



PAPER III: THE INTERGOVERNMENTAL CONTEXT OF MUNICIPAL INFRASTRUCTURE GRANTS IN SOUTH AFRICA

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Perspectives for Reviewing the Municipal Infrastructure Grant (MIG)

Executive Summary

The key financial policy objectives for sustainable local government in South Africa are derived from constitutional obligations. These obligations require municipal organization, planning and budgeting systems to equitably target the provision of basic services and socio-economic development for all citizens. Municipal budgets and municipal infrastructure grants are the main policy instruments that direct the expenditure stance of municipalities in achieving the infrastructure service delivery targets. Inadequate municipal infrastructure has negative consequences for the delivery of services and economic growth and development. Despite much of the finance for municipal infrastructure being provided by national government through the Municipal Infrastructure Grant, recent trends indicate that municipalities have not shown any marked progress in construction, maintenance and repairs of basic infrastructure. Unless these issues are addressed the achievement of sustainable local government as envisaged in the Constitution will be delayed and the inequalities that characterize our society will be aggravated and exacerbated. This paper reflects on recent assessments and the effectiveness of the Municipal Infrastructure Grant (MIG) and presents some perspectives for its review as an instrument for the equitable financing of municipal infrastructure needs.

Key Words

Municipal Infrastructure Grants, allocation, equitable, expenditure, basic services, local government, constitutional obligations.

Introduction:

The Political Economy of Financing Municipal Infrastructure Needs in South Africa

A central priority of national government in South Africa is to provide basic services to all South Africans within the constraint of available resources. This objective is set out in the Constitution's Bill of Rights and is a fundamental responsibility of government. Rights to which all citizens are entitled are in areas such as freedom of movement; a protected environment that is not harmful to health and well-being; housing; health care; food; water and sanitation; social security, and education. Responsibilities in respect of these rights are shared amongst governments, with each sphere of government charged with fulfilling its assigned functions.

Under the Constitution, national government also has over-riding responsibility for the management of the country's affairs and shares responsibility with the provinces and local governments for the provision of basic social services. National government may mandate appropriate essential or minimum levels and standards of services. Provinces are responsible for delivering most of the range of social services, which fall in the areas of education, welfare, and health. Local governments carry responsibility for provision of local infrastructure and basic services such as sanitation and water reticulation.

The objective of South Africa's intergovernmental fiscal arrangements is to ensure that these inter-governmental responsibilities are carried out in the spirit of co-operation, equity and efficiency. Ultimately, it is the well-being of all citizens, wherever they reside, that should be the main goal guiding intergovernmental decisions around fiscal arrangements amongst the three spheres of government.

An important determinant in ensuring the well-being of all citizens is the provision of adequate public infrastructure for communities, households and individuals to access publicly provided services. The main aim of this paper is to present some perspectives on recent assessments of the current inter-governmental funding arrangements for the

provision and maintenance of municipal infrastructure. In particular the paper will examine the effectiveness of the conditional Municipal Infrastructure Grant (MIG) as a funding instrument targeting Government's fundamental policy objective to address inequalities and poverty in communities that perpetuate the legacies of apartheid. There is a growing public perception reflected in parliamentary committee debates and within sub-national government spheres that increasing inequalities and the disadvantages of poorer communities are a consequence of historical infrastructural backlogs and, an undifferentiated approach to costing the provision of infrastructural services resulting in an inequitable allocation of municipal infrastructure grants.

Ultimately, the purpose of this assessment is to contribute towards the review of the structure of the MIG formula and its application in allocating infrastructure grants. The paper hopes to achieve its aim by focusing on two questions that point to a level of dissonance in the way the MIG is implemented and monitored. Firstly, the paper focuses on whether the current demand driven approach determined by municipal infrastructure project applications for MIG funds is consistent with all constitutional mandates? The second focus is whether the current MIG allocation formula can adequately take account of all disparity and inequality cost factors that differentiate municipalities from each other? Having done this the paper will present an alternative approach for the allocation of MIG funds. The paper is organized as follows. Section two presents some perspectives on the MIG and the difficulties associated with its implementation. The section draws on reviews and assessments undertaken by the Financial and Fiscal Commission (FFC) and a study commissioned by the national Department of Provincial and Local Government (DPLG) and other reviews. Section three considers the Municipal Infrastructure Grant (MIG) in the context of South Africa's constitutional and intergovernmental fiscal relations system. Section four examines the adequacy of the MIG arrangements to take account of the disparity and inequality cost factors that differentiate municipalities from each other. Section five discusses an alternative approach to funding municipal infrastructure taking into account Government's overall fundamental policy objectives, macroeconomic constraints and constitutional mandates for the progressive provision of basic public infrastructure services.

2. Perspectives on the Municipal Infrastructure Grant (MIG) and its implementation

In June 2006 the Department of Provincial and Local Government (DPLG) published a document describing the municipal infrastructure grant (MIG) and the management process and procedures for its use among municipalities (DPLG, 2006). According to the DPLG document the key principles on which the MIG is founded are the following:

1. Financing the basic infrastructure for the provision of basic services.
2. The basic infrastructure and services funded must target the poor in recipient municipalities.
3. The grant must be used in such a way that it also maximizes economic benefits could include job creation and the development of enterprises.
4. The grant must be allocated equitably and must be accessible by the poor.
5. The spending decisions for the grant are best undertaken at municipal level in accordance with national norms, standards and conditions.
6. The funds should be used efficiently such that optimal improvement in access to services must provided at the lowest possible cost.
7. The grant should reinforce local, provincial and national development objectives.

In addition to the benefits that accrue to all members of the community from general public municipal services, the Constitution mandates government to provide some of these infrastructures supported services as a right in themselves.

Following from these principles the DPLG document lists four main policy objectives for the MIG programme. These objectives underpin national governments obligation to fund infrastructure subsidies that ensure all households have access to a basic level of infrastructure services.

The first policy objective of the MIG programme is to fully subsidize the capital costs of providing basic services to disadvantaged and poor households. The second objective is to allocate funds equitably, transparently and efficiently in support of socio-economic development. Thirdly, the MIG programme is expected to strengthen municipal development capacity through encouraging multi-year planning and budgeting systems. Fourthly, the programme is expected to act as a catalyst for municipalities to synchronize local objectives with national priorities.

The MIG is a conditional grant from National Government's equitable share of total nationally collected revenue and is allocated to local government through the National Budget.

The table below from the 2008 Budget Review (National Treasury, 2008) provides a global view of the importance of MIG funds to local Government between the 2003/04 and 2007/08 period. It is clear from this table that the MIG grants constituted the largest proportion of National Government transfers for financing municipal infrastructure over the period.

Infrastructure transfers to local government, 2003/04 – 2009/10

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Direct transfers¹	4 102	5 299	6 286	7 931	12 390	17 119	15 302
Municipal infrastructure grant	2 442	4 481	5 436	6 756	7 549	8 053	9 302
National Electrification Programme		245	196	355	468	596	897
Implementation of water service projects	208	1 022	–	–	–	–	–
Disaster relief	–	280	311	–	–	–	–
Poverty relief funds	393	134	–	170	1 174	3 170	2 325
Public transport infrastructure and systems grant	–	–	242	50	500	1 500	1 325
Neighbourhood development							
Total	5 715	6 936	8 072	9 357	14 303	19 550	18 325

1. Transfers made directly to municipalities

2. In-kind transfers to municipalities

Source: National Treasury; Budget Review 2008.

