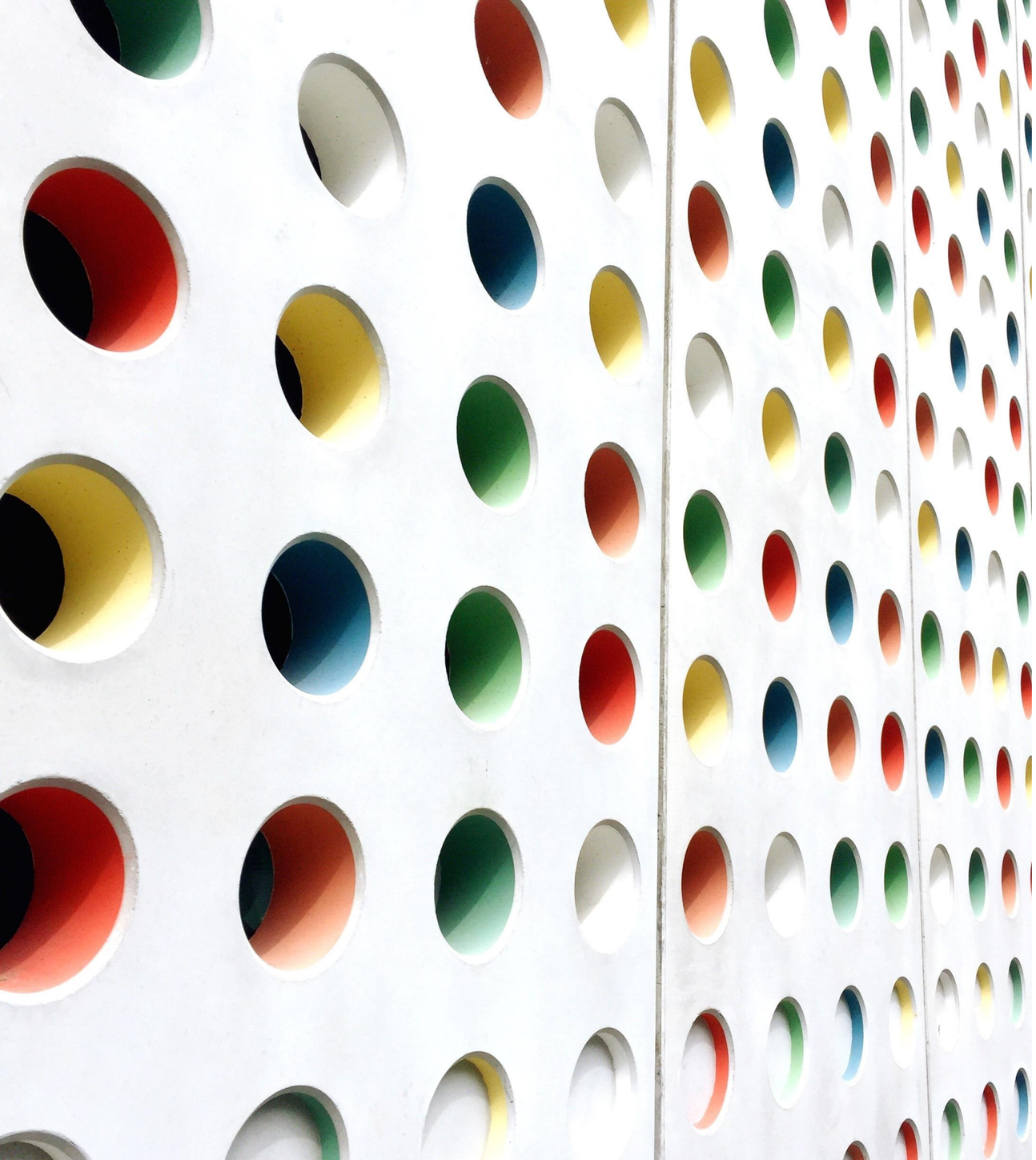


Management of Social Services

WEEK 12: INFRASTRUCTURE AS A SOCIAL SERVICE (Actors in infrastructure management)

Lecturer: Gloria Angela Mukova (MSc.)

