how the work was to be performed and which production rates were applicable.
- Where not all of the work could be defined into tasks, a percentage of the labour force would have been paid at a daily rate.
- Contractor's should have been encouraged to develop their skills by transferring progressively more responsibility from management to contractors.
- The employer should have considered taking out an insurance policy on the works to cover all work done by the construction teams.

- The employer could have employed either a consultant or a contractor to function as Construction Manager, inclusive or separate of a Materials Management function. Control and accountability for the materials control function should however remain with the construction manager.
- The Small Contractor Development Programme in Soweto has turned out being very successful with the added advantage of developing cohesion amongst small contractors. Further opportunity should be afforded to the SCDP to enlarge their scope and develop their skills.
- Maintenance would have been simplified in that necessary skills would have been developed during construction and maintenance teams appointed once a service was completed.

This would have resulted in inherent community participation, as the workforce was to be drawn from the local residents. After project completion, the community would have been left with an improved social structure and multiple marketable skills. Maintenance of the project would therefore be secured and economic growth had a better chance of developing. The objective implies that the design had to be suitable for employing as large as proportion of labour as possible.

It was therefore imperative that the project was planned with labour based construction in mind from identification through design, execution and commissioning. Labour-intensive based methods in construction were not used and it becomes clear that fewer people were employed by the project.

To retain as much of the financing in SOWETO as possible

The spending of large amounts of capital on the upgrading of Soweto would have stimulated the economy to a degree. If most of the spending was within Soweto the residents would have benefited from the stimulation of the economy. Finances could have been kept in Soweto through use of local contractors rather than large established contractors. According to the Soweto residents the author interviewed the project was capital-intensive and there were few people who were employed by the project. As a result the project was unable to retain as much of the financing in Soweto. Most of the money went to the contractors. This clearly shows that a larger percentage of the money went out of Soweto. Thus this objective was not achieved.

To provide practicable maintenance

Theory

With any upgrading project, the ultimate objective should not be short term supply, but instead the assurance of sustained integrity and usability of the services in terms of effective operating methods and maintenance.

SOWETO

A significant amount was paid to the environment in which the project was being carried out. First world "move in and get out" principles were applied with no regard to the lack

of structured maintenance system. Many of the services supplied are now in dire need of repair. One of the residents claim, as to why they refuse to pay service tax.
As mentioned earlier, attention should have been paid to the following:
Lack of operating structure which could completely maintain services after construction. Money and time should have been spent in setting up of a structure to cope with administrative and technical operations and maintenance. However, in order that this succeed, sufficient expertise need to be accumulated. Where expertise are not available within community, residents should be trained to occupy posts. In this regard, labour intensive construction methods should have been adopted to utilise available unemployed resources, the bonuses of which are plentiful - "In House" training of residents and keeping of moneys within the community. This would have led to the community having a sense of pride in something towards which they had contributed, and in something towards which they continued to contribute.
Two schools of thought exist:
The provision of a low level of service results in a low initial capital cost on the assumption that incomes are presently low but with sustained economic growth, incomes will increase and funding will be available for frequent maintenance and upgrading of services. The provision of first world standards of service that maintenance costs will be low. This often excludes community involvement and decreases the probability that the community will be either willing or able to provide the initial capital cost.
This objective needed to be defined by the community which was to be the beneficiary on the one hand but had to provide the capital on the other.

(b) Decision-making process and institutional mechanisms: community participation.

Theory
Community participation is an active process by which a beneficiary or client group influences the direction of a project with a view to enhance their well being in terms of income, personal growth, self reliance or other values they cherish.