A simple conversion of the amounts above to percentages reveals the importance of the MIG transfers in the context of intergovernmental funding for local government financing of infrastructure. For the period, on average the MIG grants amounted to almost 60% of all direct transfers to municipalities (See percentage calculations in table below).

Percentages of the MIG Allocations to Municipalities

	A	B	C	D	E	F
1						
2	Outcome				Revised estimate	Medium
3	R million	2003/04	2004/05	2005/06	2006/07	2007/08
4	Direct transfers	71.78	76.40	78.06	85.60	8
5	Municipal infrastructure grant	42.73	64.60	67.50	72.92	5
6	National Electrification Programme	4.29	2.83	3.69	3.83	
7	Implementation of water service projects	17.88	3.00	0.00	0.00	
8	Disaster relief	0.00	4.04	3.86	0.00	
9	Poverty relief funds	6.88	1.93	0.00	0.00	
10	Public transport infrastructure and systems grant	0.00	0.00	3.01	1.83	
11	Neighbourhood development partnership grant	0.00	0.00	0.00	0.54	
12	2010 FIFA World Cup stadiums development grant	0.00	0.00	0.00	6.48	
13	Indirect transfers	28.22	23.62	21.94	14.39	4
14	Water and sanitation operating subsidy	14.30	11.81	11.23	4.75	
15	National Electrification Programme	13.93	11.81	10.72	9.64	
16	Bulk infrastructure	0.00	0.00	0.00	0.00	
17	Backlogs in water and sanitation at clinics and schools	0.00	0.00	0.00	0.00	
18	Backlogs in the electrification of clinics and schools	0.00	0.00	0.00	0.00	

19 Total	100	100	100	100
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The Background and Rationale for Reviewing the MIG

The 1998 White Paper on Local Government did not address the challenges of the administrative and management capacity of post-apartheid municipalities to execute budgets and comply with accepted accounting and financial management and reporting practices. In many instances these inadequacies were reflected in poor revenue projections, collection and credit control systems. Data was unavailable resulting in unreliable socio-economic statistics and inaccurate financial and service delivery information. This consequently led to the inability of municipalities to undertake effective expenditure planning, budgeting and financial management. Since 1998 this inadequacy has resulted in the inequitable distribution of revenue for the provision of basic services and the promotion of socio-economic growth and development in local communities. This trend has been most starkly demonstrated in the area of municipal infrastructure planning and delivery.

The 2006 Local Government Review by National Treasury (National Treasury, October 2006) focuses on the challenges consequent on the current local government reform process. The Review identifies key areas that require refinement and reform in the existing local government system. All the areas identified in the Review have relevance for the financing of municipal infrastructure in support of the delivery of basic services. Amongst others these include the alignment between and amongst the different powers and functions of the category B local municipalities and the category C district municipalities.

A second area of concern is finding an alternative source of own revenue to replace the recently abolished regional service council (RSC) levies. For many poorer municipalities the RSC levies were the main source of revenues. In the absence of this own source

revenue and no sustainable tax bases municipalities will be totally dependent on MIG grants for infrastructure development. The conditions attached to the MIG limit the flexibility that local governments should have in attaining their objectives.

Thirdly, an assessment will examine the capital financing arrangements and the instruments used by municipalities. In particular such an assessment is expected to examine the efficient use of own revenues, infrastructure grant funding and borrowing arrangements. Of relevance for the MIG allocations will be the extent to which these various sources of funds may complement the financing of municipal infrastructure development plans.

Fourthly, given the high levels of service delivery and infrastructure backlogs and the consequent inequalities between and among municipalities the Review implies that a re-evaluation of the local government equitable share formula and the municipal infrastructure grant (MIG) mechanisms may be necessary. Clearly the growing infrastructure backlogs and associated service delivery problems are an indication that the current mechanisms are inadequate or inappropriate and compromise local government's ability to deliver on their constitutional and developmental mandates.

The fifth, area of concern is the lack of planning and coordination between municipalities and provinces where these two government spheres have concurrent funding responsibilities for the delivery of housing, health and public transport services.

Sixthly, government identified the need for assessing the impact on municipalities of restructuring the electricity and water distribution sectors. Over the past year this issue has taken on a greater urgency with respect to electricity generation and distribution.

The 2006 Review reflects government intention to set specific policy targets to eradicate remaining backlogs in sanitation, water electricity and other service delivery backlogs between 2008 and 2013. Notwithstanding this enormous task municipalities are expected to maintain appropriate service delivery levels currently in place in communities. In

addition local governments are required to create conditions for economic growth. To support these policy objectives the Review reports that local government's share of nationally raised revenue has risen to 7% between the 2006/07 and 2008/09 medium term plan.

The envisaged focus areas for the 2006/07 medium term period were free basic services for households that cannot afford such services; a proper waste management system; eradication of the bucket sanitation system; housing and built environment with the necessary infrastructure for sustainable communities; enhancing financial management and the capacity of municipalities to deliver quality services and, ensuring that the delivery of municipal infrastructure contributes to job creation.

The provision of free basic services however, depends on adequate and well-maintained and operated municipal infrastructure. The development and construction of infrastructure is funded largely through the conditional municipal infrastructure grant (MIG) dedicated for spending on basic public infrastructure in previously disadvantaged communities. The MIG is the largest infrastructure allocation and had increased by R21,5 billion for the 2006/07 to 2008/09 period. In addition to the MIG municipalities received R4,4 billion as part of the electrification programme for connections to poor households. Including infrastructure supported free basic services as part of delivery package to be provided by municipalities raises the question as to how the cost of such provision will be incorporated in the MIG formula. In the 2006 Budget Review government committed to ensure the provision of free basic services to poor households. Included in this list of services were water, sanitation, electricity and waste management. In addition government committed to the eradication of the bucket system and the development of the built environment with the concomitant infrastructure for communities. These commitments are to be underpinned by increasing support for financial management and the capacity of municipalities to deliver services. Over the 2006/07, 2007/08 and 2008/09 budget cycles government added R8,3 billion, R10,5 billion and R13,9 billion respectively to the local government budget framework. Over the three year cycle the

equitable share baselines were revised upwards by R1,6 billion to support the rollout of free basic services.

Some perspectives on the MIG

As will be noted below the structure of the MIG formula does not pay serious attention to the differentiated cost factors of the inputs required for delivering municipal service infrastructure. A grant allocation based on a formula that does not take account of all input cost factors is likely to place increased budgetary pressures on municipalities. One of the biggest challenges for the costing of input factors is the lack of reliable financial data and information from municipalities. The 2006 Budget Review suggests that the major constraint in attaining policy targets is the lack of reliable data and information about the actual costs of input factors. This makes comparisons across local governments very difficult.

Recent studies indicate that while there has been a certain degree of over-spending and under-spending of infrastructure budgets there is no way to show how this may be associated with the attainment of planned output targets for the delivery of basic services.

Initially, municipalities were able to spend most of their infrastructure budget allocations. By 2006 both the National Treasury and the Financial and Fiscal Commission (FFC) observed a marked under spending on the MIG allocations. In its Review of Transfers in the Intergovernmental Fiscal Relations Systems in South Africa the FFC (Josie, Khumalo and Ajam , 2006) attributed this under expenditure to several reasons. Among the reasons was that municipalities continued spending MIG funds rolled over from previous years. Other reasons were the lack of proper project planning; ineffective project management; the lack of capacity for managing MIG funds and, the late approval of projects and budgets by council officials.