Recap – previous week

Infrastructure as a Social Service

- Nature and scope of infrastructure services
- Status of infrastructure services in Uganda
- Status of infrastructure services in other countries (China, Kenya and Netherlands)

Fig. 1. Infrastructure Services – Gamma app

This Week … …

Infrastructure management and provision

A comprehensive overview of governance structures, key actors, and financing mechanisms shaping the infrastructure landscape.

Understanding Infrastructure Management

Infrastructure management encompasses the planning, development, and maintenance of critical systems that support economic growth and public welfare. It requires systematic coordination across multiple sectors and stakeholders.

Infrastructure management and provision in Uganda

Fig. 2. Infrastructure Services – Gamma app

The infrastructure Governance Paradox

On Paper

Uganda employs a **decentralised framework** designed to empower local governments with autonomy over infrastructure decisions and implementation.

In Practice

The system operates as a centrally-driven hybrid model where the central government maintains control over policy formulation and major funding streams.

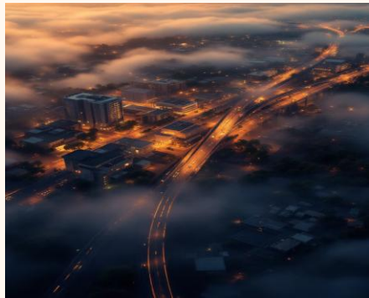
Implementation responsibilities are delegated to Local Governments—Districts and Municipalities—creating a dual system with inherent tensions between central control and local capacity.

Fig. 3. Infrastructure Services – Gamma app

Actors in Infrastructure Management and Provision

- Government ministries and agencies
- Private sector companies and investors
- Non-governmental organisations
- Development partners

Success demands collaboration amongst these stakeholders to ensure infrastructure meets population needs and adapts to evolving demands.



Central Government

Five key ministries drive Uganda's infrastructure agenda.

Each of these has a distinct mandates and powerful oversight over critical national assets.

Ministry of Works and Transport

Ministry of Energy and Mineral Development

Ministry of Finance, Planning and Economic Development

Ministry of ICT and National Guidance

Ministry of Works and Transport

Lead agency for transport infrastructure.

- Policy formulation
- Supervision and overseeing the Uganda National Roads Authority (UNRA), which manages the national road network.

Uganda National Roads Authority (UNRA):

- Central to the transport sector
- Manages the national road network (about 20,000 km of core roads)
- The largest infrastructure parastatal

Uganda Civil Aviation Authority (UCAA)

- Manages and regulates the country's airports and air navigation services.
- Funds its operations through levies on air tickets and services

Kampala Capital City Authority (KCCA)

- **M**anages infrastructure within Uganda's capital city, including city roads, drainage, and public spaces.
- Operates with more autonomy and resources than other local governments.

Uganda Railways Corporation (URC)

- Owns and is responsible for revitalizing the national rail network.
- Has had limited performance, resulting to proposals for privatization or concessioning.

Ministry of Energy and Mineral Development

- Responsible for energy policy formulation
- Planning,
- Regulation.
- Oversees UETCL (transmission) and UEDCL (distribution concession management).

Electricity Regulatory Authority (ERA)

- **I**ndependent regulator for the electrical energy sector.
- Issues licenses, **approves tariffs**, and monitors sector performance.
- Handles issues of load shedding and reliability

Uganda Electricity Transmission Company Ltd (UETCL):

- The **single buyer** of all generated power
- Operates the national transmission grid.

Uganda Electricity Distribution Company Ltd (UEDCL):

- Owns the electricity distribution assets
- Holds the government's shares in the Umeme concession
- Is responsible for managing other distribution areas.

Uganda Electricity Generation Company Ltd (UEGCL)

Government's vehicle for developing and owning power generation assets (e.g., the 600MW Karuma Hydropower Plant). This makes the government a direct player in generation, not just policy.

Uganda Communications Commission (UCC)

Independent regulator for the ICT and broadcasting sectors. Functions:

- Regulation and licencing of telecom operators, broadcasters, and other service providers.
- Manages the radio frequency spectrum
- Administers the Rural Communications Development Fund (RCDF), which aims to extend communication services to underserved areas.
- Handles complaints and sets service quality standards for the sector.

Ministry of ICT and National Guidance

- Formulates ICT policy
- Promotes sector development,

though with limited direct control over the competitive telecommunications market.

Ministry of Finance, Planning and Economic Development

- Controls the national budget,
- Negotiates external loans, and
- Allocates funds through conditional and unconditional grants.

