



Domestic Revenue Mobilization Strategy

A Framework for the Sustainable Financing

of the

National Road Fund

A Strategic Framework for Revenue Mobilization

Development and Management Solution, Inc

I. Executive Summary

The National Road Fund (NRF) of Liberia was established in 2016 to provide a dedicated and sustainable source of financing for road maintenance. Since its operationalization in 2018, the NRF has relied predominantly on a petroleum levy imposed on fuel imports. While this levy has contributed significantly to road financing—generating over US\$125 million from 2020 to 2024—it has consistently underperformed relative to projections. Challenges such as collection inefficiencies, inadequate enforcement, and the mismatch between collection and remittance have exposed the vulnerability of this single-source financing approach.

This Domestic Resource Mobilization (DRM) Strategy represents a comprehensive effort to assess and reform the NRF’s financing architecture. It is grounded in diagnostic analysis, stakeholder consultations, and international best practices. The strategy identifies key limitations in the current system, including over-reliance on the petroleum levy, limited diversification of revenue streams, and structural inefficiencies in fund transfers.

In response, a suite of priority financing measures has been developed—integrating both existing mechanisms and new, stakeholder-informed solutions—to broaden the revenue base and enhance financial sustainability. These include:

1. Reforming the petroleum levy to improve enforcement, review rates periodically, and address exemptions.
2. Expanding the road user charge to include vehicle registration and driver licensing fees, already authorized under the NRF Act.
3. Introducing toll roads based on feasibility studies and public acceptance frameworks.
4. Leveraging public-private partnerships (PPPs) for capital-intensive road projects.
5. Institutionalizing a special regime for electric vehicles (EVs) to ensure equitable contribution from non-petroleum road users.
6. Implementing circulation permits for foreign-registered vehicles entering Liberia temporarily.
7. Establishing a revenue-sharing scheme for city parking permits, particularly in high-traffic cities beyond Monrovia and Paynesville.
8. Embedding a nominal surcharge on third-party motor vehicle insurance as part of the road user charge.
9. Exploring innovative financing mechanisms such as green bonds, carbon credits, land value capture, and advertising rights.

The above measures were not arbitrarily selected but emerged from a consultative and evidence-based process. Stakeholder feedback—in person meeting and presentations—played a central role in deriving these options. A detailed assessment of each financing measure is provided, including revenue potential, legal feasibility, institutional requirements, and ease of implementation. The strategy also outlines governance enhancements, such as automatic fund transfers, improved reporting systems, and stronger audit and accountability frameworks, all aimed at enhancing public trust and ensuring efficient resource utilization.

By implementing these integrated and prioritized measures, the NRF will be positioned as a robust, transparent, and forward-looking mechanism capable of sustaining road investments and driving national development.

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II. Introduction and Background of the National Road Fund

Roads do more than connect places - they connect people, businesses, and opportunities. Understanding the importance of safe and reliable roads, Liberia established the National Road Fund (NRF) in 2016 to ensure consistent funding for road construction and maintenance. Managed by the National Road Fund Office (NRFO) and overseen by the Inter-Ministerial Steering Committee (IMSC), the NRF plays a crucial role in making sure road projects are well-funded and effectively implemented to serve the people.

To keep the wheels turning, the NRF is financed through road user charges, national budget allocations, grants, loans, and the petroleum levy - a charge on every gallon of fuel imported into the country. Over the years, funding has come from key partners such as the African Development Bank (AfDB), the World Bank, SIDA, and the Millennium Challenge Corporation (MCC). A major boost came in 2021 with a US\$7 million loan from UBA, dedicated to the Marshall Road Project, demonstrating Liberia's commitment to expanding and improving its road network.

As Liberia strives to expand its road network and enhance mobility, the NRF remains pivotal in ensuring that investments in infrastructure translate into long-term economic benefits. This document explores the structure, funding sources, and financial performance of the NRF, shedding light on how it continues to drive the country's road sector forward.

A. Establishment and legal framework of the NRF

The NRF was established by an Act of the National Legislature in 2016. Its sole aim is to finance the construction and maintenance of road infrastructure across Liberia. The Act establishing the NRF creates an administrative and oversight bodies in the National Road Fund Office (NRFO) and the Inter-Ministerial Steering Committee (IMSC). The NRFO oversees the daily management of the NRF while the IMSC provides strategic leadership and overall direction for road maintenance funding by approving road maintenance programs.

The IMSC is chaired by the Minister of Public Works and comprise the Minister of Finance and Development Planning, Minister of Transport, Minister of Commerce and the Minister of Internal Affairs. The Minister of Finance and Development Planning has direct oversight of the NRFO, which is headed by a road fund manager. The road fund manager, among other things, advises the IMSC on the level and sources of road user charges. Chapter Five of the NRF Act establishes the following sources of funding.

- Monies collected from road user charges
- Monies appropriated by the National Legislature for the NRF
- Grants and loans arranged by the Government of Liberia (GOL) to undertake specific programs, projects or works
- Monies paid received in respect of a loan obtained on behalf of the NRF,
- Monies paid to the Fund from proceeds acquired through the sale of assets
- Capital gains derived from interest or dividends earned on investment.