While many problems and challenges associated with the MIG may be attributed to the inadequate capacity and capabilities of some municipalities other problems and

challenges are inherent in the design of the equitable sharing mechanisms of the transfer system in general and the MIG grant in particular. For example the merging of the Consolidated Municipal Infrastructure Programme (CMIP) with the MIG carried over the design defects of the CMIP into the MIG.

A review of the MIG must address some of the design issues. In particular national government needs to consider whether conditional grants such as the MIG should also be allocated equitably as such grants are also drawn from nationally collected revenue.

The MIG Formula

The MIG allocations to municipalities are formula driven therefore it will be important to understand the nature and structure of the formula. At least two major reviews of the MIG programme were undertaken in the recent past. The first was done by the *Financial and Fiscal Commission (FFC)* in 2006 (Josie, Khumalo and Ajam, 2006: pp18-21). The second was a study by the Department of Provincial and Local Government in 2007. Both these reviews discuss the MIG formula. The formula consists of percentage allocations for five different components representing aspects of municipal infrastructure needs.

From the DPLG review the formula can be summarized as follows:

$$MIG = B + P + E + N + M$$

Where:

B represents the allocation for basic residential infrastructure such as water, sanitation, roads, electricity, street lighting and solid waste removal.

P denotes funds for new and rehabilitated municipal service infrastructure.

E is the allocation for the construction of social service institutions and micro-enterprises.

N is the allocation for nodal development and renewal programmes in targeted urban and rural municipalities and;

M is a performance related adjustment to the total MIG allocation for a municipality.

In addition each component is weighted by an identified socio-demographic parameter that reflects differences between metropolitan and local municipalities. If the parameters for each of the five components are represented by b , p , e , n and m respectively, then each one is a weighted adjustment for the corresponding component. The adjustments are supposed to take account of socio-demographic indicators that distinguish the metropolitan municipalities from the local municipalities. The indicators are drawn from the 2001 Census data. While the five components represent broad categories of infrastructural services the socio-demographic indicators are associated with sub components within these broad categories. Thus the socio-demographic indicators represented by the parameters may be designated as follows:

- $b(1)$ for the sub-component for water and sanitation indicating the number of households with less than adequate water supply and sanitation services;
- $b(2)$ for access roads based on the number of households living in informal settlements ;
- $b(3)$ for the sub-component “other” using the number of households with less than adequate refuse removal service as an indicator;
- p for provision of public facilities using the number of households earning less than R1,100 per month;
- e for institutions and micro-enterprises using the number of households earning less than R1,100 per month;
- n for nodal development areas using the number of households living in areas identified as nodes and earning less than R1,100 per month and,
- m for performance related adjustments.

Thus the full MIG formula will be:

$$\text{MIG} = B[b1+b2+b3] + Pp + Ee + Nn + Mm$$

The MIG funds also consist of an allocation that is non-formula driven called a Special Municipal Infrastructure Fund (SMIF) targeting project based applications by municipalities that meet a set of pre-determined criteria.

In 2003 the FFC prepared an assessment of the of the draft policy framework document for the MIG. The document was circulated for comment in December 2002 by the DPLG. (See: Draft Comments by H. Fast, February 2003, Local Government Projects FFC.) In this evaluation several important points were raised that as relevant now as they were in 2003.

The evaluation pointed to a fundamental contradiction in the requirement for infrastructure funds to be spent according to municipal Integrated Development Plans (IDP) and according to the proportions attributed to the socio-demographic indicator weights in the formula. The evaluation made the point that, “IDPs reflect local priorities, which may vary across time and geography. For example, a municipality at risk for a cholera outbreak may choose to spend most infrastructure funding on water and sanitation infrastructure during the first years of the MIG programme.”

Another aspect of the MIG allocations that was raised as a potential problem by the evaluation and that continues to present difficulties in the implementation of infrastructure projects is the complexity of the intergovernmental arrangements between district and local municipalities.

In its basic form all the formula achieves is an incremental slicing of a given politically determined pool of funds from National Government’s equitable share? The formula does not give any indication as to how the pool of funds were/are determined or whether the planned and cost determined infrastructure needs of municipalities were taken into account in the determination of the pool of funds or at least, taken into account in the determination of each municipality’s MIG allocation? The onus is on municipalities to access these funds by submitting project proposals and plans to national government.

This formula approach to allocations seems to operate under the assumption that, as the conditional grants are drawn from national government's equitable share, they are exempt from the constitutional requirement for all allocations from nationally collected revenues to be equitably shared. In other words they may be allocated at the discretion of national government. Such an assumption may be based on a restricted interpretation of Section 214(1) of the Constitution. Conditionality of a grant does not necessarily imply that it cannot be allocated equitably. Neither does it mean that the grant can be allocated without taking into account all the considerations listed under Section 214(2) of the Constitution. South Africa's intergovernmental fiscal relations system is founded on the principle of equal treatment of all spheres of government. This implies that the structure of an intergovernmental allocation formula in South Africa has to include mechanisms that are firmly based on principles of both Section 214(1) and (2) of the Constitution. Later this paper will present an alternative approach to allocating capital grants to municipalities that takes cognizance of both Sections 214 (1) and (2) of the Constitution.

The MIG Formula: A project based approach to allocation

In itself there is nothing wrong with municipalities accessing the pool of infrastructure funds through a process of submitting infrastructure project applications to national government. However, if the grant pool is politically predetermined without objectively taking into account all constitutional, economic and redistributive considerations then municipalities may argue that the determination of the pool of funds is an arbitrary process lacking transparency and not in keeping with the principles of co-operative governance in Chapter 3 of the Constitution. In this regard the fact the MIG is allocated according to formula is a moot point as it does not show how the pool of funds was determined and how it takes account of constitutional, economic and redistributive considerations.

The MIG was instituted for the provision of basic infrastructure to municipalities with infrastructure backlogs and high levels of poverty and inequality indicators. It is the largest single national transfer to municipalities. Despite good intentions government's own assessments indicate that the allocations have been under-spent or only effectively

spent by larger richer municipalities. Larger and richer municipalities have a relative comparative advantage in resource capacity, planning and preparing sophisticated infrastructure project proposals over their smaller and poorer counterparts. Whether these project proposals are underpinned by a cost benefit analysis (CBA) or cost effectiveness methodology is not immediately evident from the literature. However, it may be assumed that for decision-makers to make an informed choice from amongst several competing demands for infrastructure projects the proposals should be supported by cost benefit or cost effectiveness analyses and an understanding of the types of funding available.

The Financial and Fiscal Commission's (FFC, 2006) review of the MIG argues that under-spending by disadvantaged municipalities may be due to the stringent conditions attached to the MIG allocations. Another reason for under-spending may be the requirement that all municipalities provide adequate project management irrespective of their financial and human resource capacity. The FFC review suggests that all these problems seem to be associated with the fact that the structure, conditions and procedures of MIG were carried over from its predecessor, the Consolidated Municipal Infrastructure Programme (CMIP). The latter was a project proposal application approach similar to those used by development banks. These approaches are invariably underscored by the extensive use of cost benefit and cost effectiveness methods. In general, municipalities in South Africa have little or no in-house capacity to plan and prepare proposals and manage major infrastructure projects. This is particularly true of the poorer local municipalities.

