

# **An assessment of alternative financing mechanisms for municipal infrastructure projects in South Africa**

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## **Abstract:**

This research sought to identify the alternative financing mechanisms for municipal infrastructure in district and local municipalities in South Africa. The main objective of the study was to assess challenges and constraints faced by district and local municipalities in procuring alternative finance for infrastructure development. The study made use of a descriptive cross-sectional survey. A purposive sampling technique was used and a total of 19 participants formed part of the sample. Data was collected through self-administered questionnaires from a representative subset, made up of municipal officers in district and local municipalities in Gauteng, South Africa. The findings of the study reveal that municipal infrastructure is largely funded through grants and partly through own revenues. Another major finding was that district and local municipalities face challenges in procuring municipal infrastructure through alternative mechanisms. Public-Private Partnerships are complex and take long to unlock. As a result, there is limited consideration for alternative financing mechanisms. There is a need to cultivate a culture of exploring alternative financing mechanisms beyond PPPs.

## **Keywords:**

Financing mechanisms, infrastructure development, municipal infrastructure

## **1 Introduction**

Municipalities are expected to address service delivery challenges through infrastructure development. They often experience funding challenges which could not be addressed through their balance sheets. Revenue collection is one of the challenges that impact their balance sheets. Their limited financing capacity affects their ability to implement large scale infrastructure projects. The situation has been worsened by the recent erosion of fiscal space at national level, bringing to question the sustainability of the traditional grant-based model in implementing infrastructure projects. Failure to implement infrastructure projects in these municipalities will lead to several socio-economic challenges, among them failure to provide basic services such as water, electricity, solid waste collection and sanitation, further weakening the standards of living of residents of these municipalities. At macro level the problems will manifest in the continued outward migration of district and local municipalities into megacities, ultimately creating capacity bottlenecks for the metropolitan municipalities. As such, alternative financing mechanisms for infrastructure must be proposed to catalyse economic growth in district and local municipalities. This would enable acceleration of infrastructure projects and enable, inclusive economic growth and development across the country.

## **2 Literature Review**

The traditional financing mechanisms (on-resources, grants, and balance sheet borrowings) are not adequate for infrastructure development. The shortfalls in traditional financing mechanisms requires alternative sources of financing to support infrastructure development. The Bank for International Settlements (“BIS”) asserted that Infrastructure financing should mostly come from the private sector (Hebb & Sharma, 2014). Infrastructure services affect competitiveness and require significant amounts of public funds (Valido, 2020).

### **2.1 Alternative financing mechanisms**

Alternative financing mechanisms deal with the inclusion of new products and the expansion of existing products into new markets which result into new type of investors (Ketkar & Ratha, 2009). Different funding organisations define it in different ways, depending on their perspective of alternative financing mechanisms. The World Bank Group defines it as “a form of financing involving non-traditional applications of solidarity, public private partnerships, and catalytic mechanisms that support fundraising by tapping new sources and engaging investors beyond the financial dimension of transactions, as partners and stakeholders in development; or deliver financial solutions to development problems on the ground.” (World Bank, 2009). For the purposes of this research, the World Bank definition will be adopted, as it is broad enough to cover key elements of alternative financing mechanisms. Alternative financing mechanisms include public-private partnerships (“PPPs”), land-based mechanisms (“land value capture”), pooled financing mechanisms, blending mechanisms and credit enhancements.

### **2.2 Land based financing tools or land value capture**

Land-based financing is the policy and regulatory mechanisms that cater for the participation of public sector in the appreciation of real estate values which may result in public and private improvements (Santos et al., 2017). The improvements could result in land parcels being accessible in the case of transit investments or may prepare land for private sector development (Santos, et al., 2017). For water infrastructure projects, the mechanism includes a regulated water utility with a cost-recovery mandate (Zhong et al., 2019).

### **2.3 Infrastructure bonds and municipal bonds**

Municipal bonds are issued by local municipalities as a financially viable alternative to fund infrastructure projects (Tiron-Tudor et al., 2021). Municipal bonds are the most preferred due to their favourable tax treatment of the investors and the high credit quality of the market (Tiron-Tudor et al., 2021).

### **2.4 Pooled financing mechanisms**

Country-based pooled funds (CBPFs) are financial support mechanisms from multiple donors and the allocation of resources to multiple implementing entities within a country (Lattimer & Swithern, 2017). It also supports collective financing at the country

level to finance common goods such as health (Sparkes et al., 2019). Financing and coordination are required to ensure a contribution of all entities to a pooled fund according to their affordability (Yamey et al., 2019). Pooled financing mechanism positively influenced by the size of fiscal capacity (Behera & Dash, 2018). Pooled public financing mechanisms are more viable compared to private voluntary mechanisms (Brundtland, 2022).