During the 1976 the United Nations Conference on Human Settlements, the following was said of community participation:
"Community participation should be indispensable element in Human Settlements, especially in planning strategies and their formulation, implementation and management; it should influence all levels of government in the decision making process to further the political, social and economic growth of human settlements."
The objectives of community participation includes the following:
a) The empowerment of the community with social and political aspects - it influences the outcome of the project.
b) Since the communities are involved in the decision making process, they are more willing to contribute to the project costs, which are controlled and retrieved more easily.
c) The affordability of a project can be gauged and the level of sophistication agreed upon depending on the affordability of the community.
d) The project is regarded as belonging to the community, answering to its priorities, and is therefore expected to be constructed, paid for and maintained by the same agency.

Various levels of community participation exit. The range is shown below.

Labour intensive	-	Purist approach
	-	Full community participation in decision making process, construction techniques and development of community.
Capital intensive	-	1st world contract
	-	Little attention to community participation and labour-intensive methods of constructions.

SOWETO

The importance of community participation in the Soweto project was grossly neglected. The low status given to its importance is highlighted by the following factors:

- The report for the $150 million upgrading project was prepared and submitted in six weeks.
- Two public relations officers were appointed to liase with the approximately 1million residents.

Clearly insufficient attention was given to community participation. This had far reaching effects which are further discussed under the following sections i.e. appropriate technology, appropriate construction methods, finance and future sustainability.

The community was viewed as a separate entity from the project owner or promoter. Instead the "government" together with "unrepresentative" community representatives were viewed as the client. Although the project was intended to serve the needs of the community, it was identified and implemented by government agencies and their consultants, without an effective input from the community itself. This had the following detrimental effects on the project :

- It was not regarded as belonging to the community and therefore expected to be constructed, paid for and maintained by the same agency which initiated it.
- Since the community was not involved in the identification of projects, certain projects were chosen which were inappropriate to local needs or addressed wrong priorities. For e.g. the $150- million allocated to phase 1, nothing was allocated to the construction of recreational facilities - pools, sports field etc.
- Insufficient use of local material and human resources, resulting in loss of opportunities for transferring technical and managerial expertise and channelling available funds into the community.

Recommendations

The following ideas should have been followed:

Community participation should have been initiated with a community organisation which had firm roots in Soweto's population, which represented the various segments of the population, which functioned as an open channel for the exchange of information and opinions between project staff and the community, and which could have served as a platform for community decision making. These organisations could have included any of the following; church groups, soccer teams, political groups, teachers associations etc. These are however not always easily identified. If problems had been encountered in doing so, then the expertise of a sociologist should have been brought in.

In order to gain credibility and personal status for community representatives as well as to popularise participation by beneficiaries, a publicity campaign using all mass media should have been implemented under the guidance of specialist. Surveys, aimed at defining the priorities of the community, their potential financial contributions etc. should have been performed. These could have been carried out by the community representatives. A voice between the community, engineers, financiers etc. should be maintained throughout the project cycle. A body of public relations people should have been employed to handle this. Community involvement would have contributed towards pride, stability, economic growth and acceptance of the project.

As was mentioned the only community involvement in the GSUP was that 3 of the 10 representatives serving on the Greater Soweto TPA Advisory Panel were from the community. This means that decisions were taken on behalf of the people about what will be done "to" them. In other words, they were merely informed of what was going on without any form of consultation, let alone community empowerment being allowed.

According to Mr James Crosswell, this form of autocratic decision-making which was general practice in the old South Africa, resulted in no commitment from the community, because its members were not consulted.

"Even if you leave out someone who believes that he is influenced he must be consulted" (Crosswell, 1995 quoted in Trissler, 1997).

The role of two public relations officers is described in June 1982 report:

"Their task was to market and explain about the project to the people of Soweto what the project is all about and to investigate and follow-up all project-related queries by the residents as well as problems experienced by contractors".

Their role links up with the autocratic approach of informing, rather than consulting with the community. The chance of success for the GSUP must have decreased as a result of the inadequate community liaison.