Allocations of finance based on applications from recipients are widely used to disburse grants, loans or donor funds to municipalities for development projects. However, as Harvey (1983), points out, this is an extremely hazardous task for any level of government in developing countries. With very little in-house capacity most local municipalities would opt for other forms of finance for infrastructure projects. Sometimes the wrong choice may add to the risk of project failure. To expect local municipalities to submit project applications in keeping with the MIG preconditions is unrealistic in South

Africa. Harvey (1983, pp3) underscores some of the prerequisites for planning, preparing and implementing projects.

“...those actually involved in preparing and implementing projects, as well as those who make decisions on the choice and financing of projects, need to have some knowledge of the costs and benefits of the more commonly available types of finance, ways of analyzing those costs and benefits, and some of the risks involved. In theory it would no doubt be better for government planners to separate project selection from the question of finance, rather than to react to proposals for projects with finance already integrated into the proposals. In practice, the planning process is normally a continuous mixture of both, and indeed individual projects sometimes come for consideration at several different stages. It is certainly better to match up a project to the most suitable type of finance at an early stage, rather than to make changes when a great deal of planning and negotiation has already taken place. At either stage, those involved should have background knowledge of costs and benefits referred to, and the suitability of different types of finance to different types of project.” (Harvey, 1983, pp3).

By itself a project based allocation arrangement does not provide the transparency and budget predictability so important for planning and required under Section 214 (2) of the Constitution and other legislation. Such an approach only becomes relevant for the horizontal allocations of funds amongst local governments and is driven by competing municipal microeconomic demands. However, this approach cannot inform National Government’s determination of the pool of funds that may be available for MIG. Different considerations listed under Section (2) 214 a-j of the Constitution are important in this regard. Under the current dispensation the microeconomic demands of municipalities are bound to come into conflict with the macroeconomic constraints determining the available MIG pool of funds from the nationally collected tax revenue and other sources. In public finance this may be one of the theoretical reasons why “it would no doubt be better for government to separate project selection from the question of finance, rather than to react to proposals for projects with finance already integrated into the proposals.” In practice it seems that this is the current basis for allocating and disbursing MIG funds.

In the current arrangement, to access the MIG funds, municipalities are expected to submit plans and project proposals based on actual costs. If each municipality had to take account of its real costs (including backlogs, inequality and other disparity factors) of building and maintaining infrastructure for the provision of basic services and meeting economic demands and these amounts have to be aggregated across all municipalities then the total sum may be greater than the national capital expenditure budget pool available for equitable allocation to municipalities. Thus, if there is a limit to the actual amount of MIG funds available for each budget period why should municipalities submit plans and project proposals that national government departments may reject in any case? Such an approach to funding is more appropriate to a development bank than to a developing economy. The former runs a financial market for development funds and expects some form of return on its investment. Municipalities in such an environment are expected to operate according to competitive market rules and make choices about the suitability of the finance available. Surely, given the legacy of apartheid inequality, the infrastructure development imperatives of local government cannot be founded on a municipality's competitive edge in producing infrastructure plans, project proposals and project monitoring capacity. Would it not be better if National Government allocated the macro-economically determined pool of funds available for infrastructure through a capital expenditure grant scheme model that includes estimates of backlogs, capital stocks and the aggregated inequality and disparity factor costs of providing services to municipalities? Furthermore, if the MIG principle that all infrastructure funding for a municipal function be directed to or be under the jurisdiction of the relevant service authority it would not be necessary to have so many complex allocation and implementation mechanisms that tend to undermine this principle.

Municipalities also have the added advantage of raising own tax revenues and borrowing to supplement shortfalls in capital expenditures. Thus the MIG grants will amount to a revenue equalization transfer that offers poorer municipalities a lifeline to plan the gradual build-up of their tax base as infrastructure provision stimulates local economic growth and development. This is a significant incentive for using the MIG as part of a matching grant arrangement. More important such a capital expenditure grant model will

provide National Government with an effect policy instrument to work within the constitutional requirement to ensure the provision of basic services taking into account reasonable measures, progressive realization and available resources.

The MIG Conditions and Institutional Arrangements

The conditions attached to the MIG are intended to ensure that municipalities meet national priorities, norms and standards. In this regard the MIG is allocated to assist the poor to access infrastructure to improve their economic opportunities. Thus municipalities are required to prioritize public residential bulk infrastructure for the delivery of water, sanitation, electricity, refuse removal, street lights, roads and solid waste removal. Implementation plans should be aligned with the relevant government department's sector policy objectives set before the municipal financial year. (Nthite et al:p19).

Other conditions of a governance and institutional nature include compliance with proper planning and accountability guidelines set by different national departments responsible and accountable for integrating the construction of the elements that comprise residential bulk infrastructure services. Politically informed conditions include adherence to specific labour intensive methods and policies of transformation in the awarding of contracts. Monitoring the quality of infrastructure provided is an integral part of the conditional framework.

The institutional policy instruments and arrangements for the implementation of the MIG programme reside with both the local and provincial government spheres. The MIG manual (published by the DPLG) affirms the primary role of municipalities in the planning, budgeting, financial management and operational arrangements for the grant. The municipal manager is responsible for the effective management of the programme.

At the provincial level relevant departments are expected to integrate their sectoral (e.g. water, roads and housing) plans with the MIG programme and provide planning support

to municipalities. The manual provides a detailed responsibility matrix defining the roles and responsibilities of all spheres of government in the delivery of such services funded by the MIG grant. The key challenge in this regard is effective coordination as some of the functions have to be provided concurrently by the provinces and municipalities. While municipalities may have the capacity to raise own revenues for funding high infrastructure costs provinces do not have a matching capacity. The ensuing tensions from such discrepancies have been the basis of growing current problems between national, provincial and local governments in South Africa.

An additional consideration arises specifically in the local government context, and that concerns the relationship of local governments to national and provincial governments. In most countries, the relationship among governments is strictly hierarchical. National governments deal with the provinces, while provinces alone deal with their municipalities. The situation in South Africa is more complex, where there are three spheres of government required under the Constitution to govern co-operatively. Despite this principle in practice, the local government sphere operates within the policy and funding parameters set primarily by national government.

Grants should be designed to achieve fiscal equity among municipalities, and should be transparent and predictable. The question here is does National Government have sole discretion over how the MIG is allocated and disbursed because it is a conditional grant drawn from the National equitable share? A related question is whether such allocations and disbursements should comply with the requirements listed in Section 214(2) of the Constitution? In other words should conditional grants drawn from the National Equitable share be also subjected to the principle of equitable vertical and horizontal sharing amongst the three spheres of government?

Over 90 per cent of local government revenue is own-source revenue. However, this statistic is misleading for three reasons. First, over one-half of local government revenue is received in the form of user fees, paid by citizens for electricity, water, sanitation and

other services. The services which do not yield income, may be substantially more dependent on transfer revenue.

Secondly, it is generally recognized that the local government sphere still provides many important services only to a minority of the population. As municipalities increasingly fulfill responsibilities to all South Africans, the situation of under-funding from own-source revenue and the reliance on the equitable share of national revenue may increase. Thirdly, as noted above, there are considerable differences among municipalities. While some have an adequate tax base, there are many others that have insufficient tax bases to yield required revenues.

The objective of South Africa's intergovernmental fiscal arrangements is to ensure that these inter-governmental responsibilities are carried out in the spirit of co-operation, fairness, and efficiency. In the end, it is the welfare of individual citizens, wherever they reside, that should be the ultimate objective guiding the decisions around fiscal arrangements

A national capital grant scheme approach will offer the relevant local governments autonomy in exercising some flexibility in prioritizing, planning and using a project based approach to choose amongst infrastructure projects.