B. Current NRF Funding Sources

Over the years, the NRF has been funded through a myriad of sources. These include grants, loans and revenue generated from the petroleum levy. For instance, the NRF has received grants from SIDA, AfDB, and World Bank, loan from UBA, matching fund from the MCC, bid fees and interest income. Additionally, the NRF has benefited from technical assistance from the AfDB. That said the principal means of financing the NRF has been the petroleum levy, which is designed as road user charge that is set in the annual Budget Law. Accordingly, the basis of the petroleum levy is every gallon of gasoline and diesel imported into Liberia, while the unit of the levy is the importers of the petroleum products. In its current design, the petroleum levy is collected by the LRA and subsequently transferred to the NRF account hosted at the CBL.

A total of US\$7.49 million has been received by the NRF in the form of loans, grants and in-kind assistance. Of this amount, US\$7 million was mobilized in FY2021 as a loan from UBA to finance the Marshall Road Project.

Table 1: Other Sources Financing the NRF

Other Sources of Financing	USD million
Grants	0.36
Loans	7.00
In-kinds	0.11
Total	7.49

Also, during the period 2019 to 2021, US\$0.36 million was sourced in grant financing, of which 98.69 percent was provided by GIZ and 1.31 percent by SIDA. The GIZ grant was mobilized in two tranches – US\$0.25 million in 2020 and US\$0.13 million in 2019. In-kind assistance totalling US\$0.11 million was received during the period 2018 to 2024, of which 56 percent was provided by the AfDB, 26 percent by World Bank and 19 percent by GIZ. The AfDB in-kind assistance covered legal services for the amendment to the NRF Act, while the World Bank procured cloud-based accounting software. GIZ procured a vehicle for the NRF use with a monetary value of US\$20,000.

C. Challenges to Financing Road Infrastructure.

Liberia's road network is the backbone of national development, facilitating trade, agriculture, healthcare access, and economic growth. However, financing road construction and maintenance remains a persistent challenge due to limited fiscal resources, dependency on a narrow revenue base, and structural inefficiencies in fund allocation. While the National Road Fund (NRF) was established to ensure dedicated financing for road infrastructure, the reality is that funding remains inadequate, unpredictable, and often subject to external influences. These financial constraints directly affect the country's ability to build and maintain roads, leaving many rural areas disconnected and urban centers struggling with deteriorating infrastructure.

1. Over-Reliance on the Petroleum Levy

One of the most significant hurdles to road infrastructure financing in Liberia is the over-reliance on the petroleum levy as the primary source of revenue for the NRF. The levy, imposed on every gallon of gasoline and diesel imported into the country, serves as a road user charge to generate funds for road maintenance. However, this funding mechanism faces several challenges. Fluctuations in global fuel prices, reduced fuel imports, and tax compliance issues among importers create revenue instability. Additionally, as global trends shift towards cleaner energy alternatives, long-term dependence on petroleum levies may become unsustainable. The revenue generated from this source alone is insufficient to meet the country's growing infrastructure needs, resulting in persistent funding gaps.

2. Limited Alternative Funding Sources

While external funding sources such as grants, loans, and technical assistance from international partners - including the African Development Bank (AfDB), World Bank, and Millennium Challenge Corporation (MCC) - have supplemented road infrastructure financing, these funds are often tied to specific projects with rigid conditions. The unpredictable nature of donor funding and loan disbursements means that road projects frequently experience delays, cost overruns, or even cancellations. Additionally, Liberia has not fully explored other innovative revenue-generating mechanisms, such as toll roads, private sector investments through Public-Private Partnerships (PPPs), or infrastructure bonds that could diversify financing options.

3. High Costs of Road Construction and Maintenance

The cost of building and maintaining roads in Liberia is exceptionally high due to several factors. A significant portion of road construction materials, including asphalt, cement, and machinery, must be imported, making projects vulnerable to exchange rate fluctuations and supply chain disruptions. Additionally, Liberia's challenging terrain, including dense forests and heavy rainfall, increases construction costs and accelerates road deterioration. Weak procurement and contract management practices further inflate costs, as projects often face inefficiencies, delays, and quality concerns that require additional financial resources for repairs and rework.

4. Inefficiencies in Fund Management and Allocation

Another critical challenge is the inefficient management of available funds. While the NRF was designed to ensure transparent and dedicated financing for road projects, challenges such as delayed transfers from the Liberia Revenue Authority (LRA) to the NRF, weak enforcement of road user charges, and governance constraints limit the fund's effectiveness. Budget execution challenges also arise when funds earmarked for road maintenance are redirected to cover other government priorities, further straining the already limited resources. Strengthening financial oversight, ensuring timely disbursement of funds, and improving transparency in expenditure tracking are crucial to addressing these inefficiencies.

5. Impact of Climate and Environmental Factors

Liberia's road network is highly vulnerable to climate change and extreme weather conditions. Heavy rains, floods, and poor drainage systems accelerate road degradation, increasing

maintenance costs. Many rural roads, especially unpaved ones, become impassable during the rainy season, cutting off entire communities from essential services such as healthcare and markets. The lack of climate-resilient infrastructure further exacerbates these challenges, making long-term road sustainability difficult without additional investments in weather-proof designs and sustainable engineering solutions.

