

THE IMPEDIMENTS TO EFFICIENT MEGAPROJECT IMPLEMENTATION IN SOUTH AFRICA

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The infrastructural backlog in South Africa has actualised several Megaprojects in diverse sectors to improve the country's economic competitiveness. However challenges faced by infrastructural Megaprojects implementation has resulted in bad publicity, widespread angst over their mounting costs, user indifference because of perceived government whitewash and a lack of a psychological contract with the general populace. The endemic challenges of restive labour force, the immature levels of business sophistication and institutional weaknesses have all conspired to make the implementation of these projects very inefficient and contestable. This study is based on two Megaprojects in South Africa which were implemented against the backdrop of the aforementioned impediments. The two projects of Gauteng Freeway Improvement Project (GFIP) and Medupi Power were chosen because they represent the two sectors that are predominant in the Megaprojects space in Africa. What the study found was that a rushed implementation of these projects always result in unsavoury repercussions, as a meaningful public participation process encompassing democratic principles has to first be implemented, there also has to be a certain level of dynamism in the national policies to avoid compromising the quality of the product.

Keywords: efficient, impediments, Megaprojects, South Africa, quality

INTRODUCTION

Mega projects have received considerable attention in recent years in theoretical literature, as one prominent strand associates them with global economic restructuring and rescaling (Kennedy *et al.*, 2014). Mega projects attract widespread interest; controversy and publicity as their sheer size open them up to constant scrutiny. Their failures usually generate more attention than their successes and therefore most of them face an uphill task in gaining public acceptance and support (Wolmar, 2013). Many mega projects have degenerated into mega disasters. Their size makes them intrinsically risky; this is because they are linked to a jumble of motivations and aims, some of which are in conflict (Mushni, 2014).

The interests and power relations involved in mega projects are typically strong given the sums of money involved, the many jobs, the environmental impacts and the national prestige. The idealistic communicative and deliberative approaches and evaluative yardsticks for decision making are therefore quite defenceless in the face of power (Flyvbjerg, 2003). Flyvbjerg (2003) argues that power play instead of commitment to deliberative ideals is characteristic of Megaproject development. The stakeholders do not always represent publics, and on democratic and pragmatic

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grounds the public is not properly involved in decision making. Thus the conventional decisionistic approach to project implementation has to be replaced by an institutionalistic approach that is centred on accountability (Babatunde *et al.*, 2014). There is a growing fear that inequality in decision making processes will lead to unequal distribution of risks, burdens and benefits from project. The apparent 'democracy deficit' due to lack of involvement of civil society and opaque processes is currently bedevilling mega projects implementation. The general public is generally sceptical or negative towards these projects, this is demonstrated through hostile protestations and in some cases downright sabotage on these projects (Oliomogbe and Smith, 2012).

With the current problems at the energy power stations at Medupi (US\$20.3) and Kusile (US\$10.8), some are contending that South Africa is losing the ability to build Megaprojects. These two projects were implemented to meet the struggling energy infrastructure that could no longer cope with the growing needs of the economy. The Gauteng Freeway Improvement Project (GFIP) is another important transport project that was initiated in the Gauteng province to increase the flow of traffic. This is very important because Gauteng is the engine of the economy with a Gross Domestic Product (GDP) valued at R811 billion (US\$72 billion), Gauteng generates 33.9% of the South African GDP and 10% of the total GDP of the entire African continent. Gauteng dominates the South African economy in every major sector except agriculture, mining and quarrying (Gauteng Government, 2016).

It is the strategic importance of these projects that has made them suitable to be used as cases in the discourse of the challenges in implementing mega projects in South Africa. The democratic deficit, occasioned by pragmatic exigencies and greed appears to be negating the acceptable consultative protocols that garner the requisite psychological contract with the general populace. This research sought to investigate how contextual deficiencies impact on the efficient implementation of mega projects in South Africa. A case in point was the investigation of the pervasive negative public kickback with Megaprojects. The assessment of the equity of the implementational procedures and the investigation of the consultative regimen also assisted in the investigation. Since it is likely that more will be implemented in the future the lessons garnered in these pioneer projects are instructive in the streamlining of implementation processes and pre-empting endemic impediments.