## 2.5 Blending of grants and concessionary financing

Blending finance is the combination of grant aid and other private or public sources of finance (Bilal & Krätke, 2013). A combination of blended finance and development finance can generate financing appropriate financing mix required for investment needs (Lipper et al., 2021). The roles and limitations of public and private funders need to be clarified to manage the risk of the limited pool of concessionary funding (Havemann et al., 2020). The risk of investing in a financially non-viable infrastructure projects with high social benefits can be mitigated by a government-subsidised infrastructure (PPI) project to attract private investors (Chen, 2020). Affordability of large infrastructure projects remains a risk for regional governments under centralised national government and the only mitigation is co-financing with the central government (Valido, 2020).

## 3 Research Methodology

The study used a quantitative research method. The study targeted district and local municipalities, whose total population is 249 nationally and 8 in the Gauteng Province. As such, only a sample of municipalities in the Gauteng Province was used. This study made use of convenience sampling technique. Participants in the study included municipal managers, chief financial officers, and municipal officers in charge of planning and implementation. This study had a sample of 19 participants. Data was collected through a survey questionnaire. The questionnaire covered the main thematic areas of the study as follows: Part A: Demographic information for the Municipal Officer; Part B: Municipality Demographic, Economic and Financial Information; Part C: Infrastructure projects and their financing; Traditional financing mechanisms; Alternative financing mechanisms.

## 4 Research Findings

The sample was comprised of 19 participants, namely Accounting Officers, Finance Executives, Project Executives and Planning Executives.

**Table 1:** Composition of respondents

| Role Classification  | Number of respondents | Percentage of total |
|----------------------|-----------------------|---------------------|
| Accounting Officers  | 1                     | 5.3%                |
| Finance Executives   | 3                     | 15.8%               |
| Planning Executives  | 5                     | 26.3%               |
| Technical Executives | 3                     | 15.8%               |
| Project Executives   | 7                     | 36.8%               |
| Total                | 19                    | 100%                |

Table 2 above provides detailed information on the demographic profile of the respondents. About 68% of the responses were from local municipalities, while 32% were from district municipalities. Most of the respondents are highly qualified, experienced, and knowledgeable of financing mechanisms for municipal infrastructure projects.

**Table 2: Demographic information**

| <b>Response by Municipality</b> |     |  | <b>Experience with infrastructure projects</b> |     |
|---------------------------------|-----|--|------------------------------------------------|-----|
| Local                           | 68% |  | less than 5 municipal infrastructure projects  | 52% |
| District                        | 32% |  | 6-10 projects                                  | 26% |
|                                 |     |  | More than 10 projects                          | 22% |
| <b>Qualifications</b>           |     |  |                                                |     |
| post-graduate degrees           | 68% |  | <b>Knowledge of financing mechanisms</b>       |     |
| undergraduate degrees           | 16% |  | Knowledge                                      | 74% |
| diplomas                        | 16% |  | no knowledge                                   | 26% |
|                                 |     |  |                                                |     |
| <b>Work Experience</b>          |     |  |                                                |     |
| Less than 5 years               | 52% |  |                                                |     |
| 5-10 years                      | 32% |  |                                                |     |
| more than 10 years              | 16% |  |                                                |     |

#### **4.1 To assess the current sources of municipal financing**

In terms of the first objective above, the researcher asked five questions relating to municipal financing.

##### *4.1.1 How does the municipality finance infrastructure projects?*

Respondents were given 4 options to choose from, namely own resources (which includes tariffs, levies, charges), intergovernmental grants, borrowings and other. About 44% of the respondents indicated that grant funding was prevalent in the district and local municipalities, whereas a 29% of the responses indicated that infrastructure was funded through own resources. About 27% of the respondents indicated that infrastructure was funded through borrowings.

##### *4.1.2 Provide a percentage contribution to project finance by each of the revenue sources.*

For each of the four financing sources (own resources, grants, borrowings and other) respondents were given 3 options to choose from on how each source was contributing to infrastructure development. The options included, less than 20% of total infrastructure needs, 20-50% of infrastructure needs or more than 50% of infrastructure needs. Below are the findings.

- *Own resource contribution to infrastructure* - About 37% of the respondents indicated own resources contributed less than 20% to infrastructure finance, while 42% of the respondents indicated, own revenue contributed between 20%

and 50%. A lesser 5% of the respondents indicated own revenue contributed more than 50% to infrastructure development. About 16% of the participants did not respond to this question.