D. Methods and Approaches to Drafting the NRF Revenue Strategy

As noted in the inception report, the drafting of the NRF financing framework document entails the use of qualitative and quantitative techniques to analyse the revenue performance of the existing petroleum levy and the revenue potential of new revenue sources. Various data analysis techniques, including descriptive statistics and smart tables adopted in deriving the revenue impact of the proposed revenue mechanisms. Qualitative techniques such as desk review, interviews and content analysis are used in identifying additional revenue mechanisms and carving out appropriate implementation strategies. The structured approach outlined below is adopted in developing this framework document.

1. Inception and Initial Engagements:

To establish a clear understanding of the assignment, its objectives and deliverables, an inception meeting with NRF stakeholders will be conducted. The aim here is to clarify their expectations and refine the assignment's scope, if need be. This phase of the assignment will also see the drafting and submission of an inception report (i.e., the current report) detailing the methodology, workplan, timeline and key milestones. The main stakeholders and data sources required for the assignment will also be identified during the inception phase.

2. Assessment and Diagnostic of the NRF Financing Sources:

This phase basically entails the evaluation of the existing revenue mobilization mechanism (i.e., the fuel levy) and the funding gaps. Some specific undertakings during this phase include:

- Review of existing policy and legislative framework, including the Act establishing the NRF, to understand current revenue streams and limitations.
- Analysis of financial and technical data to assess funding gaps and forecast future needs.
- Benchmarking against best practices in road fund management from other countries, focusing on similar economies or regional contexts.
- Identifying inefficiencies or bottlenecks in the current system.

3. Identification of New Revenue Mechanism:

This phase of the assignment entails identifying and analysing sustainable and practical revenue mobilization mechanism. It involves exploring potential sources, including those already listed in the NRF Act. The revenue generating potential of the identified mechanisms will also be assessed, including their economic viability, collection feasibility and long-term sustainability. The mechanisms will be prioritized based on revenue generating potential, ease of implementation and alignment with NRF objectives.

III. Assessment of the Current Financing Mechanism

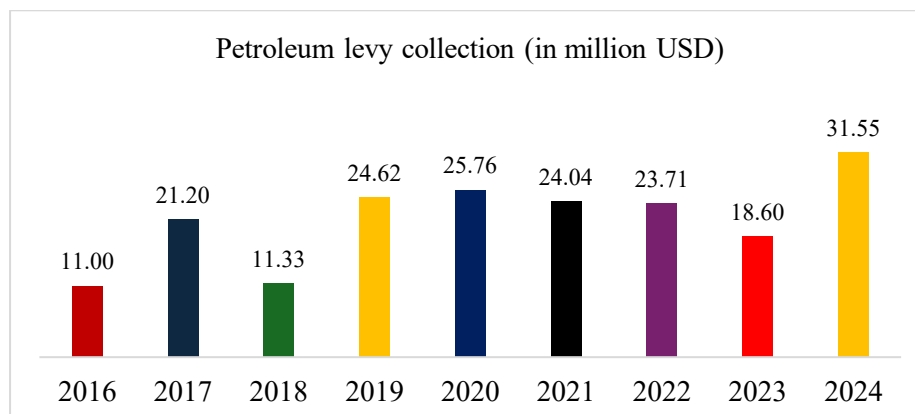
The petroleum levy stands as the backbone of Liberia’s National Road Fund (NRF), serving as its most significant revenue source. Since its introduction in 2016, this levy has undergone several adjustments, shaping its role as a key funding mechanism for road maintenance and development. Over the period 2020 to 2024 alone, the levy generated approximately \$125 million, despite fluctuations in its rate - from \$0.30 per gallon initially to \$0.20 per gallon in subsequent years. However, revenue collection has not been without challenges. The transfer of collection responsibilities from the Liberia Petroleum and Refinery Corporation (LPRC) to the Liberia Revenue Authority (LRA), coupled with court-imposed moratoriums, has influenced overall collections. Since the Supreme Court lifted the moratorium, the LRA has collected a total of \$191.81 million on behalf of the NRF.

Despite its importance, the petroleum levy often falls short of its projected targets, creating funding gaps that undermine the NRF’s ability to execute critical road infrastructure projects. These shortfalls stem from multiple factors, including inefficiencies in levy collection, weak enforcement mechanisms, and external pressures such as fluctuating global oil prices and economic downturns. Additionally, gaps in transparency and inconsistencies between collection and remittance further complicate the NRF’s financial sustainability. Addressing these issues requires a comprehensive review of the levy’s structure, collection process, and projection methodology, ensuring the petroleum levy remains a stable and efficient funding source for Liberia’s road network.

A. The Petroleum Levy as the Primary Revenue Source

By all measures, the petroleum levy is the largest revenue stream or financing source for the NRF. For instance, approximately US\$125 million was realized on account of the petroleum levy over the period 2020 to 2024. The rate of the petroleum levy has, over the years, fluctuated between US\$0.30 per gallon to US\$0.20 per gallon. The imposition of the petroleum levy can be traced to as far back as 2016, when the rate was first set at US\$0.30 per gallon and the collection responsibility entrusted to the Liberia Petroleum and Refinery Corporation (LPRC). Since the transfer of the collection responsibility from the LPRC to the LRA and following the lifting of the moratorium on collection by the Supreme Court, a total of US\$191.81 million has been collected by LRA on account of the petroleum levy.