Given the current hybrid approach to allocating the MIG it is no wonder that municipalities find it difficult to access the funds. It is possible that as a result of this and the problems mentioned above a large part of the MIG pool of funds varies between being over-spent, unallocated, under-spent or misspent on unplanned infrastructure projects.

The preceding discussion presented some perspectives on the MIG and examined some of the structural difficulties associated with the formula and its implementation. Before considering an alternative approach to allocating infrastructure grants in the next section

the paper will assess the extent to which the current approach is consistent with all constitutional and legal mandates.

3. The Constitutional and Intergovernmental Context of the MIG.

The Bill of Rights in the Constitution prescribes that certain public services be provided to all citizens as part of their economic rights. Depending on their service delivery responsibility spheres of government may be held accountable for ensuring that these rights are fulfilled. The provision of many of these services fall within the roles and functions of municipalities.

Steytler and De Visser (2007), argue that the socio-economic rights in the Constitution only translate into a requirement for local municipalities to provide services to all individuals where these rights intersect with the functional responsibilities of local governments to provide basic municipal services (pp 9-7). Amongst the rights that may be associated with the provision of municipal services the authors include access to housing, health care services, sufficient food and water, social security and social assistance. While these rights fall within the ambit of municipal competence there are other rights such as the access to sufficient water and housing that are the concurrent functional responsibility of all three spheres of government. In the former the obligation is on the municipality and in the latter the municipality plays a crucial complementary and supplementary role.

The Constitution does not speak directly to the issue of vertical and horizontal equity amongst and between sub-national governments, though it implies equal rights and obligations for individuals to basic services listed in Schedules 4B and 5B of the Constitution, (see Stytler and De Visser, 2007). For the respective spheres of government to provide basic services, the Constitution makes provision for the allocation of equal shares from the nationally collected revenues. This is prescribed in Section 227 of the Constitution (The Constitution of the Republic of South Africa, 1996) where section 227(1) stipulates that:

“Local government and each province –

- (a) is entitled to an equitable share of revenue raised nationally to enable it to provide basic services and perform the functions allocated to it; and
 - (b) may receive other allocations from national government revenue, either conditionally or unconditionally.
- (2) Additional revenue raised by provinces or municipalities may not be deducted from their share of revenue raised nationally, or from other allocations made to them out of national government revenue.”

From the foregoing, it is apparent that the Constitution approaches the requirement for equity in a particular manner and requires the mechanism of “equitable allocations” to play a particularly important role in financing the equity that is to be achieved through provincial and municipal programmes. This point was recently emphasized in a South African newspaper article by the Hon. Trevor Manuel, Minister of Finance;

“Ensuring that national revenue is used equitably is the most important thing any government can do to promote the trust, confidence and inclusion central to the stability required for long-term economic growth” (Sunday Times, 25 May 2008)

The municipal infrastructure grant allocations fall within the long-term vision of the inter-governmental system in South Africa. Municipal infrastructure grants are the catalyst for the building of public infrastructure necessary for local governments to provide key public services to which communities, households and individuals are entitled.

The long term vision of the inter-governmental system is one where national government, in consultation and co-operation with sub-national spheres, sets standards for basic public services. Ideally, these standards should be transparent and should be provided for in national legislation. Sub-national spheres such as local municipalities, utilizing the resources available to them, have the responsibility to design and deliver programmes within their jurisdictions that satisfy these national standards.

From an examination of the constitutional provisions with respect to equity and equitable allocations the following conclusions may be drawn:

- Access to basic services is a fundamental right to which everyone is entitled. Basic services include access to adequate housing and health care services sufficient food and water, social security, and basic and further education, as elaborated in the Bill of rights (Chapter 2) of the Constitution.
- Certain rights may be provided within reason and must be subject to progressive realization, as governments must operate within available resources.

Equitable allocations, at a minimum, include an entitlement to enable the provision of basic services by provinces and local governments. Equitable allocations are provided out of national revenue. This suggests that equitable allocations must be adequate and distributed appropriately so as to ensure that all citizens have access to those basic services for which provinces and municipalities are responsible, subject to the constraint of available resources.

Although the equitable division of national revenue among the three spheres of government lies at the heart of intergovernmental fiscal relations in South Africa and is mandated in section 214 (1) of the Constitution, this mandate is circumscribed by certain requirements. In section 214 (2), clauses *a*) to *j*) the Constitution requires that several considerations need to be taken into account before the equitable division can take place.

Many of these considerations are of relevance for intergovernmental relationships and the roles and responsibilities of municipalities in the delivery of services within their jurisdictions. Municipalities may, for instance, be required to participate in the attainment of policy objectives that serve the national interest (clause *a*). A typical example, that is also relevant for financing public infrastructure, is South Africa's hosting of the 2010 Soccer World Cup. Clause *b*) (provisions for servicing the national debt and other national obligations) and *c*) (needs and interests of national government determined by objective criteria) are of particular interest to all municipalities that may require national government's support for debt financing of infrastructure projects through

borrowing in the domestic and international financial markets. National government may have to weigh such support against its room for balancing its various commitments and obligations with the macroeconomic constraints under which it has to manage public finances and the economy in general.

The clauses that impact directly on financial and budgetary issues are *d), e), f), g), h)* and *i)*. Respectively, they are specifically pertinent for a municipality's ability to: provide services and perform its functions; develop its fiscal capacity and be economically efficient; be developmental in its policy objectives; take account of disparities within its jurisdictions; recognize its obligations in terms of national legislation; and, receive stable and predictable allocations of revenue shares.

The list spans a wide spectrum of national requirements that range from the macroeconomic to the microeconomic. All the requirements listed above are very important considerations for national government in determining the equitable division of national revenue allocations through a formula driven process. Apart from being beyond the scope of local government's competency, they are extremely onerous for municipalities to consider when preparing applications for infrastructure project finance. Municipalities are better placed to focus on infrastructure project priorities and plans informed by the needs of their communities. On the other hand, national government for example, may use fiscal capacity and economic efficiency assessments as key indicators for compensating municipalities for any shortfalls in infrastructure project finance.

A formula based on a model for the equitable sharing the MIG pool of funds has a better chance of equalization to compensate for a municipality's inadequate fiscal capacity and economic inefficiency. Local government is not in a position to incorporate market price distortions and equity considerations into infrastructure project plans and budgets. Market price distortions may negatively impact on the pool of funds that may be available for infrastructure funding. A nationally managed model for the equitable sharing of the MIG pool of funds is more suited to take account of market price distortions when compensating for inadequate fiscal capacity, economic efficiency and the social benefits

and costs of projects. Such an approach will have the added advantage of introducing a relative degree of objectivity and transparency to the allocation process and provide a sound economic argument for the progressive and reasonable provision of basic services within available resources. This point is underscored by Hansen, 1978, author of the United Nations Industrial Development Organization (UNIDO) Guide to Practical Project Appraisal, New York, 1978, (p. 1):

“Often market price distortions cannot be removed through basic economic policy changes because of powerful political forces with vested interest in the status quo. Under such circumstance, one way of improving economic efficiency and social equity is to make investment decisions on the basis of ‘shadow’ prices that reflect the true value to the country of its resources. These ‘shadow prices may be ‘national parameters’ (e.g. the shadow price for foreign exchange) or they may be specific to a given sector, region and/or project (e.g. the shadow wage rate for labour).”

