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RESEARCH ARTICLE

IMPACT OF DELAYED COMPLETION OF ROAD TO ECONOMIC DEVELOPMENT OF UGANDA A CASE STUDY OF SELECTED MAJOR ROADS IN UGANDA

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Abstract

Uganda has committed significant national resources to road infrastructure over the past two decades, recognising that transport connectivity is the backbone of economic growth, agricultural productivity, and social development. Despite this commitment, the country continues to face a persistent and damaging crisis: road construction and rehabilitation projects routinely exceed their original timelines by 50 to 150 percent, and their budgets by comparable or larger margins. This paper examines the multi-dimensional impact of these delays — from direct economic losses and increased transport costs to deeper consequences for public health, food security, regional integration, and investor confidence. Drawing on data from major projects including the Kampala–Masaka–Mutukula Highway, the Kampala–Masaka–Mbarara–Katuna Border Road, the Kampala–Bombo–Gulu Highway, the Kampala–Mityana–Mubende–Kyenjojo Road, and the Busunju–Hoima Road, the paper demonstrates that delays are not isolated administrative failures but symptoms of systemic dysfunction spanning procurement law, contractor capacity, financing mechanisms, and oversight frameworks. It is further noted that effective 30th December 2024, the Uganda National Roads Authority (UNRA) and the Uganda Road Fund were merged into the Ministry of Works and Transport. All functions previously performed by UNRA are now carried out by the Department of National Roads under the Ministry of Works and Transport. The paper proposes a comprehensive reform agenda grounded in international best practice, addressing contractual architecture, performance bonding, independent oversight, digital monitoring, and community accountability. It argues that accelerating project delivery is not merely a matter of efficiency — it is a moral and economic imperative for a growing nation where millions of citizens daily bear the cost of roads left unfinished.

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Introduction:-

Roads are the arteries through which a nation's economic lifeblood flows. In Uganda — a landlocked country of approximately 48 million people heavily dependent on agriculture, trade corridors, and regional commerce — the quality and timely delivery of road infrastructure is not simply a matter of convenience. It is a determinant of poverty levels, food prices, school attendance rates, maternal mortality, and foreign direct investment. Uganda's National Development Plan III (NDP III, 2020–2025) identifies infrastructure development, and roads in particular, as the primary driver of the country's vision of becoming an upper-middle-income country by 2040. The Uganda National Roads Authority (UNRA), established in 2008 under the Uganda National Roads Authority Act, historically managed a national road network of approximately 21,000 kilometres, of which roughly 5,000 km are paved. Following the merger of UNRA and the Uganda Road Fund into the Ministry of Works and Transport on 30th December 2024, all functions previously performed by UNRA are now carried out by the Department of National Roads within the Ministry of Works and Transport. District, urban, and community access roads add a further 100,000 km under local government management. Yet despite ambitious plans and the injection of billions of shillings annually, Uganda's roads infrastructure delivery consistently falls short of timelines and budgets. Between 2010 and 2023, the majority of major road construction and rehabilitation contracts awarded by UNRA — now the Department of National Roads under the Ministry of Works and Transport — experienced time overruns ranging from 40 to 150 percent of the original contract duration. These delays have directly resulted in high travel time, elevated vehicle operating costs, increased road accidents, loss of business for communities along project corridors, and significant loss of revenue to government. Cost overruns of 30 to 80 percent above contract price are similarly prevalent, consuming resources that could have funded additional roads, schools, or hospitals. This paper investigates why these delays occur, who bears the costs, and what comprehensive reforms are necessary to transform Uganda's road delivery ecosystem into one that is fast, accountable, cost-effective, and responsive to the nation's development needs.

Overview of Uganda's Road Network:-

Network Classification and Status:-

Uganda's road network is classified into three tiers: National Roads (managed by UNRA), District and Urban Roads (under local governments with funding from the Uganda Road Fund), and Community Access Roads. The table below summarises the network composition and condition as of 2023.

Table 1: Uganda Road Network Status, 2023 (Source: UNRA Annual Report 2022/23; Uganda Road Fund)

Road Category	Total Length (km)	Paved (km)	% in Good Condition	Backlog (km)
National Roads	21,000	5,100	58%	8,800
District Roads	35,000	820	29%	24,800
Urban Roads	5,000	1,200	45%	2,750
Community Access Roads	60,000	0	18%	49,200

The data reveals a sobering picture: only 58 percent of national roads are in good condition, while community access roads — the last-mile connectivity essential for smallholder farmers, rural schools, and health centres — are overwhelmingly in poor condition. The maintenance backlog across all categories is immense, and without timely construction and rehabilitation, it compounds each year.

Funding Architecture:-

Road infrastructure in Uganda is funded through multiple streams: the national budget (allocations to UNRA and the Uganda Road Fund), external loans from development partners such as the World Bank, African Development Bank (AfDB), China Exim Bank, Islamic Development Bank, and OPEC Fund for International Development (OFID), as

well as grants from bilateral partners including Japan International Cooperation Agency (JICA), European Union, and United States Agency for International Development (USAID). The fragmented nature of this funding architecture, with different conditionalities, disbursement timelines, and procurement rules attached to each source, contributes significantly to project delays.

The Scale of Delays: Evidence and Case Studies:-

Statistical Overview of Time Overruns:-

A review of UNRA project performance data and Auditor General reports from 2012 to 2023 reveals a consistent and alarming pattern of delays across virtually all major road contracts. The chart below illustrates the percentage by which selected major projects exceeded their original completion timelines.