Figure 1: Petroleum Levy Collection (2016-2024)



The actual collection of the petroleum levy often falls short of projections, thereby undermining the Fund’s ability to meet its annual expenditure objectives. Several factors or combination of factors are responsible for or contribute to this shortfall. These include inadequacy of the levy design, unrealistic projections, inefficiencies in the levy collection and reporting systems, weak enforcement mechanisms, and potential revenue leakages. Additionally, external factors such as fluctuating global oil prices, economic downturns, and inconsistent compliance among fuel importers could further exacerbate the gap between projected and actual revenues.

These shortfalls do not only hinder the NRF’s capacity to finance critical road infrastructure projects but they also emphasize the need for a more robust and transparent revenue collection system to maximize the revenue generating potential of petroleum levy as the leading financing source of the NRF – including a review of the methodology used in projecting the petroleum levy, design of the levy and the means of collection.

Table 2: Petroleum Levy Performance (2016-2024)

NRF Petroleum Levy (USD m)	2020	2021	2022	2023	2024	TOTAL
Actual	26.77	24.47	23.71	18.85	31.79	125.59
Projection	29.56	24.95	26.30	27.82	32.64	141.27
Variance	-2.79	-0.48	-2.59	-8.97	-0.85	-15.68

B. Revenue Gaps and Sustainability Concerns

Despite the imposition of the levy in 2016, the operationalization of the NRF started in 2018 with the setting up of the NRFO, recruitment of staff and opening of the NRF account. The account, which is hosted by the CBL, facilitates the collection and transfer of the petroleum levy and any other revenues accruing to the NRF. Analysis of data obtained from the NRF payment records revealed a consistent mismatch between the amounts collected by the LRA (as reflected in the Consolidated Revenue Account) on behalf of the NRF and the actual amounts remitted by the Government of Liberia to the NRF account. Over the period analysed, a total of \$160.80 million was collected, but only \$134.06 million was transferred, leaving a variance of \$26.74 million. The most significant shortfalls occurred in fiscal years 2019-2020 (\$14.49 million) and 2018-2019 (\$9.44 million), thus indicating systemic inefficiencies or diversions in the transfer process.

Several factors are observed to have contributed to the mismatch between what is reported by the LRA and what is transferred to the NRF account. One such observation is the remittance process, which is largely controlled by the MFDP. Under the current system, the MFDP must instruct the CBL to transfer funds from the GOL consolidated revenue account to the NRF account. Delays, competing government priorities, and potential fiscal constraints may lead to the diversion of these funds to cover other pressing government expenditures. Additionally, weak enforcement mechanisms and a lack of transparency in fund transfers could also play a role in the discrepancies. While the records for recent years (2022-2024) show improved alignment between collection and remittance, addressing past shortfalls remains crucial to restoring trust and ensuring the NRF has adequate resources to fulfill its mandate.

Table 3: Petroleum Levy Collection vs Remittance to NRF

Payment Period	LRA Consolidated Collection	GOL Consolidated Remittances to NRF	Variance
Jul 2018 to Jun 2019	25.49	16.05	-9.44
Jul 2019 to Jun 2020	26.60	12.11	-14.49
Jul 2020 to Jun 2021	24.04	22.64	-1.40
Jul 2021 to Jun 2022	11.20	6.49	-4.72
Jan 2022 to Dec 2022	23.64	26.95	3.31
Jan 2023 to Dec 2023	18.35	18.35	0.00
Jan 2024 to Dec 2024	31.49	31.49	0.00
TOTAL	160.80	134.06	-26.74

C. Inadequacy of the Petroleum Levy

The inadequacy of the petroleum levy becomes evident when the actual annual collection is compared to the financial requirements of Liberia's annual road maintenance and expenditure program. The revenue generated from the levy consistently and significantly falls short of the amount needed to cover the costs of maintaining and developing the country's road infrastructure. As already noted above, several factors contribute to the inadequacy of the petroleum levy, including the relatively low rate of levy, which does not reflect inflationary pressures or the true cost of road maintenance.

Additionally, exemptions given to some major importers or compliance issues among fuel importers, combined with inefficiencies in collection mechanisms, may further limit the funds available for the NRF. The exemption given to major concessions creates the possibility of fermenting illegal sales of petroleum products as there is not system in place to track the usage of exempt products. Besides, external economic conditions, such as fluctuations in global oil prices and reduced fuel consumption due to economic downturns, can also negatively impact revenue collection. Together, these factors underscore the need to explore other financing mechanisms. The understanding of how these factors is essential for assessing the sustainability of the petroleum levy and the identification of policy measures to enhance its reliability as a stable funding source for road infrastructure development.

1. Fluctuations in petroleum imports

As a consumption-based road-user charge, fluctuations in petroleum imports have a direct impact on the revenue generated from the petroleum levy. Since the levy is collected on fuel imports, any decline in petroleum imports leads to a corresponding reduction in revenue. Several factors contribute to these fluctuations, including global oil price volatility, economic downturns, and changes in domestic fuel consumption patterns. When fuel prices rise sharply, importers may reduce volumes due to decreased consumer demand, leading to lower levy collections.