Project finance

Theory

A fundamental sector of any project is that of finding funding for the project, controlling and monitoring it during project cycle and recovering of it thereafter. The following issues need to be comprehensively recovered with all parties involved e.g. community, financiers etc.

a. How much capital is required?
b. Where will the finance be obtained from?
c. How will the capital be used?
d. What proportion of the capital is the be recovered?
e. How will it be recovered?
f. How much is the budget for labour and project administration?

Any decision to recover any amount of the expenditure would have to be taken up front and conveyed to the people. This would have a direct effect establishing priorities and community participation, since only if the community feels that it is their problem, and their solution answering to their priorities will they become involved in the financing of "their project". This was reiterated in the 1984 United Nations report on Community Participation: "beneficiaries are only willing to pay if they receive what they wanted, the

project would met some of the most urgent needs and priorities of the beneficiaries." A successful scheme for repayment is fundamental to peoples' perceptions and involvement in the project. Funding can take on a number of forms:

*** Grants**

- A government grant will originate from government coffers which in turn comes from the tax payer.

*** Repayable loans**

- Can come from either the government or from international banks e.g. world bank. In order to obtain such a loan, banks have increasingly demanded proof that their money will be safe and that loan re-payments will be met.

Most funding comprise of a combination of grants, loans and community input. In structuring the funding of the project, the ability and willingness of the benefiting communities to finance the project needs to be determined.

SOWETO

During Phase 1 of the Soweto Project $150 million was spent on the installation and upgrading of essential services in about half of the Greater Soweto area. The finance for this project was negotiated by the Department of Foreign Affairs in 1981 with an overseas consortium. The loan was administered by Volkskas Merchant Bank (Pty) Ltd. The loan terms were as follows:

It was to be repaid over 20 years - interest free for the first five years, 2% in the 6th year, thereafter increasing by 1% per annum. Even then, the loan terms were considered favourable. The first 3 terms mentioned previously were thus clear i.e. amount required, source and how it would be spent. The remaining 2 points (and most important long term issues) i.e. what proportion of the capital was to be recovered and how were vaguely considered. From discussions with parties involved, it is clear that nowhere in the planning of the project were these issues seriously confronted. Nebulous mentions were made of the money being recovered from the residents of Soweto in the form of rates and taxes, at a later stage (Trissler, 1997).

However, over the last few years, the likehood of recovering the loan from the residents of Soweto has diminished. The 3 community councils i.e. Soweto, Diepmeadow and Dobsonville, which are responsible for the repayment of the loan, are doubtful that they will be able to service the loan, let alone repay it within the 20 years prescribed. The reason for this, amongst internal council problems of wildcat strike and sabotage, is that since June 1986, most residents, often through intimidation, have boycotted the payment of even basic rents, thus leaving the local councils with no sources of revenue.

Evaluation

The spending of the money on the Soweto Upgrading Project was based on political ideologies and insufficient attention was paid to the recovery of expenditure. The reluctance of residents to pay rates appears to arise out of a number of feelings.

Firstly, since the community was not honestly represented during the planning of the project, no feelings of "ownership" and therefore "responsibility" are felt by their community.

Secondly, residents are being asked to pay for services installed over five years ago. Since they already have the services, the attitude seems to be "why should we pay".

Compounding to this due to no attention being paid to the long term upkeep of the services, many are in need of maintenance.

More time (definitely more than 6 weeks) and money should have been allocated to the involving of the community at the projects early stages (Interview with Soweto Councillors and Residents, 1999). The community should have felt that it was "their project". Under these circumstances, exact future methods of repayment of loan should have been finalised with the community. No attention was paid to the long term maintenance of the services. The 3 community councils should have been upgraded prior to the commencement of the construction of the project. This would have created the necessary infrastructure to maintain the services after completion.