LITERATURE REVIEW

Megaprojects are generally defined as large-scale, complex projects that are designed and constructed over a period of at least four or more years, at a cost of more than US\$1 billion and involve multiple public and private stakeholders, they are also transformational and impact millions of people (Galloway *et al.*, 2013). Megaprojects are found in many fields such as oil and gas extraction, processing projects and even cultural events such as the Olympics. Infrastructural projects have spanned many fields from tunnels, bridges, railways, seaports, mines, freeways and airports (Flyvbjerg, Bruzelius, and Rothengatter, 2003). Because of their substantial direct and indirect impacts to the community, environment and state budgets, Megaprojects attract high level of public attention or political interests.

The Rationale for mega projects

In some countries, Megaprojects are the only way to deliver sustainable development; thus, understanding how they can be used to greater effect is a key to solving major

global problems including poverty alleviation, food security, bolstering of universal health and the improvement of the general welfare of the local citizens (Greiman, 2013). Megaprojects have always been seen as projects which are progressive, instil a feeling of national pride, push technological barriers and most importantly, attempt to solve mega problems with mega solutions (Altshuler and Luberoff, 2003). According to the National Development Plan 2030 in South Africa, over the next twenty years an unprecedented level of investment is predicted in energy infrastructure in South Africa (South Africa, 2014).

Mega projects in Africa

The total demand for infrastructure investment and maintenance from developing countries is estimated at more than US\$900 billion a year, with the greatest needs in Africa and Asia. In 2013 Africa grew by about 4% on average, compare to 3% for the global economy, although with broad variations across regions and income groupings. Growth in sub-Saharan Africa was 5% in 2013 and was projected to be about 5.8% in 2014 resulting in many countries increasing infrastructure investment, which should help to improve conditions for manufacturing, boosting export of critical resources and for private sector activity in general (Africa Progress Report, 2015).

Okpamen (2013) highlights that the influx of greater foreign direct investment in Africa, coupled with the rising demand of state-of-the-art infrastructures has ushered in a new dawn of enormous organisations, gradually changing the landscape across Africa. In 2012, several billion dollar projects including the US\$6 billion Eko Atlantic mega city in Lagos Nigeria, Tanzania's Oyster Bay, and South Africa's Square Kilometre Array project were initiated. 2013 continued in the same vein, with landmark projects, which rival their global counterparts and there are more in the pipeline in the coming years, as the Africa's economic resurgence continues. The increase in Megaprojects implementation has not been matched by an increase in research in this sector to elucidate their peculiar climatic implementational impediments.

There is a lot of activity in the Megaprojects sector in South Africa executed by the private sector and State Owned Companies (SOC's). Presently in South Africa apart from Eskom the utility company which is building the two largest power plants in the world (Eskom, 2015), Transnet the South African rail, port and pipeline company has embarked on the railway capital expansion project worth US\$29.17 billion (Transnet, 2015). In the last five years there was a lot of construction related to the world cup stadia and related infrastructure, the Gauteng Freeway Improvement Project (GFIP) and the Gautrain, a rapid railway system linking the OR Tambo International Airport, Pretoria and Johannesburg. According to the Energy Minister Tina Joemart-Pettersson, the prospect of construction of mega projects looks more positive with the planned construction of Nuclear Power Plants estimated at a cost of between US\$33.33 billion and of US\$83.87 (Okpamen, 2013).

The impact of mega projects

The majority of Megaprojects that are executed are always associated with a need for them at a particular time, with the exception of white elephants. (Scott, 1992) posits that 'white elephant' projects are not only large and expensive to build; but they operate only for a much hyped prestige, so dominant that the project never fully performs their intended role unclear as that might have been. Most of them fail because there was no adequate design, and that makes them expensive to maintain and the situation is often exacerbated by a lack of a legitimate business case for their

initiation. According to IRN (2003) some projects are the cause of impoverishment for a number of people. Flyvbjerg *et al.*, (2003) evaluation of Megaprojects is less positive, not because of their financial and environmental costs but because of their predominant tendency to affect the most vulnerable people. Ribeiro (1987) points out that even though Megaprojects create an outstanding offer of labour, the people coming from local communities, closer to the sites of the project are assigned in the lowest positions of the labour market. The numbers of jobs created represent a small proportion of the massive financial investment for the project.