Similarly, economic slowdowns can reduce transportation activities, further impacting fuel imports and hence revenue from the petroleum levy. Additionally, supply chain disruptions,

regulatory changes, and competition from illicit fuel markets can also affect the consistency of petroleum imports. These fluctuations create uncertainty in the NRF's revenue stream, making it difficult to plan and finance long-term road maintenance and infrastructure projects. To mitigate this challenge, policy measures such as adjusting the levy structure, diversifying revenue sources, and strengthening enforcement mechanisms could help stabilize road fund revenues.

2. Changes in petroleum prices

Since petroleum levy is a specific tax applied as a fixed dollar amount per gallon rather than an ad valorem tax based on price, changes in petroleum prices impact revenue primarily through their effect on fuel consumption and import volumes. When global oil prices rise significantly, fuel becomes more expensive for consumers, often leading to reduced demand and lower import volumes, which in turn decreases the total revenue generated from the levy. Conversely, when petroleum prices decline, fuel becomes more affordable, potentially increasing consumption and importation, thereby boosting levy collections. However, external factors such as economic conditions, consumer behaviour, and alternative energy adoption can also influence fuel demand regardless of price fluctuations. This dynamic underscores the vulnerability of the petroleum levy to market conditions.

D. Assessment of the Collection and Reporting Systems

The current petroleum levy collection system entails multiple layers of assessment, collection, and transfer, which introduce potential inefficiencies and delays in fund allocation to the NRF. Unlike traditional import-based taxation, the petroleum levy is assessed based on the quantity of petroleum products lifted from storage facilities rather than at the point of importation. This approach ensures that the petroleum levy is charged on actual market distribution rather than on anticipated consumption, potentially reducing revenue losses from unaccounted fuel stocks. However, it also creates room for discrepancies if there are inconsistencies in reporting or if fuel distributors engage in practices such as illegal stockpiling or diversion. Another challenge in collection is that the LRA, which is responsible for assessment and collection of the levy, has no role in the transfer of the levy to the NRF account. The LRA oversees the placement of the funds into the GOL consolidated revenue account rather than directly into the NRF account. This raises concerns about fund accessibility and transparency.

Another weakness in the petroleum levy collection and reporting system is the lack of an automatic remittance process. Instead of immediate transfers to the NRF account, the MFDP must issue monthly instructions to the CBL to transfer the collected funds. This manual intervention creates delays and exposes the process to fiscal management risks, including potential diversions of funds to cover other government expenditures before they reach the NRF account. Additionally, inconsistencies in the timing and completeness of these transfers have resulted in historical mismatch between what is collected and what is remitted to the NRF account. Establishing a more transparent and efficient remittance process, such as an automatic transfer mechanism, would help ensure that road maintenance and infrastructure projects receive the necessary funding without delays or administrative bottlenecks.

E. Transparency and Accountability

The mismatches between projections and actuals on the one hand, and actuals and transfers to the NRF account on the other hand raise transparency and accountability concerns. Accordingly, improving transparency in the collection, management, and disbursement of NRF funds is crucial in building public trust and ensuring the effective use of resources. It is therefore imperative that a publicly accessible reporting system be established, such as an online portal that provides regular updates on petroleum levy collections, remittances, and expenditures.

Also, the full disclosure of audits and financial reports. Reputable external auditors should be engaged to perform regular audits of the NRF's operations, with the ensuing audit reports published promptly and all identified issues be addressed. Success will be measured by the frequency and quality of independent audits and the timely resolution of identified issues. This measure is politically feasible as it aligns with good governance practices and can gain support from stakeholders. Conducting independent audits requires administrative effort, but it is feasible with the support of external auditors. The cost of implementation is moderate, and the benefits of improved oversight and accountability outweigh the costs.

Active and effective communication with all stakeholders, including the public, government agencies, and development partners, will contribute to enhancing transparency and accountability of the NRF. One approach could be regular stakeholder meetings and public consultations to gather feedback and address operational and policy concerns. Social media and other communication channels will be used to keep stakeholders informed. Maintaining stakeholder engagement requires administrative effort, but it is feasible with existing structures. The cost of implementation is moderate, and the benefits of improved stakeholder engagement outweigh the costs.

IV. Identification of New Revenue Streams

As Liberia's road networks expand and maintenance costs increase, it is imperative to explore and implement additional or alternative funding mechanisms that can provide a stable and predictable revenue stream for the NRF. This section identifies and evaluates potential new revenue sources that could enhance the financial sustainability of the NRF. The analysis considers options such as expanding road user charges—through adjustments to the petroleum levy, imposition or moving the vehicle registration and licensing fees to the NRF, axle load fees, and foreign vehicle entry fees—as well as introducing road tolls.

Additionally, alternative financing strategies, including public-private partnerships, dedicated government appropriations, grants and loans from development partners, and the securitization of NRF revenues, are assessed. These options are examined within the context of Liberia's legal framework, economic conditions, and international best practices. Each option is assessed with respect to the ease of implementation and their revenue generating potential.