Local Governments

District and Municipal Councils

Hold responsibility for:

- Community access roads
- District roads
- Local health centers infrastructure
- Primary schools infrastructure

The Critical Challenge

Local governments are severely constrained by inadequate and unpredictable funding, resulting in chronic maintenance deficits across the various infrastructure

The Private Sector and Public-Private Partnerships

Communication

The most successful sector, characterised by a competitive private market. Companies like **MTN Uganda** and **Airtel Uganda** drive impressive mobile penetration rates.

However:

- this hasn't translated into widespread internet access—only 9% coverage
- Market failure in making data affordable and accessible in rural areas.

Energy/ electricity

The private sector participates through **Independent Power Producers (IPPs)** who sell electricity to UETCL.
High initial investment costs and perceived regulatory risks significantly limit sector growth and private participation.

Transport

Private Dominance;

- Government leads ferry services provision,
- Private service providers dominate boat services for water transport
- Private public road transport mean dominant

Infrastructure Funding

Heavy Reliance on External Resources

A large proportion of Uganda's Public Sector Investment Plan (PSIP) depends on external development partners. Major projects—Karuma and Isimba hydropower dams, oil roads in the Albertine Graben, energy transmission lines—are predominantly financed by international loans.

Severe Underfunding of Maintenance

Recurrent expenditure for Operations and Maintenance (O&M) is consistently under-prioritised, creating an infrastructure degradation cycle.

