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ADDRESSING THE DEFICIT IN TRUNK INFRASTRUCTURE ACROSS PAPUA NEW GUINEA

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Key Points

- Trunk infrastructure refers to water supply, road network, sewerage facilities and electricity supply.
- Provision and maintenance of trunk infrastructure is a responsibility of the government.
- Currently, there is a deficit in trunk infrastructure in Papua New Guinea (PNG) because the provision of trunk infrastructure does not match the demands in the country.
- Factors contributing to the deficit in trunk infrastructure include lack of human resource capacity and fiscal capacity to provide and maintain trunk infrastructure.
- To address deficit in trunk infrastructure, it requires ensuring that there is sufficient human resource and skills capacity, and fiscal capacity to provide and maintain trunk infrastructure.

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By Logea Nao

At the 2019 National Land Summit, which focused on customary land, feedback from participants, including landowners, users and regulators of customary land, established that there is a deficit of trunk infrastructure across PNG and that the cost of developing trunk infrastructure in the country is high (Niugini Land and Properties, 2019). This is a major concern, expressed by property developers, who require trunk infrastructure as part of an enabling environment to effectively and efficiently supply more houses to the housing market. Resolution 16 adopted at the 2019 National Land Summit called for ‘reforms to customary land tenure to ensure that scale land is mobilised for development given the high cost of trunk infrastructure and complementary investments critical for making a project viable’ (Government of Papua New Guinea, 2019). Trunk infrastructure refers to physical structures in the form of pipe-borne water supply, road network, sewerage facilities, and electricity supply (Nao and Ezebilo, 2017). These are basic services that are required by households and businesses for consumption and for sustenance of livelihoods. An effective trunk infrastructure system is required for orderly development to occur. For example, for a housing estate development, the land is subdivided and each of the subdivided plots require access to road, water, sewerage, and electricity.

Deficit in trunk infrastructure

To provide trunk infrastructure in PNG is challenging due to the topography as well as inconsistencies in the administrative, policy and legal environments to facilitate the same. Deficit in trunk infrastructure in PNG means that the available trunk infrastructure does not meet the development needs of the country. The deficit can be attributed to the following factors:

- **High cost of providing trunk infrastructure**

Variations in the natural environment and delays with approvals for service providers add up to the cost of providing trunk infrastructure. There are large upfront (fixed) costs incurred in undertaking investments in trunk infrastructure. The example in Table 1 highlights that costs are high. This is in a place like Edai Town which is located just outside Port Moresby, where the

land is mostly flat and there is ease of access to labour and materials used in the building of the facilities due to its close proximity to Port Moresby. This suggests that the costs in places outside of major cities and towns in PNG could potentially be more when the cost of transporting building materials and other inputs are factored into project costings.

Table 1: Cost of trunk infrastructure at Edai Town

Infrastructure	Cost in PGK
Piped water	1,000,000
Sewerage	1,500,000
Road network	10,000,000
Electricity	200,000
TOTAL	12,700,000

Source: Ezebilo & Hamago, 2017

- **Lack of clarity around whose responsibility it is to provide trunk infrastructure**

It is the responsibility of the government to provide trunk infrastructure for household consumption and to support private sector investments. Currently, it is not really clear whose responsibility it is to provide trunk infrastructure at the national, provincial and local levels. This is despite the assignment of functions and responsibilities for the provision of infrastructure under the Determination Assigning Service Delivery Functions and Responsibilities to Provincial and Local-Level Governments.

- **Inadequate human resource capacity to provide trunk infrastructure**

Depending on whose responsibility it is to provide trunk infrastructure across the country, the key consideration is to ask whether there is capacity at the national and subnational levels to plan for, build and maintain trunk infrastructure across the country. Are there enough registered surveyors, physical planners and other technical expertise needed to facilitate the provision and maintenance of trunk infrastructure? Staff shortages are common complaints in some provinces and districts across the country (Duncan et al., 2017).

- **Inadequate funding to provide trunk infrastructure**

In PNG, it is often the case that government agencies

responsible for the provision and maintenance of trunk infrastructure receive insufficient funding to achieve this important service delivery obligation. It is also often the case that funding is provided to build new trunk infrastructure but there is little to no funding made available to maintain the same to the point that the infrastructure deteriorates beyond repair and are abandoned.

- **Short supply of State land**

Existing trunk infrastructure provided by the Government are on State land which had been compulsorily acquired for public purposes from customary landowners. Most available State land is already occupied or used for purposes other than provision of trunk infrastructure. There is, therefore, a need to access customary land to build trunk infrastructure.

- **Lack of accountability in the provision of trunk infrastructure**

In instances where a trunk infrastructure project is left incomplete, is not completed on schedule, or is completed over-budget, service providers and public servants who facilitate the process are often not held accountable for the costs to the State and the loss to society. Constant variations in project costings as well as bureaucratic red tape have a bearing on the effective and efficient provision of trunk infrastructure in PNG.