A. Improving the Petroleum Levy

The petroleum levy plays a crucial role in financing Liberia's road infrastructure, yet its effectiveness has been hampered by collection inefficiencies, revenue leakages, and structural inadequacies. While the levy has generated significant revenue since its implementation, actual collections often fall short of projections, limiting the National Road Fund's (NRF) capacity to

maintain and develop the country's road network. To enhance the effectiveness and sustainability of the petroleum levy, several key improvements must be considered:

1. Adjusting the Levy Rate to Reflect Inflation and Road Maintenance Needs

The current levy rate, which has fluctuated between \$0.30 and \$0.20 per gallon, does not adequately account for rising inflation, increasing fuel consumption, or the growing costs of road maintenance. A periodic review of the levy rate - tied to inflation and infrastructure demands - can ensure a stable revenue flow. Policymakers should explore a rate adjustment mechanism that aligns with road maintenance costs while minimizing economic burdens on consumers.

2. Strengthening Collection and Enforcement Mechanisms

Revenue leakages remain a significant challenge due to weak enforcement and potential non-compliance among fuel importers. Strengthening the Liberia Revenue Authority's (LRA) oversight by enhancing monitoring systems, increasing penalties for non-compliance, and leveraging digital tracking technology can improve collection efficiency. Additionally, integrating automated data-sharing between the LRA, Liberia Petroleum Refinery Corporation (LPRC), and customs authorities can reduce revenue losses and ensure accurate reporting.

3. Addressing Exemptions and Revenue Leakages

Certain importers, including large concessionaires, benefit from fuel tax exemptions, which not only reduce levy contributions but also create avenues for illicit fuel trade. A review of these exemptions, with clear guidelines on eligibility and usage tracking, can prevent potential misuse. Establishing a fuel tracking system to monitor exempt products will help close loopholes that contribute to revenue leakages.

4. Enhancing Transparency and Accountability in Fund Transfers

A major gap in the current system is the mismatch between collections and actual remittances to the NRF. Delays in fund transfers due to government fiscal constraints often result in the diversion of funds to other priorities. Implementing an automatic remittance system, where funds collected by the LRA are transferred directly to the NRF account without manual intervention, would enhance transparency and ensure timely disbursement for road projects.

5. Exploring Alternative Revenue Streams to Complement the Levy

Relying solely on the petroleum levy poses long-term risks, especially with fluctuating fuel consumption patterns and the global shift toward renewable energy. To safeguard road infrastructure financing, Liberia should explore complementary revenue sources, such as road tolls, vehicle registration surcharges, and public-private partnerships for infrastructure development. Diversifying revenue sources will reduce dependence on petroleum imports and create a more sustainable funding model.

B. Expanding the Road User Charge

The NRF Act establishes various road user charges for the financing of road maintenance and construction. That said, only the petroleum levy has been implemented, which has so far proven inadequate or insufficient. Expanding the road user charges can therefore enhance revenue

collection or financing modalities of the NRF while at the same time ensuring that those who benefit from road infrastructure are those contributing to its maintenance. The following road user charges or sources of funding are explored for the adequate financing of the NRF:

1. Vehicle registration and licensing fees:



Currently, the authority to impose vehicle registration and licensing fees falls under the Ministry of Transport, which sets the fee structure, and the Liberia Revenue Authority (LRA), which collects the fees on behalf of the Government. The amount collected is placed in the Government’s consolidated revenue and not earmarked for the NRF, despite the NRF Act identifying vehicle registration and licensing fees as one of its potential revenue sources. The recommendation therefore is to integrate revenue realized from vehicle registration and licensing into the NRF funding mechanism.

The vehicle registration and licensing fee is currently captured by the LRA under motor vehicle taxes in the revenue chart of account. The motor vehicle tax is a composition of annual vehicle registration stickers, driver licenses, vehicle license plates, and motorbike license plates. The annual fee for vehicle registration stickers varies according to vehicle-type, usage and ownership. With respect to type of make, vehicles are classified as sedans (passenger cars with a three-box design, SUV (sport utility vehicles that combine elements of passenger cars with offroad capabilities), bus (a large motor vehicle with designed to transport multiple passengers, typically along a fixed route), cargo vehicles (motor vehicle designed specifically for transporting goods, materials, or freight rather than passengers) and two-wheel vehicles. With respect to usage, vehicles are classified as either commercial or private vehicles.