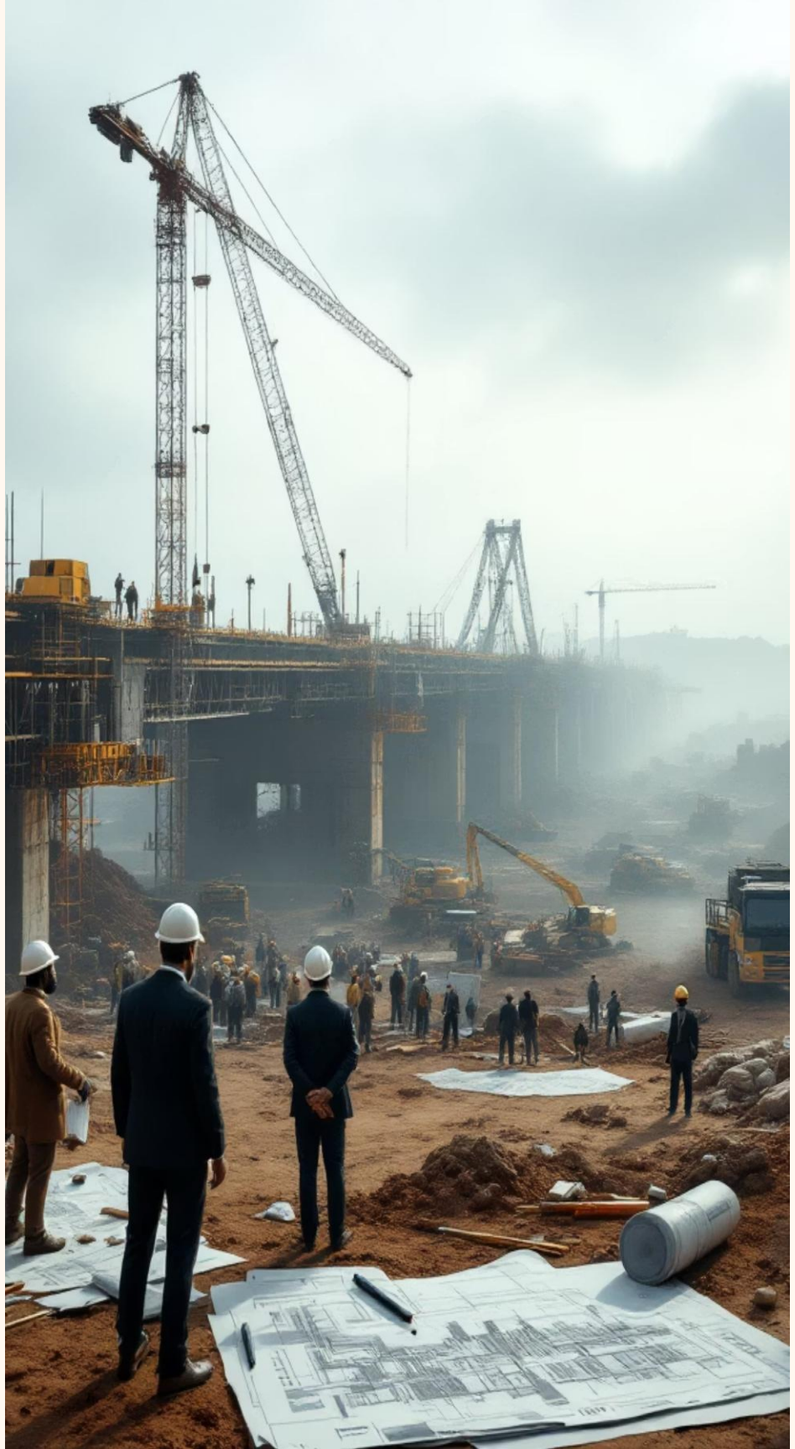


Fig. 4. Infrastructure Services – Gamma app

Infrastructure Financial Flows

01

External Debt and Grants

- The World Bank, African Development Bank, and Export-Import Bank of China provide the bulk of infrastructure financing through loans and grants.

02

The National Budget

- Government's own resource allocation is stretched thin.
- New construction receives priority over maintenance, creating long-term sustainability challenges.