- *Borrowings contribution to infrastructure development* - Based on the responses, a significant 42% of the respondents believed that borrowings contributed less than 20% to infrastructure development, whereas 11% believed borrowings contributed between 20% and 50%. None of the respondents believed borrowings could contribute more than 50% to infrastructure development. Based on these findings, it is evidence that a considerable number of respondents believed that contributions from borrowings were insignificant.
- *Grants contribution to infrastructure development* - About 79% of respondents believed that grants contribution to infrastructure development is at least 20% and more also more than 50%. A smaller 21% of respondents believed contribution of grants to infrastructure was less than 20%. All participants responded to the question, implying that there was a consensus (regardless of the percentage contribution), that there will also be a portion of grant finance in infrastructure projects.
- *Other sources contribution to infrastructure* - About 16% of the respondents believed that other income sources contribute less than 20% to infrastructure development, while about 5% believed that other sources contributed between 20% and 50%. A significant 79% of the respondents did not respond to the question. This could be attributed to a lack of understanding on the meaning of “other income sources” or it could be the absence of other income sources over and above the first three sources (own resources, grants, and borrowings).

#### *4.1.3 How adequate are total revenues (combined) from the above traditional sources for infrastructure projects?*

This question sought to understand the adequacy of total revenue to infrastructure finance. Adequacy is measured as the total revenue sources as a percentage of the total infrastructure costs. Respondents were given three options to express their perception about total revenue contribution to infrastructure costs. About 74% of respondents attest to the inadequacy of traditional financing mechanisms for infrastructure development. Out of these a greater 53% of respondents believe that traditional sources contribute less than 20% to infrastructure development, whereas about 21% believed the contribution could be between 20% and 50%. A smaller 16% of the respondents believed traditional sources cover more than 50% of infrastructure needs.

#### *4.1.4 Are there any challenges with the above instruments?*

The question sought establish challenges from the above revenue sources and the results. Respondents had two options, for either a “Yes” or a “No”. This was followed by a conditional question. The results are stated below. About 74% attested to the presence of challenges with traditional financing mechanisms. About 16% indicated that there are no challenges and about 11% of the participants did not respond to the question. Given the inadequacy of traditional financing mechanisms noted in the preceding question, one may conclude that municipalities are indeed facing challenges with traditional financing mechanisms.

#### 4.1.5 If the above is “Yes”, please list.

Follow up to the challenges with traditional mechanisms was an open-ended question for the respondents to explain the nature of the challenges. The respondents noted several areas including challenges with own resources, borrowings, and grant funding. Respondents had the opportunity to list all the challenges experienced with traditional financing mechanisms. This was aimed at probing the respondents and was designed as an open-ended question, with open-ended responses.

- *Challenges with own resources* - The respondents noted several challenges for own revenue sources, chief among the challenges was that “own revenue is diminishing due to lack of payments from households”. The issue of collections is impacting many district and local municipalities. Declining economic activities and increasing levels of unemployment have impacted the capacity for the residents to pay for municipal services, hence impact on municipal cash flows. Some of the respondents, attributed the low collections to billing problems, where the municipalities do not have appropriate billing mechanisms, resulting in some services going unaccounted. The respondents also noted that a key contribution to the inadequacy of own revenues is “tariffs and levies are not cost reflective” hence there is bound to be a shortfall in the delivery of basic services. Provision of water and electricity is highly regulated, and tariffs are set through the respective regulators. As such municipalities are price takers in the process, implementing tariffs from Eskom (for electricity) or Rand Water (for water). The tariffs may not be cost reflective, considering new infrastructure and maintenance that must be implemented at municipal level.
- *Challenges with borrowings* - Several respondents noted that borrowings are limited in district and local municipalities. The major reason for this is weak credit profiles of these municipalities and this makes it difficult for the municipalities to attract external funding. Other respondents noted that borrowings are costly and ineffective. As a result of these challenges most of the respondents seem to suggest that borrowings are not a preferred form of infrastructure financing for district and local municipalities.
- *Challenges with grant funding* - The respondents noted that key challenges to the grants is that they are “dependent upon feasibility studies/ business plans/ accessibility of the grants is conditional e.g., being declared a water services authority. To appropriate the grants, the municipalities must complete business plans and master plans. However, the challenge is that many municipalities do not have the capacity and skills to package the business plans and master plans. As a result, a sizable portion of the grants go unutilised. In cases, where grants are appropriated the respondents noted that grants are not able to fully cover infrastructure costs, as grants are not CPI-indexed, and this also results in shortfalls. As noted from the responses, besides being inadequate, traditional financing mechanisms are also associated with some challenges.

## **4.2 To investigate challenges and constraints faced by district and local municipalities in procuring alternative finance for infrastructure development**

### *4.2.1. Are alternative financing mechanisms to meet the shortfalls?*

Noting the challenges with traditional financing mechanisms, respondents were requested to state whether there were any alternative financing mechanisms. This question was designed to test the knowledge of the respondents on any alternatives beyond the traditional financing mechanisms. Respondents were given two options, “Yes” or “No”.

About 42% of the respondents indicated that there are alternative financing mechanisms, while 42% of the respondents indicated that there are no alternative mechanisms. About 16% of the participants did not respond. With this background, the next question tested whether the respondents have tried to explore alternative financing mechanisms.