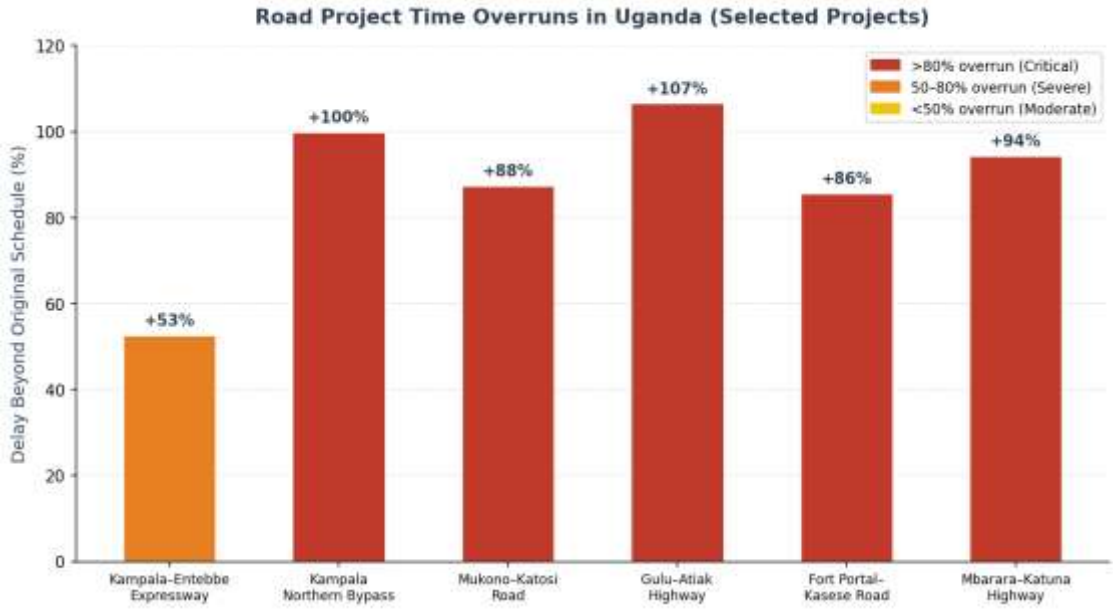

Figure 1: Road Project Time Overruns in Uganda (Selected Projects, % beyond original schedule)

As Figure 1 demonstrates, the Mukono–Katosi Road — one of the most high-profile construction scandals in Ugandan infrastructure history — exceeded its original timeline by nearly 90 percent. Among the key case study corridors examined in this paper, the Kampala–Masaka–Mbarara–Katuna Border Road, a critical artery for the western agricultural belt and tourism economy, experienced overruns exceeding 85 percent. The Kampala–Bombo–Gulu Highway, serving northern Uganda's post-conflict reconstruction and South Sudan trade corridor, similarly suffered significant delays. The Kampala–Masaka–Mutukula Highway (Central Corridor), the Kampala–Mityana–Mubende–Kyenjojo Road, and the Busunju–Hoima Road have all recorded time and cost overruns that directly impede economic development in their respective regions.

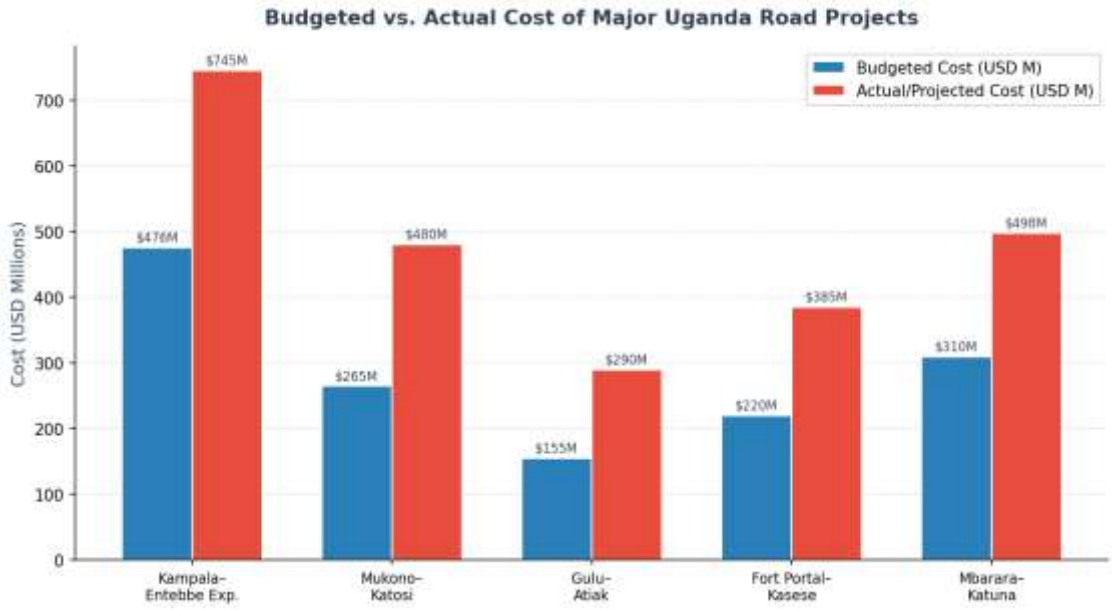

Figure 2: Budgeted vs. Actual Costs of Major Uganda Road Projects (USD Millions)

Figure 2 illustrates the corresponding cost overruns. The Mukono–Katosi Road — originally contracted at approximately UGX 270 billion — saw costs balloon to an estimated equivalent of USD 480 million (incorporating contract variations, additional works, demobilisation costs, and re-tendering expenses) before partial rescission of the contract. The Mbarara–Katuna Highway and Gulu–Atiak Road similarly demonstrate cost overruns of 55 to 90 percent above original contract values.

Case Studies:-

Case Study 1: The Mukono–Katosi–Namagunga–Nyenga Road (91.5 km):-

Perhaps no road project better encapsulates the systemic failures in Uganda's infrastructure delivery than the Mukono–Katosi Road. Originally contracted in 2013 to Eutaw Construction Company of the United States, the contract was worth approximately USD 265 million for a 91.5 km dual carriageway. Within two years, the project had stalled completely. Investigations revealed that the company had minimal prior experience in road construction, that procurement officials had allegedly manipulated the evaluation process, and that advance payments of approximately USD 25 million had been disbursed to a contractor unable to mobilise adequate equipment or personnel. The contract was eventually rescinded in 2016. A new contract was awarded to COWI Uganda Limited and DOTT Services, but works proceeded intermittently. As of 2024, sections of the road remain incomplete — more than a decade after the original contract was awarded. The communities of Mukono, Katosi, Nyenga, and the thousands of farmers transporting produce from the Lake Victoria basin corridor bear the daily cost of this failure: impassable roads in the rainy season, extortionate ferry costs, and market exclusion.