RESEARCH METHOD

According to Maxwell (2012) to design a qualitative study, involves interconnection and interaction among different design components (Maxwell, 2012). Most pertinently the design must fit not only its use but also its environment. The methods deployed below were the ones we felt would be the most appropriate for this type of research. Interviews were conducted with OUTA and COSATU, key stakeholders who were at the forefront of opposing the GFIP e-tolling. This research is interested in the depth of the data and in appreciating its breath (Wimmer and Dominick, 1997). It was therefore decided that interviewing the people who have studied the project and have challenged the legitimacy of its consultative processes in the courts, through mass demonstration and in the media could yield much in appreciating why there is so much public resistance to this project. NGOs involved with the communities around Medupi power station were also engaged with. The implementing government departments' officials as well as the Eskom officials were interviewed. Interviews were deployed using open-ended questions to gain in-depth information on the issue (Frey and Oishi, 1995). Open-ended questions allow the interviewer, if they wish, to probe deeper into the initial response of the respondent to gain a more detailed answer to the question (Wimmer and Dominick, 1997). The richness of the data can thus be enhanced by this approach.

A questionnaire was used and 1821 respondents cooperated in three shopping malls in Gauteng. The malls were chosen strategically depending on their catchment area and motorists were approached as they alighted their vehicles by trained student research assistants from the University of the Witwatersrand. About 85% of the respondents were from the middle class and the rest were using public transport (trains, buses, minibus taxis), which in South Africa is mostly for people in the lowest rung of social stratification. Ordinary members of the community and general workers involved in the Medupi project were also issued with questionnaires. A questionnaire is defined as a formalized set of questions for obtaining information from respondents. The overriding objective is to translate the researcher's information needs into a set of specific questions that respondents are willing and able to answer. A questionnaire is the main means of collecting quantitative primary data (Malhotra, 2011). A questionnaire enables quantitative data to be collected in a standardized way so that the data are internally consistent and coherent for analysis. This is so that when the questions are asked or presented, it is always in exactly the same way (Brace, 2013). The questions dealt with the citizens' early awareness of the projects and their attitude towards the implementation thereof.

The approach in this study is similar to the one taken by Leromanachou *et al.*, (2006) with regards to the Norway's urban tolling where reports, articles, grey literature and a series of semi-structured interviews with the members of the Norwegian Public Road Administration and local authorities were had. The mixed method approach

advocated for earlier on was opted for because it was thought both methods together enhance the perspectival clarity of the research problem intensely than either type by itself (Creswell, 2008). The multiple viewpoints accorded by this approach pits the subjectiveness (which provides depth) of qualitative data against the objectiveness (which provides girth) of quantitative approach. This is complementarily beneficial in assisting researchers in properly appreciating the nature and extent of the phenomenon under scrutiny. Interviews elicited common themes from the respondents and the thematic analysis was used to code these themes, after which they were grouped in order to glean any commonalities that might be meaningful. There are two stages to treating themes, the semantic and the latent level. The semantic looks at the surface meaning of what the data says and does not go beyond what the respondent has actually uttered (Patton, 1990). The overall research design is Convergent Parallel Design where quantitative and qualitative data collection and analysis is done separately but the results of both the questionnaires and interviews are compared and related to offer a substantive interpretation. Not only does this approach offer corroboration from different methods but it proffers a more complete understanding from the two databases.