03

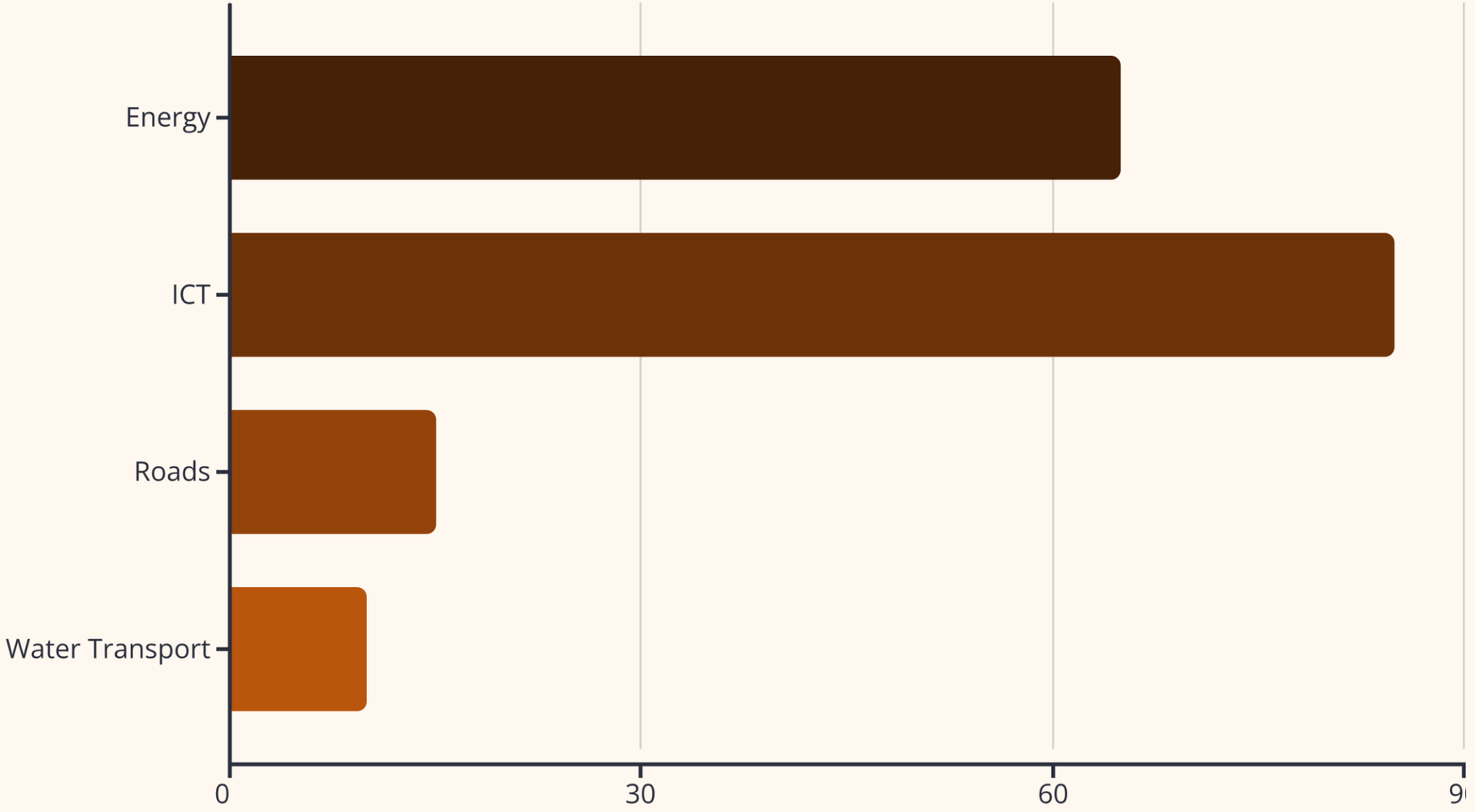
User Fees and Tariffs

- Apply in some sectors but often insufficient for cost recovery.
- Political pressure and affordability concerns limit tariff effectiveness.

Sector-Specific Funding Challenges

Energy Sector

Electricity tariffs set by the Electricity Regulatory Authority (ERA) are intended to be cost-reflective, but political pressure and high connection costs limit both cost recovery and accessibility.



Water Transport

- Minimal payment for government ferry services,
- Difficulty in generating significant cost recovery from users.

Key Takeaways

Bridge the Governance Gap

Address the paradox between decentralised frameworks and centralised practice by strengthening local government capacity with predictable, adequate funding streams.

Prioritise Maintenance

Need to shift from project-based thinking to lifecycle asset management,

Ensuring recurrent funding matches capital investment ambitions.