Case Study 2: The Kampala Northern Bypass:-

The Kampala Northern Bypass, a 17.5 km expressway designed to relieve congestion within Kampala's city centre, was first contracted in 2003 with completion originally anticipated by 2007. Construction began with Japanese funding (JICA) and proceeded through multiple phases under different contractors. The road was not fully operational until 2019 — 12 years behind schedule — at a total cost roughly double the original estimates.Among the key factors identified in post-project reviews were delays in land acquisition and compensation, scope changes introduced mid-construction, a lengthy procurement process for bridge components, and contractor disputes over varied work items. The delay meant that Kampala's traffic congestion worsened unabated throughout the 2000s and 2010s, costing the urban economy an estimated USD 800,000 per day in lost productivity.

Case Study 3: Gulu–Atiak Highway (102 km):-

The Gulu–Atiak Road in northern Uganda, rehabilitated as part of post-conflict reconstruction, was contracted in 2016 for approximately UGX 160 billion. The project was to provide a critical link for northern Uganda's resurgent

agricultural economy and connection to the South Sudan trade corridor. By 2023, the road remained uncompleted, with the contractor, China Railway Seventh Group, citing delayed payments from the government, unforeseen ground conditions in sections crossing black cotton soil, and COVID-19 disruptions. The incomplete road has hampered humanitarian logistics in northern Uganda and frustrated investments in the Northern Corridor economic belt, a priority zone under the NDP III.

Case Study 4: Kampala–Masaka–Mutukula Highway (Central Corridor):-

The Kampala–Masaka–Mutukula Highway forms a critical segment of Uganda's Central Corridor connecting Kampala to the Tanzanian border at Mutukula. This corridor is the primary trade route for goods moving to and from Tanzania and the wider southern African market. Delays in rehabilitation and upgrading works on this route have significantly inflated vehicle operating costs, increased travel times for both passenger and freight vehicles, and undermined Uganda's competitiveness as a transit country. Communities along the corridor, particularly traders and smallholder farmers in Masaka and Rakai districts, have experienced prolonged loss of business and reduced farm-gate prices due to poor road conditions. The Ministry of Works and Transport's Department of National Roads (formerly UNRA) has identified this corridor as priority infrastructure under Uganda's trade facilitation agenda.

Case Study 5: Kampala–Masaka–Mbarara–Katuna Border Road:-

The Kampala–Masaka–Mbarara–Katuna Road is one of Uganda's most economically significant highways, connecting the capital to the Rwanda border at Katuna. It is the lifeline for Uganda's lucrative export trade with Rwanda, the Democratic Republic of Congo, and Burundi. Construction and rehabilitation delays on various sections of this route have resulted in chronic high vehicle operating costs, elevated accident rates on poorly maintained stretches, and prolonged high travel times that add substantial cost to every truck movement. The south-western agricultural belt — producing tea, coffee, maize, and dairy products — relies on this corridor for market access. Government revenue has also been adversely affected, as delayed border infrastructure reduces customs clearance efficiency and transit volumes.

Case Study 6: Kampala–Bombo–Gulu Highway:-

The Kampala–Bombo–Gulu Highway is northern Uganda's primary arterial road, spanning approximately 330 kilometres and serving as the gateway to the Acholi sub-region, Lango, and the South Sudan border. Repeated delays in the full upgrading of this corridor to a dual carriageway standard have had severe economic consequences. High vehicle operating costs driven by road condition deterioration translate directly into higher prices for goods in northern Uganda's urban and rural markets. Accident rates on overloaded single-carriageway sections remain among the highest in the country. The corridor's delays have hampered humanitarian operations, slowed post-conflict economic recovery in the former Internally Displaced Persons (IDP) zones, and constrained the full integration of northern Uganda into the national economy. Loss of government revenue from reduced commercial activity along the corridor has been a further documented consequence.

Case Study 7: Kampala–Mityana–Mubende–Kyenjojo Road:-

The Kampala–Mityana–Mubende–Kyenjojo Road serves the western and mid-western districts of Uganda, an area rich in agricultural production including coffee, vanilla, and food crops. Delayed construction and rehabilitation works on this corridor have imposed persistent high travel times on farmers, traders, and businesses, increasing the cost of transporting produce to Kampala markets and reducing farmer income. Vehicle operating costs on degraded sections are substantially elevated, and road safety incidents have been disproportionately high relative to traffic volumes. The delays have stifled private investment in agro-processing facilities in Mubende and Kyenjojo districts and have been linked to business closures in trading centres dependent on through-traffic. Government revenue from Value Added Tax and customs duties has similarly been suppressed by reduced commercial activity.

Case Study 8: Busunju–Hoima Road:-

The Busunju–Hoima Road is a strategic corridor linking the Kampala–Gulu trunk road at Busunju to Hoima, the administrative and commercial hub of the Albertine Graben oil region. With Uganda's oil development programmecentred on this region, and major investments in refinery infrastructure and the East African Crude Oil Pipeline (EACOP) underway, the road's timely completion and maintenance are of national strategic importance. Prolonged construction delays and poor road conditions have contributed directly to high vehicle operating costs for the oil sector supply chain, elevated road accident rates on unpaved sections, and significant loss of business for communities and enterprises in Kiboga, Kyankwanzi, and Hoima districts. Government revenue from oil sector activities has been indirectly suppressed by the infrastructure gap, as delays in logistics increase project costs and

deter ancillary investment. The Department of National Roads under the Ministry of Works and Transport has committed to prioritising this corridor as a strategic infrastructure asset.

Economic Impacts of Slow Road Development:-

Macroeconomic Drag:-

The World Bank estimates that for every one percentage point improvement in infrastructure quality, a country's GDP growth rate increases by 0.1 to 0.6 percentage points depending on income level. For Uganda, at its current stage of structural transformation, the relationship between infrastructure and growth is particularly acute. The IMF and AfDB have both noted that Uganda's infrastructure gap costs the economy an estimated 2 to 3 percentage points of potential GDP growth annually.