Although no major problems occurred with the controlling and monitoring in the financial sphere, Dr Viljoen proposed an effective control policy which could have improved on Phase 1 :

- No authorisation for any project without a financial forecast including provisions for contingencies, escalation and anticipated cash flow.
- Once authorised the individual project forecast should have been consolidated into a centralised overall budget.
- 3. There should have been monthly status reports on each project reflecting progress, payments to date, variations against budget and updated budgets. The timeous highlighting of potential problem areas would have enabled management to re-act accordingly.
- There should have been well defined and clearly communicated levels of authority for authorising any expenditure. The control should have been enforced from project approval down to certificated payments. The amount of money involved and the degree of control needed might well have justified employment of internal or external auditors.
- Cash flow forecasts should have been accurate and current. Funds should have been controlled and invested to ensure maximum returns on idle money. Although rates of interest are currently depressed it was incredible how interest built up on retention accounts during the 1984/85 period when rates were over 20% per annum.

(c) Scale of project and structure of project finance : the project cycle

The most likely reason for the project not being implemented on the same scale as planned can be found in the financing plan. The reason for this can be explained by taking the traditional project cycle into account. According to the DBSA and the World Bank the traditional project cycle consists of six phases i.e. identification, preparation, appraisal, negotiation and decision-making, implementation and post evaluation phases.

In the case of the GSUP the first three phases were virtually skipped. The project was identified somewhere along the line, and once the panel was formed, they actually started with the decision-making, and very soon thereafter with the implementation phase. Although this had the advantage of the project delivering in a remarkably short period, it had major disadvantages, one being the fact that the financial appraisal was not carried out. The World Bank definition of financial appraisal is *"to ensure that there are sufficient funds to cover the costs of implementing the project"*

In the case of the GSUP the project cycle was turned upside down, with the scale of the project being determined and even implemented, before it was known whether sufficient funds were available. The consultants were actually allowed to continue with the design and documentation of the subsequent phases before financing had been arranged. The implication was that R23 million was wasted, as funds were not available for the construction of any phases beyond phase 1. Clearly this R23 million could have been spent on construction to the value of R20 million (allowing for professional fees of 15%).

(d) Project confidentiality

It is interesting to note that a number of the reports had been marked "confidential". Particularly in development projects of this nature the following questions can be raised : Who may not know what and why? Although reasons for the confidentiality may be politically motivated, it remains strange that a project aimed at improving living standards is not completely transparent.

Self interest

Theory

It can be expected that human beings will act in their own self interest in any situation. In the traditional project structure, with the client, professional team and contractor often having conflicting objectives, the only way to handle self interest is through stringent contractual control. When a community is the beneficiary of a project instead of the client, conflicts of interests are compounded and the community would be hesitant to accept ownership of the project.

Another factor facilitating self interest is the involvement of many parties and individuals with objectives differing from the project objectives. A vague brief creates the opportunity for manipulation leading to a situation where a party apart from the client can fulfil hidden agenda when identifying the project.

In development projects the identification of a representative body is crucial to the project success. Those most willing to come forward and co-operate with project planners at the outset are most likely to have hidden agendas and no community support. Project management is essentially teamwork and if parties are working against each other and not pursuing the same goal, the project will be jeopardised.

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The advisory panel consisted of statutory bodies involved in the civil engineering industry and particularly in contracting, consulting and research. In this period of recession in the industry, the Soweto Upgrading Project generated much needed work for all the parties concerned. It is also notable that most of the consultants involved in the project had similar ideas/ convictions to those of the Nationalist government. Van Wyk & Louw should not have been appointed as project managers as they were not in touch with the real objectives of the project. Also, the other C.E. consultants appointed for design work were part of the close-knit Afrikaner - Nationalist body. It is apparent that the needs of Soweto residents were not top priority on the agenda. Perhaps the most

important hidden agenda lies in the identification of project objectives. On paper the prime objective was to upgrade the Greater Soweto Area but the implications hoped by the government were the relaxation of sanctions and a softer attitude towards South Africa from the rest of the world.

Recommendations

- Vested interests should be openly acknowledged during project identification and planning and a concerted effort made to identify all parties with possible hidden agendas.