Strategy to address the deficit in trunk infrastructure in PNG

While it is encouraging to observe current initiatives by the government to address the deficit in trunk infrastructure, particularly for road connectivity through Connect PNG and tax credit scheme for the extractive industries. To address the deficit in trunk infrastructure across PNG, a more coordinated strategy is required. In order to achieve this objective, the following can be considered by the Government:

- **Apply economies of scale to reduce cost of providing trunk infrastructure**

Economies of scale is a costs-saving or cost-advantage principle. It is a situation in which production becomes more efficient as the number of goods being produced increases (Kenton, 2022). In the context of land development, scale land is required for development. Investments in trunk infrastructure require large upfront costs and large portions of land. To achieve this will include determining the optimum size of land. For instance, to produce reliable water supply requires the service provider to invest in a huge network of pipes stretching throughout an entire area (project, town,

city).

- **Provide clarity on whose responsibility it is to provide trunk infrastructure**

Determination assigning service delivery functions and responsibilities to provincial and local level governments (Duncan et al., 2017). The 2009 Determination Assigning Service Delivery Functions and Responsibilities to Provincial and Local-Level Governments (2009 Function Assignment Determination) needs to be made readily available and easily accessible to the public to enable constituents to be informed and to hold their elected representatives as well as public servants accountable in their duties, including responsibilities on the provision of trunk infrastructure. The current government efforts to review intergovernmental financing arrangements, including a review of the 2009 Function Assignment Determination is a step in the right direction. It is hoped that the review outcomes provide clarity on who is responsible for provision of trunk infrastructure.

- **Improve human resource capacity at all levels of government**

There should be better coordination between agencies of the State that facilitate the process to provide trunk infrastructure. For improved coordination, there should be a deliberate effort between the national and subnational authorities to address human resource capacity constraints. To address this, attention needs to be given to providing sufficient number of people who are appropriately and adequately trained and remunerated to deliver and stay on the job. Before this happens, a gap analysis is necessary. This will also inform the funding needs to address the human resource capacity needs.

- **Explore sustainable funding options to provide and maintain trunk infrastructure**

There are existing funding arrangements available for the provision of trunk infrastructure. These include the government's public investment program (PIP), funding obtained from development partners, public private partnership (PPP) arrangements, and tax credit scheme in the case of extractive industries. An alternative funding option is to use Goods and Services Tax (GST) revenue to maintain trunk infrastructure (Nao, 2022) and provide trunk infrastructure.

- **Complement with existing government policies**

Tax credit scheme is currently available to the extractive industries. In such instances, tax funds that the developer is to pay the government is used instead to construct trunk infrastructure that support the

developments. Consideration should be made to extend tax credit scheme to cover scale projects in cases where no trunk infrastructure exists and to include the property development sector, under mutually-agreed terms and conditions with the State and landowners.

Also, to access customary land to provide trunk infrastructure, the existing legal provision includes compulsory acquisition via Section 12 of the Land Act 1996. However, constant and increasing incidences of compensation claims due to lack of proper identification of legitimate landowners is proving problematic and becoming a major cost to the State. Proper identification and access to land can be achieved through the Voluntary Customary Land Registration (VCLR) system.

- **Building accountability mechanisms for trunk infrastructure service providers and facilitators**

Taxpayers have the right and responsibility to call for accountability by facilitators and providers of trunk infrastructure services. Service providers and public servants who facilitate the process need to be held accountable when the provision and maintenance of trunk infrastructure is not delivered on time and on budget, or when costs are more than budgeted for. Accountability can be achieved through outcome-based incentives (Duncan et al., 2017).

Conclusion

Trunk infrastructure is a major enabler of economic growth, for example, for access to markets for agricultural produce, and for affordable housing. Therefore, a deficit in trunk infrastructure is a critical problem, as in the case of PNG. Reasons why it continues to be a problem in PNG include lack of clarity around whose responsibility it is to provide trunk infrastructure, lack of capacity at the national and subnational levels to provide and maintain trunk infrastructure, insufficient or lack of funding available to provide and maintain trunk infrastructure, challenges with access to land, and little to no accountability in the monitoring and evaluation aspect of providing and maintaining trunk infrastructure. To address the deficit in trunk infrastructure, a holistic and strategic approach is needed. This approach requires identifying who is responsible for providing trunk infrastructure, ensuring that at whatever level trunk infrastructure is to be provided, there is sufficient human resource and skills capacity to do so, ensuring that appropriate funding is provided for the provision and maintenance of the infrastructure. It also requires ensuring that scale land is used for large projects and

complementary policies such as PPP and tax credit scheme is applied where parties deem it as appropriate, and that public servants and service providers are held accountable for their action or inaction. Addressing deficit in trunk infrastructure can unlock the potential of all sectors of the economy and contribute to broad-based sustainable development.

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