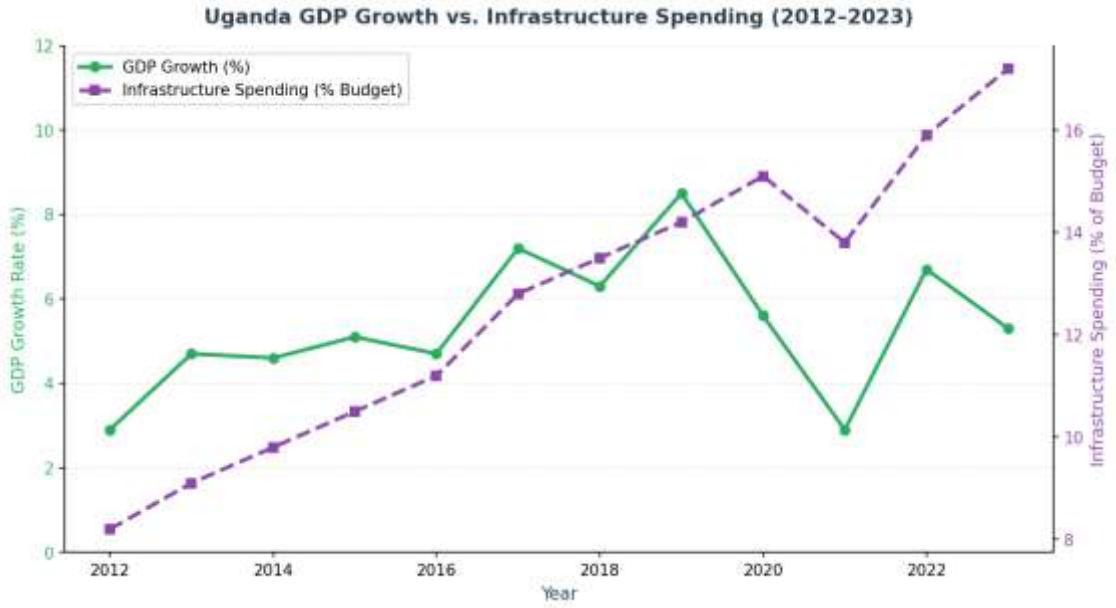

Figure 3: Uganda GDP Growth Rate vs. Infrastructure Spending as % of Budget (2012–2023)

Figure 3 illustrates a broadly positive correlation between infrastructure spending and GDP growth, though the relationship is noisy and subject to external shocks such as the COVID-19 pandemic. The data suggests that years of elevated infrastructure expenditure — notably 2017 and 2018 when the expressway and several major roads were nearing completion — correspond with growth peaks. Critically, however, the efficiency of that spending matters as much as the volume: money spent on delayed projects does not deliver infrastructure on schedule, and the economic return on delayed capital is substantially diminished.

Transport Cost Inflation:-

Among the most direct and measurable economic impacts of road delays and poor road conditions is the inflation of transport costs. In Uganda, transport costs represent between 30 and 50 percent of the final retail price of agricultural produce, and between 15 and 35 percent of manufactured goods. When roads are absent, degraded, or under construction (and therefore impassable), transport costs spike, with cascading effects on consumer prices, export competitiveness, and farm-gate prices paid to smallholder farmers.

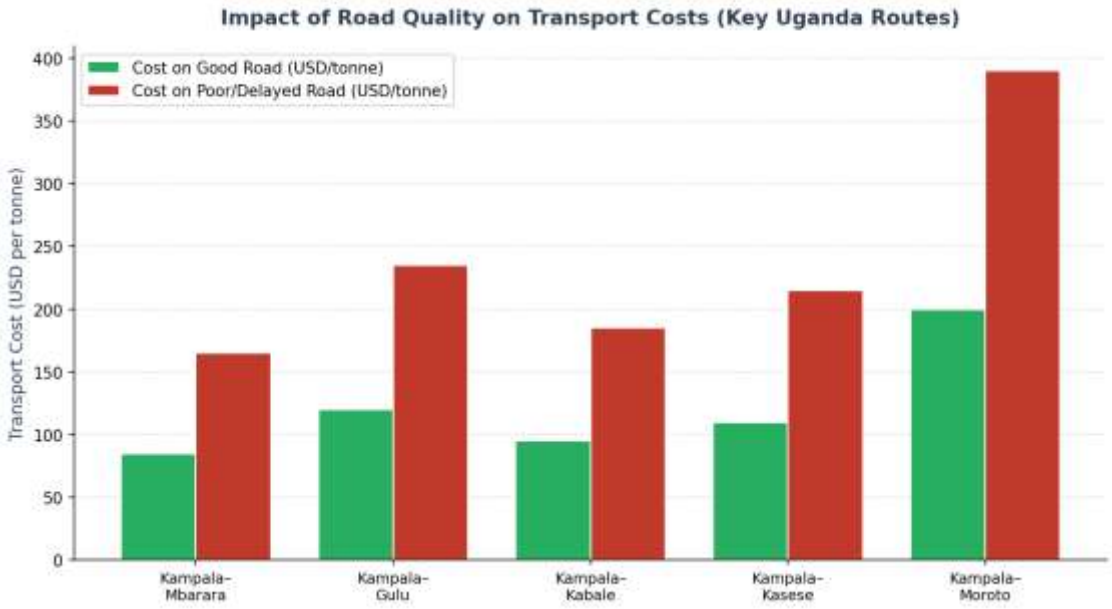

Figure 4: Comparative Transport Costs on Good vs. Poor/Delayed Roads (Key Uganda Routes, USD/tonne)

Figure 4 demonstrates that transport costs on poor or incomplete roads can be 80 to 95 percent higher than on well-surfaced roads. On the Kampala–Moroto route — a critical corridor serving Karamoja's emerging beef and sesame economy — the differential is nearly double. For a smallholder farmer sending a tonne of maize to market, this difference can be the margin between profit and loss.

Agricultural Sector Losses:-

Uganda's agriculture sector contributes approximately 24 percent of GDP and employs over 70 percent of the workforce. Perishable goods — matooke, tomatoes, fish, leafy vegetables — are particularly vulnerable to road delays during the critical harvest-to-market transport window. Studies by the Food and Agriculture Organisation (FAO) and Makerere University's School of Agricultural Sciences estimate that post-harvest losses attributable to poor road access and long transit times cost Uganda between USD 400 million and USD 650 million annually.

Road construction delays compound this problem. When an existing road is under construction but remains only partially accessible, farmers face worse conditions than if the road had simply been left in its pre-construction state. Equipment, material stockpiles, and construction activity can make already degraded roads temporarily impassable.