Table 4: Vehicle Classification

Vehicle Types	License Plate Classification
Passenger Vehicles:	Categories A1 - A6 and Taxis
Buses/Vans:	Categories B1 - B4
Cargo Vehicles:	Categories C1 - C5
Motorcycles and Three-Wheelers:	Categories M1 - M5
Special/Heavy Vehicles:	Categories EH and H

Table 5: Annual Vehicle Registration Fee Schedule

Category	Vehicle Type	Unit Price (US\$)
 Passenger Vehicles		
A1	Compact Car	75.00
A2	Small to Mid-Sized Sedan	100.00
A3	Large Luxury Sedan or Minivan	125.00
A4	Small SUV or Compact Pickup	140.00
A5	Mid-Sized SUV or Pickup	150.00
A6	Large, Heavy-Duty SUV or Pickup	200.00
Taxi	Standard Taxi Vehicle	75.00
 Passenger Vans & Buses		
B1	Orange Minibus or Passenger Van	150.00
B1	Yellow Minibus or Passenger Van	150.00
B2	Orange Passenger Bus	150.00
B2	Yellow Passenger Bus	200.00
B3	Orange Large Passenger Bus	250.00

Category	Vehicle Type	Unit Price (US\$)
B3	Yellow Large Passenger Bus	300.00
B4	Orange Articulated Bus, Double-Decker, or Motorcoach	300.00
🚚 Cargo Vehicles		
C1	Mini Cargo Vehicle	150.00
C2	Small Cargo Vehicle	200.00
C3	Mid-Sized Cargo Vehicle	300.00
C4	Full-Sized Cargo Vehicle	400.00
C5	Large Cargo Vehicle	500.00
🚛 Heavy & Special Vehicles		
EH	Extended Height or Special Cargo Vehicle	510.00
H	Heavy-Duty Vehicle	500.00
🛵 Two & Three-Wheel Vehicles		
M1	Two-Wheel Vehicle (<250cc)	25.00
M2	Two-Wheel Vehicle (250cc - 400cc)	25.00
M3	Two-Wheel Vehicle (>400cc)	150.00
M4	Three-Wheel Passenger Carrier	50.00
M5	Likely Three-Wheel Cargo or Passenger Vehicle	50.00

2. Driver License Fee

The driver license fee component of the motor vehicle tax similarly varies according to the types of licenses. Accordingly, driver's licenses are classified according to types and categories of the license holders. These are ordinary, chauffeur, heavy duty, motorcycle and tricycle. The ordinary license holders are operators of standard vehicles used for personal or business transportation; while chauffeur licenses are issued to professional drivers that operate vehicles for hire (e.g., taxis, private hire, or employment). Heavy duty licenses are issued to operators of large commercial vehicles or trucks.

Table 6: Driver License Fee Structure

No.	License Classification	Fee (USD)
1	Ordinary	35.00
2	Chauffer	45.00
3	Heavy Duty	100.00
4	Motorcycle	35.00
5	Tricycle	45.00

A total of US\$10.29 million was realized in 2024 on account of motor vehicle taxes, of which 39 percent was due to annual vehicle registration stickers. Just by integration of the annual vehicle registration fee line alone into the NRF funding modalities will correspondingly increase, on average, NRF portfolio by US\$3.69 million per year.

Table 7: Motor Vehicle Taxes

Motor Vehicle Taxes (USD million)	2020	2021	2022	2023	2024
Annual vehicle registration stickers	3.42	0.17	3.17	2.87	4.00

Driver license	1.03	1.94	1.41	1.26	2.63
Vehicle license plates	2.01	6.16	2.69	1.82	2.73
Motorbike license plates	0.34	0.52	0.75	0.53	0.89
Other	0.02	0.01	0.03	0.03	0.05
Total	6.82	8.81	8.05	6.51	10.29

C. Operating Toll Roads

Toll roads are widely recognized as an effective means of generating revenue for road maintenance and expansion, particularly in developing economies where public funding is often inadequate. That said the operation of toll road entails several considerations, including the undertaking of a comprehensive feasibility study to assess economic viability, public acceptability, and the overall logistical requirements. Such feasibility study should cover factors such as traffic volume, the public willingness to pay, economic viability, and projected revenue streams.

A toll system should be self-sustaining, equitable, and efficiently managed to ensure long-term revenue generation without causing excessive economic burden on road users. Below is an outline of key considerations in introducing standard toll system.

1. Traffic Demand Analysis

Traffic demand analysis is a crucial element in determining the feasibility of a toll road project. The expected traffic volume on the targeted highways plays a significant role in predicting the potential revenue. High-traffic roads are likely to generate more income, while roads with lower traffic may face challenges in achieving sufficient revenue. To conduct a thorough traffic demand analysis, several key aspects need to be considered. The analysis begins with evaluating the number of vehicles that are expected to use the proposed toll road daily. This involves collecting data on current traffic volumes and projecting future usage based on factors such as population growth, economic development, and changes in travel behaviour.

Different types of vehicles contribute differently to traffic volume and revenue. Therefore, it is essential to categorize vehicles into groups such as private cars, commercial trucks, buses, and motorcycles. Each category may have different toll rates, reflecting their varying impact on road wear and tear, as well as their ability to pay. Finally, identifying traffic patterns is another critical component of the analysis. Understanding when traffic volumes are highest (peak times) and lowest (off-peak times) will help toll pricing strategies to be optimized.

2. Affordability and Public Acceptance

Affordability and public acceptance are pivotal to the success of any toll road project. If the public perceives tolls as exorbitant or suspects that the funds will be mismanaged, opposition can quickly mount, jeopardizing the project's viability. To foster public support and ensure the project's success, several detailed steps should be taken: First, engaging with stakeholders is key. This includes consulting with transport unions, private vehicle owners, and businesses to understand their concerns and gather their input. Second, it is important to assess the economic impact of toll fees on commuters. Doing so, you can identify groups that may need exemptions,

such as public transport operators, to ensure that the tolls do not disproportionately affect certain segments of the population. Finally, providing alternative routes is essential. This ensures that road users have a choice and helps prevent excessive diversion from tolled roads, maintaining a balance between toll road usage and free road options.