### *4.2.2 Have you ever considered any alternative mechanisms?*

The question was aimed at testing whether district and local municipalities have considered alternative financing mechanisms. Respondents had two options, being “Yes” or “No”. About 79% of respondents had considered alternative financing mechanisms, whereas 21% of the participants did not respond to the sub-question. Considering these findings, one may conclude that there is knowledge of alternative financing mechanisms and that most municipalities have considered alternative mechanisms. Given the challenges that municipalities are facing, municipalities with traditional financing mechanisms, the rate of non-respondents is worrisome. To get an in-depth understanding of the considered alternative financing mechanisms, an open-ended question was asked to ascertain the mechanisms that the municipalities have considered. The question is noted below.

### *4.2.3 If yes to the above question, please list the alternative financing mechanisms that you have considered.*

- *Public-Private Partnerships and Front Loading* - About 58% of the respondents indicated that several municipalities have considered Public-Private Partnership (“PPPs”) as an alternative financing mechanism. However, some of the respondents could not separate between PPPs and their variations and other respondents noted variances of PPPs such as Build, Own, Operate and Transfer (“BOOT”) as mechanisms. These responses were accounted as PPPs. In addition to these mechanisms, other respondents also noted instruments as mechanisms. The instruments noted include Front-Loading from the Development Bank of Southern Africa (“DBSA”).
- *No other mechanisms mentioned besides PPPs* - It should be noted that besides PPPs, there was no mention of other mechanisms. The respondents did not mention other mechanisms such as Land-Based Mechanisms, Pooling Finance Mechanisms, Credit Enhancements or Blending Mechanisms. There could be a lack of knowledge on the mechanisms or there could be hinderances against

such mechanisms. The next question then probed if there are any challenges with alternative financing mechanisms.

*4.2.4 If “No” what are the major hindrances (or challenges) to procuring alternative financing mechanisms.*

About 42% of the respondents indicated they have not considered, and the reasons stated are that they have not considered alternative financing mechanisms. As such, this question aimed at probing the existence of challenges in the procurement of alternative financing mechanisms. Respondents were requested to list the challenges as open-ended responses.

- *Municipal PPPs are complex and difficult to unlock* - One of the major challenges noted was that alternative financing mechanisms, especially PPPs are complex and difficult to unlock. Noting these complications, the respondents also indicated the lack of skills and capacity to develop alternative financing mechanism.

**4.3 To explore the readiness of district and local municipalities to embrace alternative infrastructure financing mechanisms**

Respondents were expected to express their view on a Likert Scale, where 1 was not at all and 4 was more than adequately covers. Below are the findings.

About 72% of the respondents believe that alternative financing mechanisms will either adequately cover (33% of responses) or more than adequately cover (39%) infrastructure needs of their municipalities. Based on this finding, one may argue that in the absence of the above noted challenges the majority of municipalities would be willing to embrace alternative financing mechanisms, as they are deemed to adequately cover the existing infrastructure gaps. The desire for alternative financing mechanisms is in line with global trends, where governments and municipalities are increasing embracing alternative financing mechanisms to accelerate infrastructure.

## **5 Conclusion and Further Research**

The alternative financing mechanism considered by few district and local municipalities are only limited to PPP. There are challenges associated with procuring municipal infrastructure through the PPP mechanisms. Municipalities noted that PPPs are complex and take long to unlock. There is limited use of PPPs (in this instance alternative mechanisms) in municipal infrastructure finance. The study revealed that alternative financing mechanisms would adequately cover the infrastructure gaps. This showed the general willingness of the municipalities to embrace alternative mechanisms.

The contribution of this study is that municipalities should explored alternative financing mechanisms other than the PPP. There must be a consented effort, involving National and Provincial Government to encourage municipalities to move away from the grant dependence syndrome. There is a need to cultivate a culture of exploring alternative financing mechanisms beyond PPPs. Such efforts would require National Treasury to educate and empower municipalities on other mechanisms such as Land Based Mechanisms, Pooled Financing Mechanisms, Credit Enhancements among

others. Capacitation must go beyond lip service and be in the letter and in the spirit of driving municipalities away from grant dependence. Beyond the financing mechanisms, there must be efforts to explore other revenue enhancement mechanisms. There is need to look at the economic life of municipalities beyond the life of primary industry. Most of the municipalities are suffering because of the dependence on one primary industry, such as mining, manufacturing, or agriculture. Economies are evolving, and studies should be pursued on how district and local municipalities can extend their economic value beyond the economic life of primary industry.

The limitation of the study is that most of the participants did not have practical experience of utilising alternative financing mechanisms even though they were knowledgeable about them. Further study should focus on the practical applications of alternative financing mechanism for the municipalities.

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