Investor Confidence and Foreign Direct Investment:-

Uganda's ability to attract and retain foreign direct investment (FDI) is materially influenced by infrastructure quality. Investor perception surveys conducted by the Investment Climate Advisory Services of the World Bank Group consistently rank transport infrastructure as the top constraint to doing business in Uganda, ahead of power costs and regulatory complexity. The discovery of commercial oil reserves in the Albertine Graben region created enormous potential for infrastructure-led investment in western Uganda. However, repeated delays in constructing feeder roads to the oil fields, construction of the East African Crude Oil Pipeline (EACOP) support road network, and upgrading of the Hoima–Kampala highway have contributed to investor hesitancy, project re-scoping, and delay in first-oil dates.

Estimated FDI cost of infrastructure delays: The Uganda Investment Authority estimates that at least USD 1.2 billion in confirmed FDI pledges between 2018 and 2022 were either cancelled, deferred, or reduced in scale partly due to infrastructure delivery failures.

Social and Humanitarian Impacts:-

Health Access and Maternal Mortality:-

In Uganda's rural areas, the ability to reach a health facility quickly can be the difference between life and death. The Uganda Demographic and Health Survey (UDHS) consistently shows strong correlations between road access and maternal and child health outcomes. In sub-counties where primary roads are classified as poor or impassable

during rainy seasons, institutional delivery rates — pregnant mothers giving birth in a health facility — can be 30 to 40 percentage points lower than in areas with good road access. Road construction delays perpetuate this problem in two ways. First, communities waiting for promised road improvements live in a state of uncertainty that discourages local investment in health-seeking behaviour. Second, active construction sites on roads that previously provided emergency access can temporarily cut off communities from health services. Kapchorwa District in the Mount Elgon region illustrates this dynamic. The rehabilitation of the Kapchorwa–Suam Road, contracted in 2018, remained incomplete by 2023 due to disputes with the contractor over scope changes in the mountain section. Community health workers reported that during the rainy season, ambulance access to several sub-counties was blocked by incomplete culverts, contributing to preventable maternal deaths.

Education and School Attendance:-

Road conditions directly affect school attendance, particularly for children in rural and semi-urban areas who must walk significant distances. Studies by Uganda's Ministry of Education and Sports, in collaboration with the World Food Programme's school mapping programme, show that children in communities with poor road access are 25 percent more likely to have irregular attendance and 18 percent more likely to drop out before completing primary school.Construction delays on roads serving school communities introduce an additional variable: active construction sites with heavy machinery, open excavations, and unmarked hazards create real safety risks for children commuting on foot. In Jinja Municipality, ongoing construction works on internal urban roads near four primary schools in 2021–2022 were linked to three accidents involving school-age children.

Trade and Regional Integration:-

Uganda is a landlocked country whose export competitiveness depends critically on trade corridors connecting it to the port of Mombasa (Kenya) and the port of Dar es Salaam (Tanzania). The Northern Corridor (Kampala–Malaba–Nairobi–Mombasa) and the Central Corridor (Kampala–Mutukula–Dar es Salaam) are vital arteries for Ugandan exports. Slow development of border infrastructure, bypass roads around congested towns, and weighbridge facilities on these corridors adds measurable cost and time to every export shipment. The Uganda Shippers Council estimates that trucks on the Northern Corridor spend an average of 22 hours at the Malaba border crossing, in part because road infrastructure on both sides of the border is inadequate to handle traffic volumes. A fully operational bypass road at Malaba — repeatedly delayed — could reduce this to under 8 hours.

Community Disruption During Construction:-

When road construction drags on for years rather than months, the communities living alongside the construction corridor experience prolonged disruption. Access to homes and businesses is interrupted. Dust, noise, and drainage problems affect quality of life. Compensation for affected properties is often delayed even longer than the construction itself, creating prolonged financial hardship for displaced households. In Wakiso District, businesses along the Gayaza–Zirobwe Road reported average revenue losses of 35 to 60 percent during the extended construction period (2017–2021) compared to pre-construction baselines. Several small enterprises — petrol stations, hardware shops, and food vendors — closed permanently before the road was completed.

Environmental and Urban Planning Implications:-

Environmental Degradation from Prolonged Construction:-

Road construction, by its nature, involves significant environmental disturbance: vegetation clearance, earthworks, quarrying, river diversions, and the operation of heavy machinery. When projects proceed efficiently, this disturbance is concentrated in time and can be mitigated through environmental management plans. When projects drag on for years, environmental impacts are sustained, cumulative, and often more severe. Incomplete drainage structures left over rainy seasons cause erosion gullies, siltation of streams and wetlands, and flooding of adjacent farmland. The Kafu–Kamwenge Road project, which traversed significant wetland areas in Kiboga and Kyankwanzi districts, was plagued by repeated contractor mobilisation failures. The protracted construction led to siltation of the Kafu River catchment at levels significantly above those modelled in the Environmental and Social Impact Assessment (ESIA), contributing to fish habitat loss.

Urban Sprawl and Planning Incoherence:-

In Kampala and secondary cities like Mbarara, Gulu, Fort Portal, and Jinja, the slow pace of road development has created a dysfunctional relationship between infrastructure and urban growth. Developers, real estate investors, and residents cannot predict when promised roads will be completed. As a result, urban growth continues without the infrastructure needed to support it, creating sprawling low-density settlements that are expensive to serve

retroactively with roads, water, and sewer systems.The Kampala–Jinja Expressway, conceived in the early 2010s and subject to multiple feasibility, procurement, and financing delays, had still not broken ground as of 2024. In the interim, the Jinja Road (A109) — the sole arterial connection between Kampala and eastern Uganda — has been overwhelmed by traffic volumes it was never designed to accommodate, contributing to some of the worst urban congestion in East Africa.

Root Causes of Project Delays:-

Understanding the causes of delay is prerequisite to solving them. The chart below summarises the primary causes as identified through a synthesis of Auditor General reports, UNRA project completion reports, independent evaluations by the World Bank and AfDB, and academic studies.