- The project brief should be free of loopholes with no room for misinterpretation of projects objectives.
- A strategy towards elimination of vested interest in the G.S. Project is as follows:

1. The administrative capacities of Soweto, Dobsonville and Diepmeadow's councils should have been upgraded to form a skilled authority with sufficient manpower and resources at their disposal to successful co-ordinate the project.

2. Market surveys should have been effected to determine the real needs and priorities of the community before commencing with detailed planning. Due regard should have been given to social, political and environmental needs together with involvement of town planners, sociologists, architects and the like.

3. An independent Project Manager should have been selected to manage the G.S. Project and to report to the client consisting of the 3 regional councils.

4. Maintenance of the services should then have been the responsibility of the client body who would have been equipped with the necessary resources to fulfil this function.

Project management

SOWETO

The following alterations to the organisational structure would have improved efficiency.

1. The client should have incorporated the community and not only local councils.
2. The overall project management function should have been performed by an independent party acting in the best interest of the client and with no vested interests in the project.

3. Considering the magnitude of the project, the work should have been subdivided into smaller areas with a project manager in control of each subsection. This would have facilitated communication between the various parties.

Conclusion

It is rare for a project as a whole to be successful if the project objectives were not clearly defined, no comparison exists to measure project success by. It is not unusual for parties to have widely differing opinions regarding project success depending on their level of involvement of their own interpretation of the objectives. Though tempting, it would be inaccurate to say that the Greater Soweto Civil Engineering services Upgrading Project was a total failure. The crux of the matter lies in interpretation of objectives.

1. If measured by the objective to eliminate the backlog of Civil Engineering Services in the Greater Soweto area, the project was partially successful as services were constructed and to high standards. Today an enormous backlog still exists, partly due to the lack of maintenance of services constructed less than a decade ago. Maintenance would have been facilitated by the existence of an institutional framework within the Greater Soweto Area. Instead of pursuing this goal, the project was managed from the outside in, without input from the project beneficiaries.
2. The project was a total failure if seen as a development initiative. The community was not involved in any decision making; communities were not encouraged to become sufficiently organised to have input into the project and the community was not left with any new skills after project completion.
3. The value for money achieved by the project could have been greatly improved if appropriate solutions were sought. The $ 150 million could have been applied more effectively, actively upgrading living conditions of the residents, if time had been set aside to consider alternative technology and to ascertain the communities needs. Schools, community centres, playing fields, and recreational facilities would have had a far greater effect on the people of Soweto than did the provision of more services.

4. It is unfortunate that labour-based construction did not even attract a passing thought as it was ideal for the project. Not only would unemployment figures have dropped, but entrepreneurial skills would have been developed leaving locals in a position to market themselves and secure employment.

The Greater Soweto Upgrading Project had little credibility from conception and through construction in the eyes of the beneficiaries. If vested interests had been eliminated by for example appointing an independent Project Manager matters would have improved. The GSUP was a learning experience, engineers, planners, implementers, policy-makers can learn from the mistakes that were made, the authors have no doubt that similar projects can be successful in future.

Phase 1 of the GSUP is very difficult to evaluate because there is no completion date of the project. Initially it was suppose to be completed by 1984. As to when it was completed there is no date provided. As was indicated it can, however, not be claimed that the GSUP did achieved the stated objectives. The purpose of this paper was to emphasise the importance of a thorough project cycle, even if this might mean a lengthy conceptual phase, as it enhances the probability of project success significantly. Recent projects after 1994 have also been disappointing. There have been no improvements from the mistake that have been committed by the past government. The post 1994 projects have not been better documented. The paper will then focus on the lessons implementers and policy-makers should learn from the past experience as to improve project efficiency.

Lessons for Implementers and Policy-makers

A programme is successful from a technical point of view if the projects within it consistently result in the production of infrastructure which:
a) is desired by, and used by, the community it is meant to serve;
b) is adequately maintained in order to prevent deterioration;
c) meets the specified quality requirements; and
d) has affordable initial and recurrent financial costs;
e) has and high initial and recurrent socio-economic benefits.