A nationally managed model for the equitable sharing of the MIG is better equipped to take account of the “*developmental and other needs of...local government and municipalities*” (clause *f*) within the context of national development objectives. In the current approach project evaluation and monitoring of the MIG is solely concerned with the efficiency of the use of resources and maximizing gross national product (GNP) to the exclusion of the gross inequalities of income distribution that prevail within and between municipalities and, the exclusion of the possibility of investment decisions that enhance equity of socio-economic development.

A nationally managed equitable sharing model for allocating MIG has the capacity for taking account of “economic disparities within and among” (Clause *g*) the municipalities. The way in which this may be done is the focus of the next section of this paper. Suffice to highlight at this stage is that expecting each municipality to be concerned about the balance between maximizing equity and efficiency in the local government sphere in general is unrealistic. Municipalities are generally concerned about microeconomic impacts of public infrastructure and maximizing equity and efficiency within their own

jurisdictions rather than about national macroeconomic growth and development strategies. In fact according to Hansen, so-called,

“efficient’ development strategies often leave the present inequities of income distribution unchanged, and may even make them worse. Efficiency and equity usually cannot be maximized simultaneously. There is a trade-off between them, and deciding where the balance lies is perhaps one of the hardest tasks facing development planners.”
(pp. 1-2)

It would be much better for municipal decision makers to focus on choosing among infrastructure projects in keeping with their microeconomic plans and priorities and for national government to focus on making allocation decisions according to national macroeconomic growth, development and redistributive considerations listed in Section 214 (2) of the Constitution. In its attempt to find the right balance between equity and efficiency the current MIG approach seeks to influence and manage infrastructure project investment decision making at both macroeconomic and microeconomic levels. This is a difficult objective for national government to achieve. The UN Guide (pp. 1-2) argues that

“decision makers ‘at the top’ generally find it difficult to offer any firm and quantitative rules about the relative importance of these two conflicting criteria (i.e. equity and efficiency) to guide project analysts in their choice among alternative projects and project designs...” .

However, given that municipalities in South Africa have obligations in terms of national legislation (Clause *h*) project analysts and decision makers at the local government level may as the UN Guide suggests, prepare alternative projects varying in the degree to which they maximize either efficiency or equity,

“Then, by observing which projects are chosen by decision makers at the top the analysts can determine the implicit weights that are placed on these alternative objectives. This approach is of course, not limited solely to efficiency versus equity, but may also be used

to determine the weights decision makers place on other non-efficiency goals such as meeting ‘basic needs’ of the poor...” (pp. 1-2).

If national government allocates MIG funds among municipalities on the basis of an equitable sharing model that is based on medium to long term policy objectives and targets and incorporates weights for equity and efficiency together with weights for sub-regional inequality and disparity factors, decision making at the local government level will be enhanced. The approach will also achieve two other purposes. Firstly it will ensure stability and predictability in the allocations of revenue shares for infrastructure provision as per the requirement in Clause *i*) in Section 214 (2) and secondly, it will explain the reasons for the determination of the MIG pool of funds.

4. Taking account of disparity and inequality cost factors in the MIG formula

The current methodology for MIG (as presented in the DPLG 2007 Report on the Revision of the MIG Allocation Formula) was supposed to have introduced a formula based approach as opposed to the Consolidated Municipal Infrastructure Programme (CMIP) practice of allocations for approved infrastructure project applications. Although this is a significant change there is no explanation as to how and why the socio-demographic indicators used in the formula were chosen. The indicators seem to represent backlogs in water, sanitation and housing and a poverty line of households below a certain level of income. Each indicator is weighted with a percentage of the total MIG fund that is used to adjust a specific infrastructure service component allocation. The indicators are based on the 2001 Census. (see DPLG 2007 Report on the MIG) The indicator weights are introduced to show that the formula takes account of socio-demographic disparities within municipalities. However, they do not show how they are estimated and how they take account of the cost implications of backlogs, socio-economic inequalities and disparity factors that differentiate municipalities from each other.

An important component in the design of grant systems is accounting for cost differences in the resources required to achieve comparable service levels. These differences arise

due to variations in demography, geography and socio-economic disparities among sub-regions. Historical inequality in levels of development, including critical capital backlogs, is another major determinant of regional disparities. These are typically much more difficult to measure and very few countries attempt to do so in a detailed way. Andrew Reschovsky (2007) makes the point that estimating the differences in sub-regional input costs that should be incorporated in a grant model can be controversial and highly political because parochial considerations play a crucial role in determining what sub-regional features, characteristics and indicators are taken into account. In the absence of clear explanations as to how the parameters in the MIG were estimated and costed there will always be a risk they were chosen on the basis of political and/or parochial considerations.

International best practice shows how other countries have captured the input costs in formulae of for delivering services to regions with varying degrees of disparities. In Switzerland and Japan for example, residential location in remote and inaccessible geographical areas is used as a factor to calculate grant subsidies to these sub-regions. Reschovsky argues that that the key problem in estimating the costs of inputs in the provision of public services is “identifying which factors are likely to play a role in influencing the costs of services and then determining the quantitative importance of those factors.” (Reschovsky, 2007, p404). The author then proceeds to present the possible approaches to determine the costs of local public services in particular.

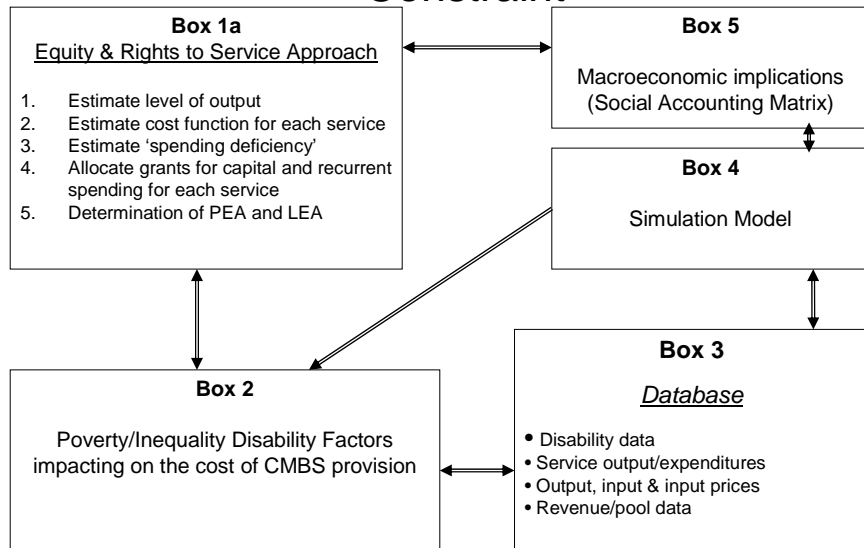
One approach is the estimation of a cost function. In non-mathematical terms this is the estimation of the minimum costs of inputs (labour, capital, materials, etc.) required to produce the required level of outcomes. The calculations of cost functions provide useful information about the value of the different factors to the provision of services. The fact that estimating cost functions is a statistically complicated exercise driven by complex data requirements is the main difficulty with this approach. An alternative to this approach is estimating the expenditure needs of sub-national governments through a laborious iterative process of estimating the cost of providing a given level of service. This type of approach was used in the USA and Canada. In 2000 a version of this

approach was developed by Reschovsky for the Financial and Fiscal Commission (FFC). It became known as the “costed norms approach” (See Financial and Fiscal Commission, 2000). Intensive data requirements and the absence of established norms and standards proved an obstacle to the use of this approach. Another problem was the possibility that the total cost associated with a given norm may exceed the available resources and destabilize macro-economic stability. A further difficulty is that the approach does not allow for the identification and use, in calculating the cost of provision, of factors that adequately characterize socio-economic disparity differences amongst sub-regions.