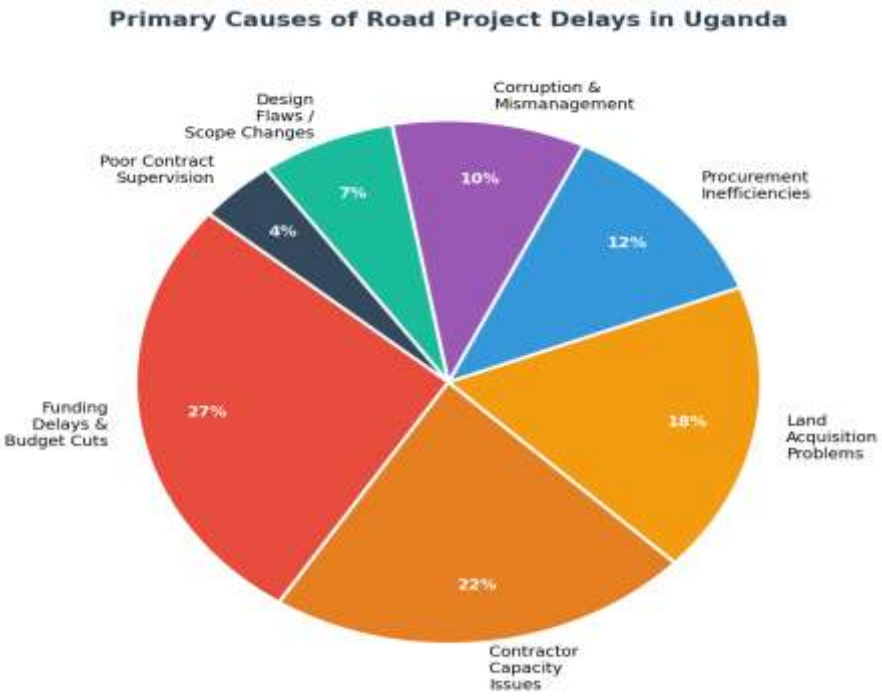

Figure 5: Primary Causes of Road Project Delays in Uganda (% contribution to delays)

Funding Delays and Budget Shortfalls (27%):-

The single largest cause of delays is the mismatch between contracted obligations and available funding. Uganda's road programme is chronically under-funded relative to commitments. UNRA regularly enters contracts based on multi-year budget projections that are subsequently cut during budget preparation, forcing project suspensions. Additionally, disbursements from external financiers are often delayed due to conditions that have not been met — including land acquisition, resettlement action plans, and safeguard compliance — further restricting cash flow to contractors. Between FY2018/19 and FY2022/23, UNRA was allocated an average of 78 percent of its requested road construction budget, meaning that for every five shillings of construction obligation, only four were available. The shortfall cascades through every project — contractors slow work, suppliers stop delivering materials on credit, and project completion dates slip by months per year of underfunding.

Contractor Capacity Failures (22%):-

A significant proportion of delays originate with contractors who win contracts but lack the technical capacity, equipment, personnel, or financial resources to execute them at the required pace. This problem afflicts both local and international contractors. Local firms often win contracts beyond their capacity because of attractive pricing in a competitive tender environment or because of relationships with procurement officials. International firms — particularly from China — sometimes deploy equipment and personnel below the specification required by contract.

Contract management capacity within UNRA and district local governments is also stretched. A project engineer managing three or four simultaneous contracts across different regions cannot provide the supervision intensity needed to keep contractors on schedule.

Land Acquisition Problems (18%):-

Securing right-of-way is among the most persistent and legally complex challenges in Ugandan road construction. Uganda's Land Acquisition Act (Cap 226) and the Land Act (Cap 227) create a framework for compulsory acquisition, but the process is slow, expensive, and often contested. Road corridors in peri-urban areas traverse land with unclear ownership, multiple competing claimants, or absentee landowners. Compensation valuations are frequently disputed. Court injunctions obtained by dissatisfied landowners can halt construction for months or years. On the Kampala–Mpigi Expressway, land disputes in the Ndeeba and Lubowa sections of the road delayed construction by over 18 months. UNRA's inability to take possession of a 2.3 km section prevented the contractor from proceeding with bridge approaches and interchange construction, idling equipment and personnel at considerable cost.

Procurement Inefficiencies (12%):-

Uganda's public procurement framework — governed by the Public Procurement and Disposal of Public Assets Act (PPDA Act) — while comprehensive, is slow. A major road contract typically takes 18 to 30 months from initial advertisement to contract award, longer when complaints are filed with the PPDA or when bids are rejected and re-tendering is required. This pre-contract period is invisible in project timelines but consumes time during which roads remain unbuilt.

Corruption and Mismanagement (10%):-

Corruption in road contracting takes multiple forms: bribery during contract award (influencing bid evaluation in exchange for payment), over-invoicing and certification of works not done, procurement of substandard materials, and embezzlement of project funds. The Auditor General's annual Value for Money reports on infrastructure consistently document missing payment records, unverified completion certificates, and contracts awarded to companies that cannot demonstrate prior relevant experience. The Mukono–Katosi Road scandal, in which USD 25 million in advance payments were made to a company later found to be unqualified, is the most egregious documented case. But smaller-scale corruption at the district level — in the procurement of gravel, culverts, and casual labour for community access road maintenance — compounds the aggregate impact.

Design Flaws and Scope Changes (7%):-

Inadequate pre-construction surveys — including geotechnical investigation, topographic survey, and drainage design — result in designs that must be substantially revised once construction commences. Variations to correct design errors are expensive, require re-approval processes, and invariably cause delay. On some projects, the volume of approved variations has exceeded 40 percent of the original contract value.

Poor Contract Supervision (4%):-

Supervision consultants — typically engineering firms contracted to provide resident engineers and quality oversight — vary enormously in capacity and diligence. Weak supervision allows contractors to deviate from specifications, work below required productivity rates, and fail to mobilise adequate resources without consequence.

International Comparisons and Lessons Learned:-

Rwanda: Building an Accountability Culture:-

Rwanda is frequently cited as the benchmark for infrastructure delivery in East Africa. The Rwanda Transport Development Agency (RTDA) has consistently delivered road contracts within or close to original timelines, contributing to Rwanda's position at the top of the World Bank's Doing Business rankings in the region. Key features of Rwanda's success include: a centralised, professionalised road authority with strong technical capacity; rigorous pre-qualification of contractors; detailed engineering design completed before tender rather than during construction; and a political culture that treats infrastructure delay as a leadership failure requiring accountability.