RESEARCH RESULTS

The Gauteng Freeway Improvement Project (GFIP)

This project involves the upgrading of Gauteng roads, the overhauling of 34 interchanges and the introduction of 4 new directional ramps (fly-overs). This project has 1 million users per day with an anticipated growth in usage. The other improvements on the roads are the Travel Demand Management (TDM) through the introduction of High Occupancy Vehicle lanes. The implementation of Intelligent Transport Systems (ITS) for the effective management of the network. ITS devices such as CCTV will assist in early detection of incident/crashes and assistance/clearance thereof. The provision of lighting which is required for ITS which will improve roadside security. This project has been met with stiff public protestations, low compliance in terms of paying the etoll, rolling juristic disputations and periodic concessions by the government, which do not seem to attract any interest from the general populace. This situation is turning this project into an economic 'white elephant' to the government while its free usage by the public continues unabated.

Medupi Power Station Project

The construction of Medupi power station was started in 2007 to meet Eskom's declining capacity, which had started showing signs of weakness in meeting demand. Medupi is a Greenfield coal-fired power plant project located West of Lephalale, in Limpopo Province. When complete the power station will be the fourth largest coal plant in the Southern hemisphere, and will be the biggest dry-cooled power station in the world. The boiler and turbine contracts for Medupi are the largest contracts that Eskom has ever signed in its 90-year history. The planned operational life of the station is 50 years. The site was chosen because of land availability in close proximity to the primary coal source, the properties of coal from this region are suitable for efficient power generation and also the competitive coal prices in the area. The total output on completion will be 4800 MW and the baseload station will use direct dry-cooling due to the water scarcity in the area. The power station will directly grow the South Africa GDP by approximately 0.35% per year. This project was scheduled to be completed in four years from the commissioning of construction in 2007 but

technical and other problems means only 1 of the 6 turbines has been commissioned thus necessitating the new completion date to be moved to 2019.

GFIP results

The majority of the government officials were very defensive about the viability of the project although it is widely reported in South Africa that the compliance is sitting at around 40% at the moment. The leading proponents against the project were emphatic on the viability of other alternatives of revenue collection to support the development, like increasing the fuel and levy and were unhappy about the superficiality of the consultation process. Although the government has won most of the cases in the courts as the challenge to the legitimacy of the implementation of the project without a proper public consultation was rejected by the courts, as the South African National Roads Agency (SANRAL) is legally mandated to initiate and implement road infrastructure projects. SANRAL public legitimacy on the other hand has however been eroded as demonstrated by the low compliance rates. The leading NGOs who are opposed to this scheme are even proposing a complete scrapping of the project. The complaints from the general populace are in table 1.

Table 1: The complaints by the general populace against GFIP

Complaints	Description
Double Taxation	Paying the fuel levy, toll gates and other such taxes in addition to e-tolling
Lack of meaningful consultation	People feel e-tolling was imposed on them and not enough was done to consult them, which depicts a lack of transparency
Affordability	People feel e-tolling is too expensive and unaffordable because of issues such as unemployment, poor pay and generally high costs of living
Lack of awareness of paying	People generally do not understand why they have to pay and don't see what the money is being used for.
Legitimacy	This covers the general public disquiet, which covers issues of government distrust because of widespread corruption and suspected collusion.

Medupi results

The Medupi project was implemented hastily and not enough preparation was done to prepare for the organisational capacity and improve the technical know-how within the organisation. This was the first dry-cooled, baseload station built in 20 years by Eskom after Kendal, Majuba and Matimba power stations. The failing capacity to cope with demand and the concomitant political fallout put pressure to fast-track this project and the implementation is showing structural weaknesses. The problems identified during interviews and elicited from the questionnaires are shown in table 2.

DISCUSSION

The implementation of the aforementioned projects in South Africa was a much anticipated national responsibility by the authorities. The surprise to distant observers is the lack of popular embrace but mass disgruntlement, which is indicative of a soft implementational underbelly. In a new democracy such as South Africa any bad

decision by the authorities becomes over-politicised to a point where the derailment of project becomes a possibility. The GFIP with all its benefits was accepted but it was not supported. This is apparent due to low compliance levels in registering vehicles with the authorities for electronic tolling. This negatively affected the projects cash flow. The same could be said about Medupi where the rush to implement the project meant that labour unions were not properly consulted and this has led to all sorts of protestations ranging from complaints about poor working conditions to resisting hiring skilled foreign workers. This appears to confirm the conclusion made by Wolmar (2013) that Mega projects struggle with public acceptance and support. In these case it is not about the necessity of the projects but the exclusivity of the implementation strategies.