Fig. 5. Infrastructure Services – Gamma app

Key Takeaways

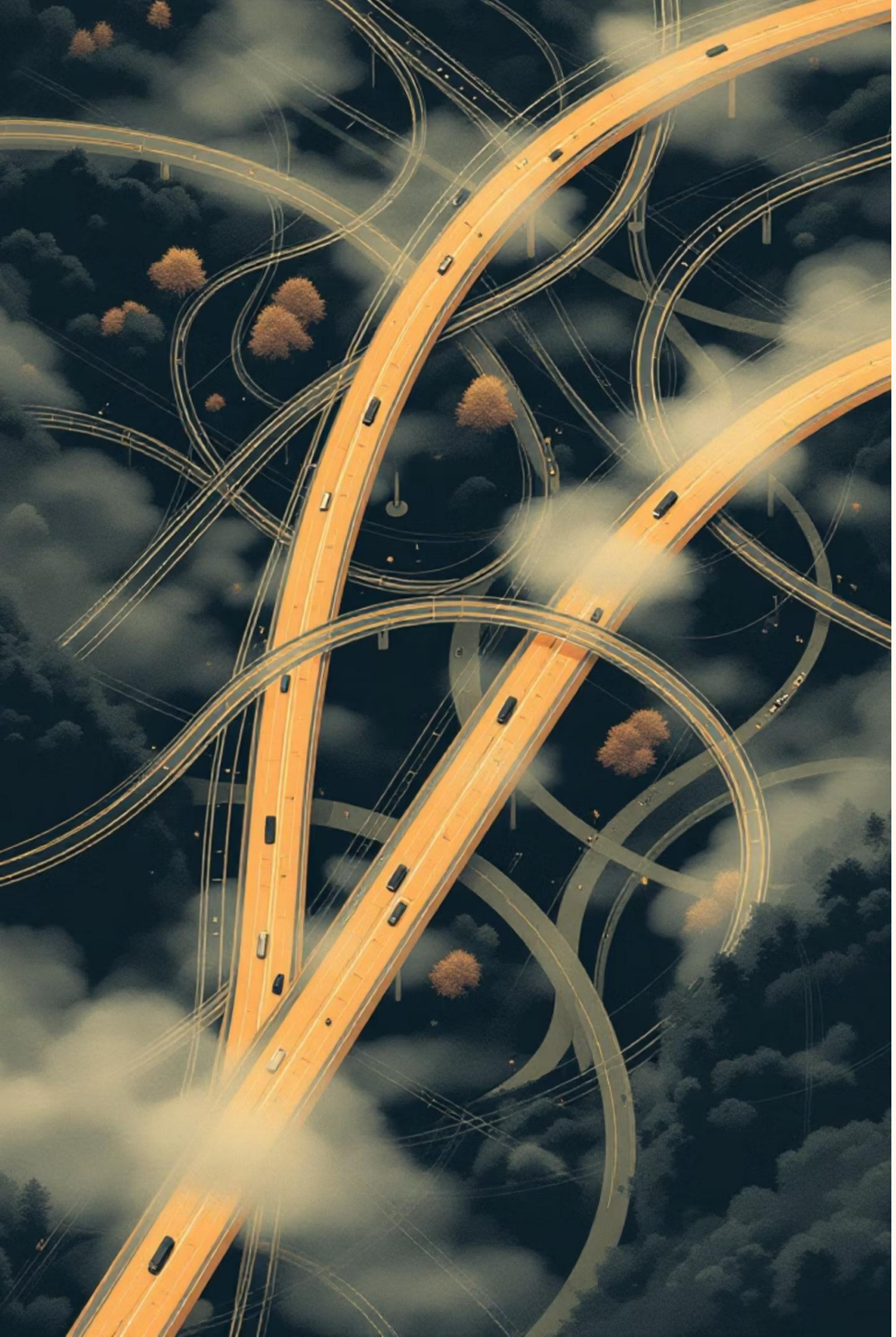
Unlock Private Sector Potential

Reduce regulatory risks and create enabling environments (in energy and connectivity) to attract sustainable private investment beyond the ICT sector.

Diversify Funding Sources

Reduce over-reliance on external debt;

- Developing domestic resource mobilisation strategies
- Improving cost recovery mechanisms where feasible.



A Global Comparative Analysis of Infrastructure Management Models

Examining governance approaches and administrative frameworks across Kenya, China, and the Netherlands

Fig. 6. Infrastructure Services – Gamma app

Three Models, Three Development Trajectories

Each nation represents an essentially different approach to infrastructure governance, shaped by political systems, economic priorities, and developmental stages.

Kenya

Emerging Market Model

Strategic state direction with parastatal execution and aggressive private sector integration

China

State-Capitalist System

Centralized command economy deploying infrastructure as geopolitical strategy

Netherlands

Collaborative Market

Consensus-driven governance with sophisticated public-private partnerships

Kenya:

Parastatal-Led

Infrastructure Delivery

- **Government** - establishes strategic vision
- **Semi-autonomous state corporations** - manage implementation, creating commercial discipline within public ownership.

Vision 2030 serves as the primary framework driving transformative mega-projects and sectoral coordination.

Fig. 7. Infrastructure Services – Gamma app

01

Government - Planning Layer

State Department formulates sector policies and national infrastructure priorities

02

Parastatals

KeNHA, Kenya Railways, Kenya Ports Authority

- Manage key transport assets with operational autonomy

03

Private Sector

- Safaricom's M-Pesa - Vibrant ICT sector
- Independent Power Providers models - drive innovation and efficiency

China:

Centralized Infrastructure Command

Infrastructure serves as core instrument of national economic strategy and geopolitical power projection. The Communist Party's five-year plans establish specific targets with unprecedented scale and speed.

The **National Development and Reform Commission (NDRC)** wields ultimate authority, approving all major projects while coordinating sector ministries.