Ethiopia: Scale with Speed:-

Ethiopia's Roads Authority, managing one of Africa's largest road programmes (over 100,000 km), has achieved remarkable construction rates — at peak, building or rehabilitating over 4,000 km per year — through a combination of contract packaging (aggregating smaller works into larger, more attractive contracts), pre-financing through the

Ethiopian Road Fund, maintaining a roster of pre-qualified contractors updated annually, and deploying "rapid response" supervision teams to projects showing early signs of delay.

Kenya: Performance-Based Maintenance Contracts:-
Kenya's KeRRA (Kenya Rural Roads Authority) introduced Output and Performance-Based Road Contracts (OPRCs) as a mechanism to incentivise long-term performance over short-term construction. Under OPRCs, contractors are paid not per unit of work done but per kilometre of road maintained to a defined standard over a multi-year period. This shifts the incentive from maximising input costs to minimising life-cycle costs, and has produced measurable improvements in rural road conditions in western Kenya.

Singapore and South Korea: Technology Integration:-
While operating in very different contexts, Singapore and South Korea's experience with Building Information Modelling (BIM) for infrastructure, GPS-tracked equipment monitoring, and drone-based progress verification provides a technology roadmap applicable to Uganda's larger, externally-financed projects. Rwanda has already piloted drone-based road condition surveys; Uganda could adapt this at scale.

Solutions and Reform Recommendations:-
The following reform recommendations are organised into short-term actions (implementable within 12 months), medium-term reforms (2–5 years), and long-term structural changes (5+ years). They address institutional, legislative, financial, and technical dimensions of the problem.

Institutional Reforms:-
Strengthen UNRA's Technical Capacity:-
- Increase UNRA's establishment of qualified engineers by 40 percent over three years, prioritising resident engineers for active projects.
- Establish a Project Delivery Unit (PDU) within UNRA dedicated to monitoring contractor performance, identifying early warning signs of delay, and triggering contractual remedies.
- Create a centralised UNRA Project Management Information System (PMIS) that tracks all active contracts in real time, accessible to Parliament, the Auditor General, and the public.

Reform the Supervision Consultancy Model:-
- Require supervision consultants to be retained for the full contract period, with their fees linked to project completion rate — paying full fees only when projects complete on time.
- Blacklist supervision consultants who certify sub-standard work or who fail to issue timely non-compliance notices to contractors.
- Introduce independent third-party verification of supervision reports for contracts above UGX 50 billion.

Pre-Construction Requirements:-
Mandatory Front-Loading of Design and Land Acquisition:-
- No contract should be advertised for tender until detailed engineering design (not just feasibility study or preliminary design) is 100 percent complete.
- Land acquisition and resettlement must be at least 80 percent complete before a Notice to Commence is issued to any contractor.
- Establish a Lands and Right-of-Way Unit within UNRA empowered to act as acquiring authority, with dedicated legal staff and an expedited court process for compensation disputes.

Contractual Architecture:-
Introduce Milestone-Based Payment Structures:-
- Replace the current volume-of-work payment model with milestone-based payment structures for large contracts, where interim payments are tied to achieving defined progress milestones (e.g., 25%, 50%, 75% physical completion) by specified dates.
- This directly aligns contractor cash flow incentives with schedule performance.

Mandatory Performance Bonds:-

- Require all contractors on contracts above UGX 10 billion to submit a performance bond of 15 percent of contract value (increased from the current 10 percent) from a reputable, licensed insurance or surety company with Uganda Insurance Commission approval.
- Amend standard contract conditions to allow UNRA to call the bond after 90 days of unexcused delay, without requiring a court order.

Liquidated Damages at Deterrent Levels:-

- Current liquidated damages provisions (typically 0.05% of contract value per day) are insufficient to deter delays. Increase to 0.15–0.20% per day for delays beyond the Defects Notification Period, capped at 25% of contract value.
- Publicise all liquidated damages deductions in UNRA's quarterly performance dashboard.

Financing Reforms:-

Multi-Year Road Fund Allocations:-

- Amend the Uganda Road Fund Act to require that Parliament approve multi-year funding commitments (3-year rolling allocations) for active construction contracts, insulating them from annual budget volatility.
- Establish a Road Construction Escrow Account into which appropriated funds are deposited at the start of each financial year, accessible only for certified contractor payments.

Advance Payment Guarantees:-

- Tighten advance payment guarantee requirements: guarantees must be unconditional, payable on demand, and from a bank with minimum Tier 1 capital of USD 50 million.
- Establish a central registry of advance payment guarantee calls and contractor defaults, shared across all procuring entities.

Digital Monitoring and Transparency:-

- Deploy GPS tracking on all equipment deployed under UNRA contracts above UGX 20 billion, with real-time data visible to UNRA's PDU.
- Require quarterly drone surveys of project progress, with reports submitted to the project file and made publicly available on the UNRA website.
- Introduce a citizen reporting portal (accessible via web and USSD for non-smartphone users) allowing communities to report construction issues, inactivity, and quality concerns directly to UNRA.
- Publish a monthly contractor performance league table ranking all active contractors by progress against schedule, quality compliance, and payment status.

Accelerating Contractor Performance: Specific Mechanisms:-

Beyond the systemic reforms outlined above, specific mechanisms can be deployed to make road contractors work faster and more accountably. These range from contractual incentives to regulatory tools to market-shaping interventions.

Incentive Bonuses for Early Completion:-

Uganda's standard FIDIC-based contracts include liquidated damages for delay but no corresponding early completion bonus. Introducing an Acceleration Bonus — payable to contractors who complete before the contract completion date — creates a positive financial incentive to work faster rather than simply avoiding the penalty for working too slowly.Rwanda's road contracts include early completion bonuses equivalent to 50 percent of the daily liquidated damages rate for each day of early completion, capped at 5 percent of contract value. In several documented cases, contractors accelerated works and delivered ahead of schedule to capture these bonuses, saving the government the cost of extended supervision and overhead.