Table 2: The problems encountered in implementing Medupi

Problems	Description
Ambitious Implementation Timelines	Timelines which overlooked capacity issues and labour market volatility in South Africa.
Improper EIA	Failure to conduct a proper Environmental Impact Assessment resulted in the stalling of progress due to the mishandling of culturally sensitive issues, like the relocation of old graves.
Spiralling Costs and Delays	The spiralling costs and delays have led to a political pressure leading to a high executive staff turnover, thus losing momentum on some of the initiatives where gains had been made.
Contractual Expenses	Contractual expenses where coal contracts have to be honoured as the suppliers were ready whereas plant was behind schedule.
Workplace Tensions	Workplace tensions occasioned by the importation of semi-skilled labourers (i.e. welders) amidst local sentiments that locals could have quickly been capacitated.
Costly Technical Mistakes	Costly technical mistakes caused by the inexperience of local experts were magnified by the sheer size of the project.

The power relations always favour the funders of the projects, as government overlook idealistic communicative and deliberative approaches which underpin basic democratic principles (Flyvbjerg, 2003). The superficial consultation process in both cases has led to a situation where in the case of GFIP there was no dialogue in sensitising the public about various alternatives in funding the infrastructure, and the input of stakeholders was not proactively sought as the implementation of the project blindsided most Gautengers. In Medupi a culturally sensitive issue of the relocation of the remains of the ancestors led to a very grave discontentment. The unique observation in South Africa is that all the requirements for implementation are followed, but only furtively to almost maliciously comply with the legislative requirement. That is why the state won all the cases with the GFIP because the implementers exploited the legislative weaknesses with regards to the prescriptive vagueness on the proper consultative protocol with the public.

The top down approach in both instances has been decisionistic much to the negation of the established and functioning institutions accountability (Babatunde *et al.*, 2014). In the case of GFIP toll fees were introduced and whenever there is a backlash a discount is introduced without explaining and taking the public into confidence about the basis of such figures. Failure to engage the labour unions and the industry at large

with regards Medupi meant that local labourers and experts were not prepared to tackle a project of this magnitude. Hiring foreign workers in a country of high unemployment such as South Africa was bound to be met with a very stiff resistance. What is unique in the South African situation is that the biggest labour union which is COSATU (Confederation of South African Trade Unions) is actually part of the tripartite alliance forming the current government. Although it is generally considered to be powerful, in the case of Medupi it actually never mitigated the implementation of unilateral decisions.

The pervasive democratic deficit bedevilling the implementation of mega projects, which is manifested by the inequality in decision-making as posited by Oliomogbe and Smith (2012), has a unique nuance in South Africa. The intensity of the popular resistance has led to the stalling and delaying the completion of the projects, as the critical cooperation from the public is not forthcoming. In the case of GFIP the project is struggling to raise the requisite revenue because of the low compliance levels. In Medupi the implementers had to navigate very complex implementational challenges which although some were technical others, were a direct result of popular disquiet.

CONCLUSIONS

South Africa provides very good prospects for Megaprojects implementation because of the infrastructure backlog. The unique political challenges in South Africa have to be taken on board during the planning and implementation of Megaprojects. The South African general populace is uniquely politically sensitive given the recent political history of repression, so a thorough public consultation strategy and implementation is imperative. These major considerations result in:

- Costly delays due to constant industrial actions which have to be accommodated in the planning of Megaprojects
- Political pressure in implementing some of the projects result in project management difficulties because of little time given to proper planning
- Decisionistic top down approach is met with immediate negative public kickback which could perhaps be avoided with proper inclusive decision-making
- Megaprojects perceived democratic deficit cannot survive as a parallel system in an otherwise democratic dispensation, as the incongruence which could be occasioned by asymmetric power relations leads to public disquiet
- The problems encountered are suggestive of institutional weaknesses and legislative vagueness which need correction

However the lessons garnered in the few Megaprojects that have been implemented in South Africa are very instructive even to other developing countries especially those which are currently transformational.

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