The World Bank, ILO, and independent evaluators have found that consistently good quality and cost-effective products have been built using highly labour-intensive methods in well-planned programmes. Based on the historical experience of labour-intensive construction programmes and projects, the pre-requisites for obtaining good quality products at reasonable financial cost as propagated by scholars such as McCutcheon, 1995) the following can be recommended:

- there should be long-term political and financial commitment to the programme;
- the aims of the programme should be precise and clear;
- appropriate materials and designs for labour-intensive production should be identified and developed in the planning phase of the programme (and a labour-intensive approach must be taken to each project from the design stage);
- appropriate contract documents and specifications should be developed;
- pilot projects should be undertaken in each sector at the beginning of the programme;
- incentive systems of payment should be used;
- long-term training programmes should be established for supervisors (whether they are self-employed, employed by the public sector, or employed by the private sector);
- supervisors should receive both initial and on-going on-site and off-site training;
- there should be a career structure for supervisors (in case of small labour contractors, a contractor development programme should be instituted, and there should be a continuous flow of work over time for which the small contractors may tender);
- the programme should be planned such that there is continuity of work for people who gain skills from the programme, otherwise skills may be rapidly lost;
- middle-level managers (or contractors) and professionals also require training in the successful use of labour-intensive methods;
- maintenance of the infrastructure to be produced should be planned at the design stage of each project;
- infrastructure should not be built if it is likely that there will be inadequate institutional capacity (public, private, or 'community' institutional capacity) or funds to provide the required maintenance;
- there should be community participation in each project from the conception stage onwards;
- monitoring and evaluation of the programme should lead to institutional changes aimed at improving the programme;
- in sectors which are conventionally machine-intensive, a preparation and learning period is required for institutional development, technical development, and training before large-scale use of manual labour can start.

Summary and Conclusion

In the early phases the emphasis was upon the creation of employment opportunities for unskilled labour. Over the past decade it has become clear that in order to use labour productively it is necessary to train a skilled supervisor who is technically and organisationally competent and thus able to direct and motivate the workers under his or her control. Equally, for a successful national programme it is necessary to educate engineers about employment creation and train them in the specific skills required in planning, control and evaluation of large labour-intensive programmes in time an experienced technician or technologist should be able to do this level of work releasing the engineer for engineering and planning.

McCutcheon (November, 1990) considers the following points as the main reasons for the success of the programmes in Kenya and Botswana :

- Good preliminary analytical work and thorough attention to technical aspects throughout the work;
- Pilot projects which tested all aspects (technical, administrative, organisational, institutional, wage rates and conditions of employment, training, planning, socio-economic \ community) and acted as the embryonic training programme for future work;
- Strong organisational \ institutions with good management systems yet flexible;
- Extensive training;
- Long-term political support;
- Long-term financial support;
- Good long-term co-ordination and objective external advice;
- Consensus reached with the regard to: wage rates, conditions of employment, role and responsibilities of the community.

The public works programme in South Africa should change as the policy environment changes, from relief, emergency and "special" public works programme to a long-term structured employment-generation programme. The approach should link economic growth, employment and investment policies. The Public Works Programme must aim to ensure that infrastructure is planned around local needs rather than vice-versa. The Government needs to establish a long term programme on employment intensive in construction. This cannot be established overnight, and will take some years to fully grow into a national programme. Through the establishment of local associations, poor people are able to plan improvements in their community, negotiate with local authorities for a greater share of investment resources and learn to organise construction and other projects.

Public spending on infrastructure construction and maintenance can be a valuable policy tool to provide economic stimulus during recessions. As long as quality and cost-effectiveness are not compromised, employment intensive approaches to infrastructure development can also be an important instrument for economic growth (World Bank, 1994) when public spending on infrastructure is not wisely deployed, it can crowd out more productive investment in other sectors.

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