Australia is an example where the equalization grants formula attempts to incorporate needs and disparity factors (called disabilities) in a sophisticated way to determine the horizontal allocation of grants among states. A theoretical model demonstrating how to capture differences in capital costs across sub-regions within fiscal equalization formulae was developed by Petchey, Shapiro, MacDonald and Koshy (2000). In 2005 the FFC developed and proposed a similar model for the allocation of capital grants to provinces in South Africa. Using data from South Africa Josie, MacDonald and Petchey (2006) developed a theoretical and simulation model capital grant allocations for developing economies. Recently (October 2007) Petchey, MacDonald, Josie, Mabugu and Kallis constructed, for the FFC, a similar model that attempts to capture inequality and poverty disparities within provinces and municipalities in South Africa. Both models adopted the cost function approach using some South African data.

The diagram below (from Petchey, MacDonald, Josie, Mabugu and Kallis, 2007) illustrates the mechanism for the equitable allocation of nationally collected revenue using a cost function approach.

Methods for Balancing Equity & Fiscal Constraint



Where:

PEA is the Provincial Equitable Allocation of discretionary and conditional grants
 LEA is the Local Equitable Allocation of discretionary and conditional grants and
 CMBS are the constitutionally mandated basic services.

Despite the challenges and difficulties of doing so there is widespread agreement amongst public finance practitioners that, in principle, differences (as depicted in Box 2 and Box 3) in fiscal requirements ought to be included in equalization grants. This is especially true in systems where sub-regions have little revenue-raising capacity of their own. Any attempts to incorporate such costs in grant formulae would contribute to the economic stability, fiscal equity and efficiency of the intergovernmental system.

If norms and cost difference are to be included in the grant formula, it is important that it be done in such a way that spending does not directly influence the amounts transferred. Otherwise, sub-national spheres will distort their spending priorities (this is the perverse incentive problem mentioned above) in order to influence the amount of grants they are

to receive. Grants could be designed so that norms are able to reflect the objective features of the region that affect the amount of money needed to provide standard levels of public services.

In the South Africa context, the problem is made more challenging by the requirements that the norms and costs of providing basic services inform not only the horizontal division of funds across provinces and local governments, but also the vertical division of the equitable share among all three spheres. Although it is the prerogative of national government to determine the vertical division of national revenue, it must nonetheless be done in a way that satisfies the requirements set out in the Constitution. These involve ensuring that the sub-national governments can provide basic services up to the national norms and standards.

In addition to affording all citizens uniform access to public services there is also an economic argument for transfers and grants to sub-national governments in an intergovernmental fiscal relations system. Uniform access to services in general and public infrastructure services in particular, is important for maximizing the gains from trade and promoting the efficiency of intra-regional common factor markets for goods and services. (See *Petchey, MacDonald, Josie, Mabugu and Kallis, 2007*). There are, however, some qualifications to this principle, especially with respect to public infrastructure provision. To achieve maximum economic benefits the level of and, the changes in, the norms and standards of infrastructure provision have to be maintained at a constant and consistent rate to ensure sustainable economic growth. This is particularly important where socio-economic inequalities and disparities grow proportionately and differentiate communities across sub-regions in South Africa. These disparities and inequalities are reflected in indicators of high unemployment, poverty and deprivation. In the absence of uniform minimum norms and standards these disparities are further exacerbated and lead to unequal net fiscal benefit across regional boundaries (Boadway, 2004). Very often this translates into the rapid mobility and migration of labour, skills, goods, capital, services and other production factors across regional boundaries.

5. An alternative approach to allocating Municipal Infrastructure Grants

It is clear from the principles discussed above that intergovernmental transfer systems are faced with the dilemma of having to balance the need for economic stability with efficiency in the equitable provision of public services. In South Africa's case this is a constitutional obligation to be attained progressively and within reasonable fiscal parameters. Public finance literature and experiences of international practice indicate that resolving this problem is fraught with many challenges and difficulties. Notwithstanding these challenges there is agreement in the literature (see Boadway and Shah, 2007) that estimating the costs of providing public services within grant formulae will be an important step in balancing the competing objectives of economic stability, equity and efficiency.

Grant systems whose amounts are determined by a well-specified formula have a number of advantages over those that are determined on a year-by-year discretionary basis by national government. Formula-driven grants are more transparent, reliable and predictable, and are less subject to short-term fiscal constraints and day-to-day political considerations. Formula driven grants can be designed to be in place for intervals of several years. They can also be designed so that risks of unexpected changes in revenue are borne by national government, which may be especially important where municipal governments have little revenue-raising ability, and where they cannot use debt as a method of insuring themselves against revenue fluctuations.

The process by which grant formulae and amounts are determined should be transparent and undertaken from a longer-term perspective. Nevertheless, isolating national transfers from the budget process entirely is not feasible since money must be appropriated by the national legislature. Some countries, such as Australia, India and South Africa have established independent fiscal commissions as a means of ensuring that longer-run considerations are taken into account in designing grants.

Political accountability is important for ensuring that public services are delivered in efficient ways and that they meet the needs of citizens. Therefore, explicit and unambiguous delineation of accountability relationships between the different spheres of government is critical. In the case of the MIG the delineation of accountability relationships between national government and local government must be explicit and clear. Nurturing responsible and autonomous decision-making at the municipal government level with respect to balancing equity and efficiency may involve some transition, but it will pay dividends in the long run.

The conceptual framework for a capital grant scheme for allocating the MIG.

The Josie, MacDonald and Petchey (2006) paper [*Soon to be published in the Journal Of Development Studies, 2008*] introduces costs associated with capital stock, capital backlogs and socio-demographic and economic disparities that characterize inequalities between and within sub-regions such as municipalities and that need to be taken into account in attempting to equitably allocate capital grants for public infrastructure .

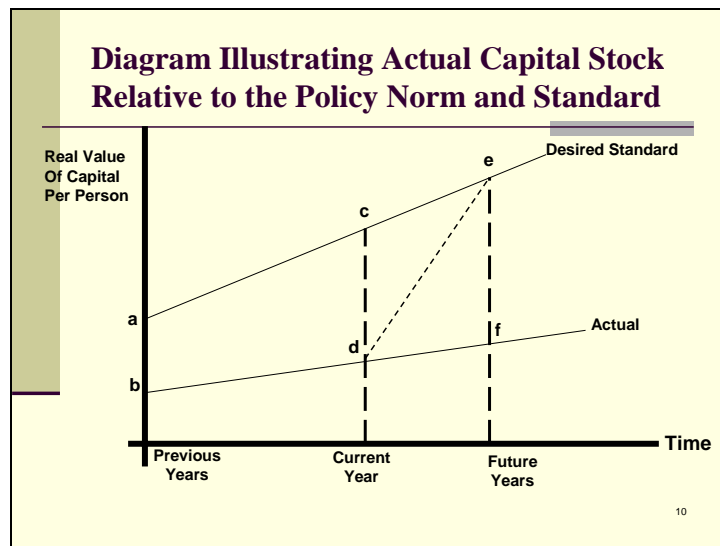
The notion of cost disparity factors in a MIG-type capital grant model is an innovation that may be used to highlight the varying degrees of poverty and inequality across municipalities. The current MIG formula allocates funds across regions and sub-regions according to census population numbers and a politically determined indicator for poverty. No account is taken of aggregated socio-economic inequality and geo-physical disparities that may impact on the cost of delivery of services. Furthermore, no account is taken of the impact of the growing cost of inherited capital backlogs on the level of actual capital stock, on-going capital requirements and new capital investment.