Fig. 8. Infrastructure Services – Gamma app

1

Central Government & Party Leadership

2

National Development and Reform Commission **(NDRC)**

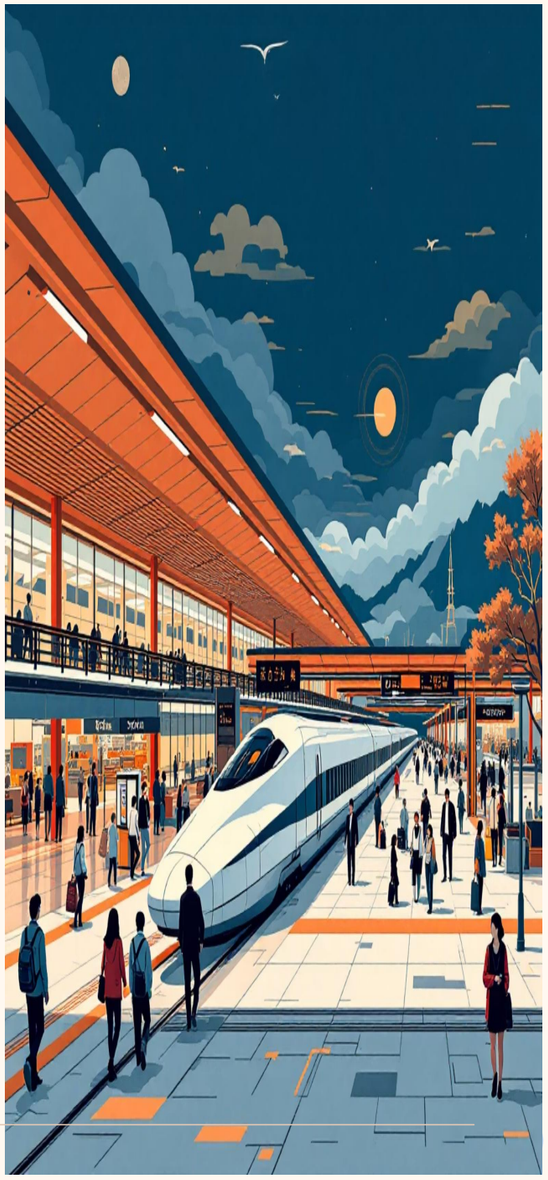
- Strategic Planning

3

State-Owned Enterprise Giants

4

Provincial Implementation through local government (LGFVs)



The Netherlands:

Consensus and Lifecycle Excellence

- Intensive consultation and coordination across;
  - National,
  - Provincial, and
  - Municipal governments
- Creates the legendary Dutch consensus approach to infrastructure delivery.

Rijkswaterstaat (Government)

- Serves as executive agency managing design, construction, and maintenance of main networks with world-class technical expertise.