Uganda could adopt a similar structure, calibrated to 0.075 percent of contract value per day of early completion, capped at 10 percent of contract value for time-critical contracts (e.g., roads serving agricultural export corridors or tourist circuits).

Contractor Pre-Qualification Reforms:-

The current UNRA pre-qualification process allows a broad range of contractors to bid for major works, including companies that have defaulted on previous contracts but are bidding under different corporate structures.

Reforms should include:

- A national Contractor Performance Registry, maintained by the PPDA and updated quarterly, recording all contract defaults, liquidated damages imposed, and terminations. Any company with a default record within the past five years should be ineligible for pre-qualification.
- Mandatory equipment verification: contractors pre-qualifying for earthworks and paving contracts above UGX 30 billion must demonstrate actual ownership (not mere lease agreements) of a specified minimum equipment fleet, verified by physical inspection.
- Financial capacity threshold: require contractors to demonstrate liquid assets or credit facilities equal to 15 percent of the bid contract value, verified by a licensed commercial bank.
- Experience specificity: require that at least one similar project of at least 60 percent of the bid contract value has been completed by the pre-qualifying entity itself — not by a parent, subsidiary, or affiliated company — within the past eight years.

Joint Venture Requirements for Local Content:-

Many large road contracts are awarded to international firms (particularly Chinese state-owned enterprises) that operate with minimal local supply chain engagement. Introducing mandatory Joint Venture requirements — stipulating that all contracts above USD 50 million must include a Ugandan firm holding a minimum 30 percent JV share — would achieve several goals simultaneously: building local contractor capacity, ensuring that at least one party to the contract has local market knowledge and accountability, and retaining a larger share of contract value within the Ugandan economy. To prevent the use of shell companies as nominally Ugandan JV partners, the PPDA should verify that the Ugandan JV partner has an operational track record (minimum five years, minimum three completed road contracts), local staff, and local bank accounts.

Escalation Protocols and Executive Accountability:-

Currently, UNRA project managers have limited authority to take decisive action against underperforming contractors without approval from multiple layers of management. This bureaucratic friction allows problems to fester for months.

A clear escalation protocol should be adopted:

Table 2: Proposed Contractor Performance Escalation Protocol

Trigger Event	Required Action	Responsible Authority
10% behind schedule	Issue formal written warning; contractor to submit recovery programme within 14 days	Resident Engineer / UNRA PM
20% behind schedule	Apply liquidated damages; conduct joint technical audit with contractor	UNRA Director of Engineering
30% behind schedule, no credible recovery plan	Call performance bond; issue Notice of Default; appoint adjudicator	UNRA Executive Director
Continued default after adjudication	Terminate contract; blacklist entity; re-tender using stepped-up works model	Minister of Works and Transport

Parliamentary and Civil Society Oversight:-

Uganda's Parliament, through its Committee on Physical Infrastructure, has the authority to summon UNRA officials, review project performance data, and recommend sanctions. However, this oversight is reactive — triggered by scandal rather than routine monitoring. Institutionalising quarterly project performance hearings, at which UNRA must present progress data for all active contracts above UGX 20 billion, would create a regular accountability rhythm. Civil society organisations, including the Uganda Road Sector Support Initiative (URSSI), the Uganda Debt Network, and local chapters of Transparency International, can play a complementary watchdog

role through community monitoring programmes, freedom of information requests for project documentation, and public reporting. Uganda should formalise this relationship by establishing a Civil Society Observer seat on the UNRA Board.

Technology-Driven Contract Management:-

Digital transformation of contract management can reduce the bureaucratic friction that allows delays to compound. Specific tools recommended for adoption include:

- Electronic Works Measurement Systems: automated quantity measurement from drone and LiDAR survey data, reducing the time and subjectivity of interim payment certification from weeks to days.
- AI-Powered Schedule Analytics: machine learning tools that analyse project progress data and compare it against baseline schedules, flagging statistically significant delays early enough for corrective action.
- Blockchain-Based Payment Certification: a shared ledger platform through which the Resident Engineer, UNRA, the Ministry of Finance, and the contractor all verify payment certification before disbursement, eliminating the risk of fraudulent certification.
- Mobile Quality Inspection Apps: equipping site staff with mobile applications that capture geo-tagged photographic evidence of work completed, linked to contract quantities in the PMIS.

Training and Capacity Building for Local Contractors:-

Accelerating contractor performance requires not only punishing underperformance but investing in capacity. Uganda's construction industry employs tens of thousands of skilled workers and has the potential to develop a world-class domestic contracting sector capable of competing regionally.

The Uganda Investment Authority, in partnership with UNRA and the Ministry of Works, should fund:

- A Uganda Infrastructure Academy offering certification programmes in project management, road construction technology, contract administration, and equipment operation.
- A Contractor Development Programme providing mentoring, technical assistance, and bridging finance to small and medium Ugandan contractors, enabling them to take on larger contracts over time.
- Regional contractor associations with UNRA affiliation, facilitating peer learning, joint procurement of equipment, and shared labour pools among smaller firms.

Conclusion:-

The impact of slow road works and infrastructure development in Uganda is not abstract or distant. It is measured in the hours a nurse loses travelling to a remote health centre on a degraded earth road, in the tonnes of matooke that rot before reaching Kampala's markets, in the investor who chooses Rwanda or Kenya over Uganda because they cannot be assured that the road connecting their factory to the port will exist in five years. Uganda's infrastructure challenge is solvable. The country has the financial resources — through the budget, the Uganda Road Fund, and development partner support — to fund a significantly accelerated road programme. It has the human potential to develop a world-class domestic construction industry. What it has consistently lacked is the institutional architecture, political will, and accountability mechanisms to translate those resources into roads delivered on time and within budget. The reforms proposed in this paper — from mandatory detailed design before tender, to performance-linked bonuses, to real-time digital monitoring, to parliamentary accountability hearings — are not radical departures from international norms. They are the standard operating procedures of countries that deliver infrastructure efficiently. Uganda does not need to reinvent the wheel; it needs the political commitment to adopt what works and the institutional discipline to sustain it. The cost of waiting — measured in economic losses, lives affected, and development foregone — runs into hundreds of billions of shillings every year. The cost of reform is a fraction of that. Uganda's 48 million citizens, and the generations to come, deserve roads that are built quickly, built well, and built to last.

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