The methodological framework for developing a MIG allocation model

The Josie, MacDonald and Petchey (2006) theoretical and simulation model may be adapted and reconfigured to create a MIG-type model for allocations of infrastructure

grants across municipalities. The adaptation and development of a version for the allocations of municipal infrastructure grants will follow the same processes as those used for provincial capital grants. These processes are briefly discussed below.

Municipalities, divided into 3 categories: A (metros), B (local municipalities), C (district municipalities); provide different levels and types of basic intermediate and complementary services such as water, sanitation and other infrastructure within their jurisdictions. Based on aggregated household socio-economic, geographical and demographic characteristics for each municipal jurisdiction an appropriate policy standard for the desired level of capital stock required for providing public services may be established. This is illustrated in the diagram below.



As illustrated in the diagram the actual per person capital stock of a representative poor municipality for a particular service is plotted against the standard capital stock for the service across all municipalities and in which the standard capital stock is growing over time.

For example, at a given period in time, a minimum policy standard for the provision of water reticulation in a poor municipality characterised by vast historical disparities and socio-economic inequalities may be a tap within 200 meters of a household. If, in a preceding period the municipality may have actually had a tap within one kilometre of a household this would amount to a capital backlog measured against the minimum policy standard. The desired service standard or policy target over a planned period of time may be to progressively provide a tap inside every household in the municipality.

In the diagramme above, for a relatively poor municipality, the actual capital stock is depicted below the standard. In a preceding period the municipality has a capital backlog defined as the difference between the standard and actual capital stock at a point in time and, equal to the distance in *ab* in the diagram. In the current year, this has grown to equal the distance *cd*. The reason for this growth is because we assume that the rate of net MIG allocation and spending is insufficient to reduce the backlog of the preceding period. In addition because of continued low levels of net MIG allocations and spending, by a given future period, the backlog has increased further to equal the distance *ef*. Therefore, municipalities that lie above the standard norm (i.e.; they have more than the nationally determined standard norm for the particular service), will have a capital stock surplus or negative backlog (no backlog).

Given the above scenario the key question is, given a limited amount of infrastructure grant funds, how to raise the level of net MIG allocation and spending for the poor municipality so that its actual capital stock for the service equals the standard norm at some future period. As the MIG pool of funds is limited achieving this goal can only take place over a period of time through the progressive elimination of infrastructure backlogs and the consequent creation of new capital stock. A MIG formula based on such an infrastructure financing grant model could provide an objective mechanism to equitably allocate additional resources from a limited grant pool to municipalities for a chosen period of time to enable them to transform their capital stocks from the actual starting point toward the desired standard. The particular path taken is the “transition path”. The

line *de* is one possible path that sees the backlog eliminated in equal increments over the period.

To develop a MIG formula from the above theoretical construct will require the specification of the following components and parameters:

- The estimated value of the actual capital stock for the particular service (at constant prices) for all municipalities in South Africa for a specified period in time.
- The estimated value of the actual capital stock (at constant prices) for the particular service for an identified municipality in the specified period of time.
- The population of the identified municipality in the specified period of time.
- The population of South Africa in the specified period of time.
- The macro-economically determined MIG pool of funds available for the specified period.
- A parameter that captures the aggregate capital cost disparity (or capital backlog) for the identified municipality for the specified period.
- A function for demographic and socio-economic inequalities that takes account of the costs of historical and other disparity factors that will impact on the amount of funds required for the identified municipality in the specified period.

The rationale for including disparity factors that capture inequalities and historical disadvantages is important given the historical socio-economic impact on black local communities of apartheid policies such as the Group Areas Act, racially designated employment preferential zoning and under-provision of amenities and public infrastructure services. Below is a brief description of how these factors may be captured in a MIG formula.

Targeting disparity in a given municipality for a particular service in specified period of time requires weighting the allocation components with the cost disparity factor. This takes into account all the socio-economic inequalities and other disparities of the identified municipality. Municipalities with higher cost disparities will require higher

levels of infrastructure finance. Cost disparities attempt to capture factors that cause variations in the cost of providing a service among municipalities. This implies that a Rand spent on infrastructure will have different impacts depending on where it is spent. For example, it is more expensive to provide a service to a geographically dispersed population or a population with high levels of unemployment. Disparity factors that capture inequalities and historical disadvantages could include population dispersion; high incidences of debilitating diseases such as TB, malnutrition and HIV/AIDS; high unemployment and income inequalities; high levels of illiteracy and innumeracy and, high levels of crime, drug abuse and violence.

Using an allocation formula such as that described above national government may be able to allocate grants from the MIG pool for each municipality and allow the designated local government authority to determine the disbursement of the funds based on municipal needs, priorities, and plans and in keeping with Constitutional requirements and national guidelines for policy targets, norms and standard. The matrix below illustrates how this may be achieved. In making decisions on the choice of infrastructure projects to finance infrastructure projects the designated local government authority should use cost benefit analysis (CBA) methods that incorporate national policy targets, norms and standards.

Format for Municipal Infrastructure Grant (MIG) Allocations Targeting Disparities

Service x over Period						
Municipal ity Services	Population	Infrastructu re Backlogs	Poverty Disparity	Inequality Disparity	Poll of Funds Available	Allocation over MTEF
1						
2						
3						
4						
5						
6						
7						
Total						

12

Conclusion

The above rationale for applying a capital grant model at the level of national government can be used in conjunction with cost benefit analysis methods for horizontally allocating MIG funds within the local government level.

This paper has shown that it is possible for a national government to use a capital expenditure grant model that takes account of all constitutional requirements; macroeconomic considerations and, takes account of the real cost of financing infrastructure projects.

An appropriately designated local government authority is better placed to disburse the grant received between competing demands for infrastructure project finance. It is more difficult for national government to manage a financing method that tries to achieve both macroeconomic and microeconomic objectives. This separation of roles will allow national government the possibility of a more objective oversight with respect to monitoring municipal compliance with constitutional requirements and other legal policy instruments and, the attainment of fundamental national policy objectives and targets. It

will also allow for local government autonomy in the monitoring and micro-management of municipal infrastructure development plans and objectives.

For national government, using such a capital grant model at the macro level, makes for an easy assessment as to whether constitutionally mandated basic infrastructure services have been reasonably, progressively and affordably provided. From an economic perspective it makes for effective estimation of the marginal product of capital at the municipal level. These estimates may be useful cross-checks to verify the results from the application of cost benefit analysis methods at municipal level.

In summary, there is substantial scope for the current municipal infrastructure grant funding arrangements to use a formula that includes; allocations of national revenue to meet basic services; a provision for funding infrastructure backlogs key to economic growth and development; and elements in a grant scheme that take account of the historical and spatial disparities that determine costs of providing services in areas that have been the victims of past apartheid discriminatory policies.

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