Fig. 9. Infrastructure Services – Gamma app

Public-Private Integration Actors

1

Government ministries - Strategic Planning

Ministry of Infrastructure sets national strategy and regulatory framework

2

Design, Build, Finance, Maintain (DBFM) – Competitive Tendering

PPP model

- Contracts transfer lifecycle risks to private sector partners

3

Authority for Consumers and Markets – Independent Regulation

- Ensures competition in energy and telecommunications sectors

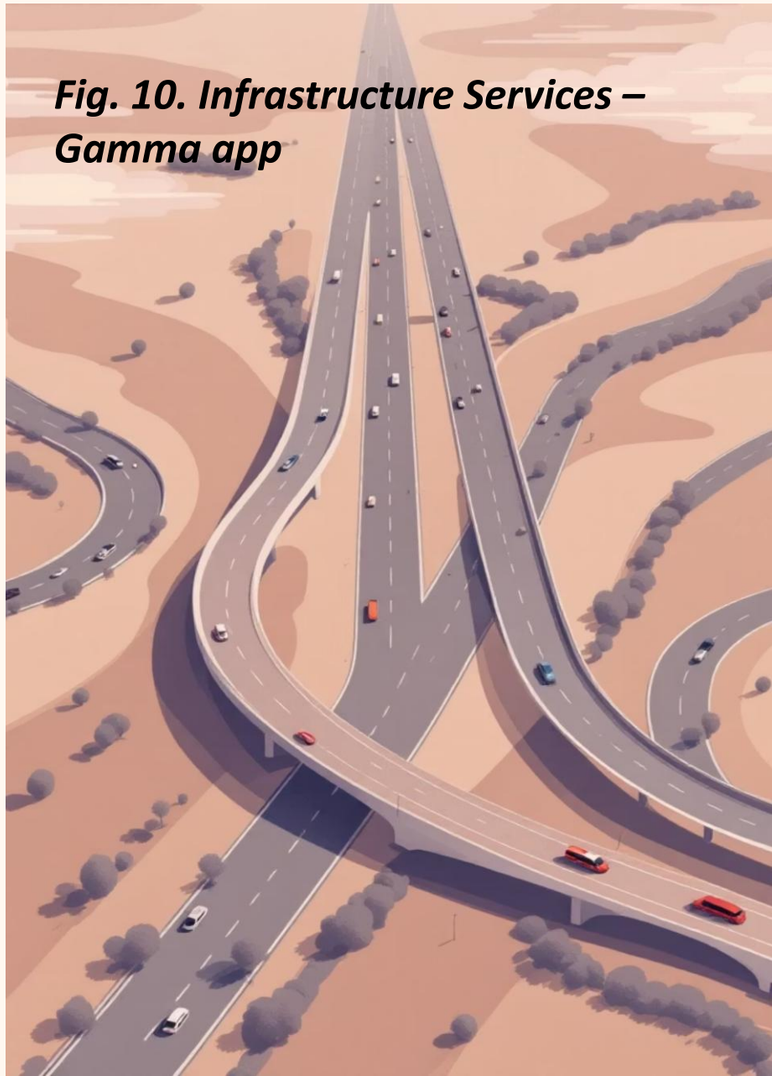


Fig. 10. Infrastructure Services – Gamma app

Comparative Strengths and Strategic Trade-offs

Kenya's Flexibility

- Parastatal model enables commercial discipline while maintaining strategic state control.
- Private sector dynamism in ICT demonstrates innovation potential,
- But fiscal sustainability remains hazardous.

China's Scale

- Unmatched ability to mobilize resources rapidly and execute transformative projects.
- However, debt accumulation and over-investment in underutilized infrastructure raise long-term viability concerns.

Netherlands' Quality

- World-class lifecycle management and sophisticated stakeholder collaboration.
- Yet high costs and complex consensus requirements can slow delivery in space-constrained environments.

Policy Implications for Infrastructure Planners

No single model offers universal applicability—context determines optimal governance structures.

1

Governance-Capacity Match

Institutional maturity, fiscal space, and political systems constrain viable administrative models. Emerging markets may benefit from parastatal structures before transitioning to full PPP sophistication.

2

Speed-Sustainability Balance

Rapid delivery must not compromise long-term fiscal health or maintenance capacity. Lifecycle costing should inform all major infrastructure decisions.

3

Strategic Private Innovation Integration

Competitive private sector involvement drives efficiency, but requires robust regulatory frameworks and transparent procurement to prevent capture and cost inflation.

Conclusions

Uganda's infrastructure management system is caught in a cycle of construction without sustainability. The government, acting as the primary driver and heavily reliant on external funding, has successfully expanded access to basic infrastructure. However, the administrative and financial failure to prioritize and fund operations and maintenance has led to the rapid deterioration of assets. This is clearly documented in the NSDS 2021 across education, health, and transport sectors. Until the governance model shifts from a focus on political visibility of new projects to the technical and financial imperative of lifecycle asset management, Uganda will continue to build assets that it cannot afford to maintain, undermining long-term development goals.

The comparison reveals a clear spectrum of infrastructure management, defined by the relationship between the state and the market, and the priority given to long-term sustainability.

In essence, the trajectory of infrastructure development moves from building basic access (Uganda), to achieving scale and transformation (Kenya), to pursuing global strategic influence (China), and finally to perfecting systemic efficiency and sustainability (The Netherlands). The most critical lesson for developing nations is that sustainable infrastructure is not just about construction, but about building the governance, financial models, and institutions that guarantee maintenance and quality over the entire lifecycle of an asset.

Solving Uganda's infrastructure crisis therefore requires not just more money, but also deep institutional reforms aimed at improving coordination, insulating parastatals and regulators from political interference, and strengthening their capacity for long-term, lifecycle asset management. It is through this that Uganda will thrive and succeed in providing reliable infrastructure services

Reference list

- Figure 1- 10. Infrastructure services, Gamma app
- Ministry of Infrastructure and Water Management, Netherlands. (2020). *Mobility Report 2020*
- Kenya National Bureau of Statistics (KNBS). (2023). *Economic Survey 2023*. Nairobi: KNBS.
- African Development Bank (AfDB). (2022). *East Africa Regional Transport Infrastructure Program Appraisal Report*.
- Uganda Communications Commission (UCC). *The Uganda Communications Act, 2013.*
- Electricity Regulatory Authority (ERA). *The Electricity Act, 1999 (as amended).*
- Uganda National Roads Authority (UNRA). *The UNRA Act, 2006.*
- The Republic of Uganda. (2015). *The Public Private Partnerships Act, 2015.*
- The Republic of Uganda. (1997). *The Local Governments Act, Cap. 243.*
- World Bank. (2022). *Uganda Public Expenditure Review: Creating Fiscal Space for Human Capital Investment.*
- The National Service Delivery Survey (NSDS) Report (2022)

Next week

Technology in social service management

- The nature
- The role