3. Economic Viability and Cost-Benefit Analysis

Economic viability and cost-benefit analysis are essential in determining the financial sustainability of a toll road project. This analysis involves comparing the expected revenue with the setup and operational costs to ensure the project is financially sound. First, the assessment should consider the initial capital investment required for the project. This includes the construction of toll booths, the installation of payment infrastructure, and the implementation of security systems. These upfront costs are significant and must be calculated to avoid underestimating the financial requirements.

Next, operational costs must be factored into the analysis. These ongoing expenses include staffing for toll collection and management, regular maintenance of the toll infrastructure, and enforcement to ensure compliance with toll regulations. These costs are recurring and can significantly impact the overall financial health of the project. Finally, the expected revenue from toll collection needs to be projected over a period of 10 to 20 years. This projection is based on the anticipated traffic volume and the toll rates set for different types of vehicles. Accurate revenue forecasting is crucial to determine whether the toll road will generate sufficient income to cover both the initial and ongoing costs, ultimately ensuring the project's economic viability.

4. Infrastructure Requirements

In terms of infrastructure, successful toll road implementation demands the installation of modern toll collection systems, including electronic tolling to minimize congestion at toll plazas. In this regard, a well-planned tolling system requires efficient infrastructure and technology to ensure smooth operations and effective revenue collection. This will involve investment in:

i. Toll Collection Systems

Selecting the appropriate toll collection method is crucial for efficient revenue generation. To this plan, three main methods are considered. First, Manual Toll Collection (MTC) involves traditional booths where cash transactions take place. While this method is simple, it is prone to delays and corruption, which can hinder efficiency. Second, Electronic Toll Collection (ETC) uses RFID tags, smartcards, and mobile payments to enable seamless, cashless transactions. This method significantly reduces delays and enhances the user experience. Third, open road tolling (ORT) eliminates the need for booths altogether. Instead, sensors and cameras automatically deduct tolls as vehicles pass by. This method is particularly suitable for high-traffic roads but requires advanced technology to implement effectively.

ii. Toll Plaza Infrastructure

To maximize efficiency, toll plazas must be strategically located and designed to accommodate varying traffic volumes. This involves creating multiple lanes to handle high traffic volumes, which helps distribute the traffic load and minimizes delays for drivers. Additionally, providing dedicated fast lanes for electronic toll users can further enhance efficiency by allowing vehicles with ETC tags to pass through quickly without stopping. Installing weigh stations for trucks is also essential to prevent overloading and subsequent road damage. For Toll plazas to help maintain road quality and safety, it is appropriate to ensure that trucks comply with weight regulations.

iii. Security and Enforcement Mechanisms

Minimizing toll evasion and fraud is critical for maintaining the integrity of the tolling system. Integrating automated number plate recognition (ANPR) technology helps track toll defaulters by capturing and recording the license plates of vehicles that pass through the toll points without paying. This data can be used to identify and pursue violators. Establishing dedicated toll enforcement units to monitor compliance and address violations is also essential. These units can conduct regular patrols and inspections to ensure that all vehicles are paying the required tolls. Implementing real-time monitoring of toll transactions can help detect anomalies and prevent fraud. As such, with continuous analysis of transaction data, toll operators can identify suspicious activities and take corrective actions promptly.

iv. Roadside Facilities and Support Services

Enhancing the user experience and ensuring road safety are also important considerations. Toll roads should include rest areas equipped with fuel stations, restaurants, and parking facilities to improve the overall travel experience for road users. These amenities offer drivers a place to rest, refuel, and refresh during their journey. Having emergency response units available to handle accidents and vehicle breakdowns promptly is crucial for maintaining safety on toll roads. These units can provide quick assistance and help minimize disruptions to traffic flow. Ensuring proper lighting and signage along toll roads is essential for improving safety, especially during nighttime travel. Well-lit roads and clear signs can help drivers navigate safely and reduce the risk of accidents.

5. Regulatory and Legal Framework

A robust legal and regulatory framework is essential for the successful operation of toll roads. This framework must clearly define toll rates, revenue-sharing mechanisms, and penalties for non-compliance. Without proper governance structures, the risk of mismanagement and corruption could undermine the benefits of tolling. To ensure smooth toll road operations, several key aspects need to be addressed as noted below

i. Toll Collection Laws

Toll collection laws are fundamental to the regulatory framework. These laws must define the toll rates for different types of vehicles, ensuring that the rates are fair and transparent. Setting appropriate toll rates involves a detailed analysis of various factors, including the cost of road construction and maintenance, expected traffic volumes, and the economic impact on road

users. The rates should be designed to cover the costs of the toll road while remaining affordable for users.

Additionally, the laws should specify penalties for toll evasion to deter non-compliance and ensure consistent revenue collection. Penalties must be stringent enough to discourage evasion but also fair to avoid undue hardship on violators. The enforcement of these penalties requires a reliable system for detecting and prosecuting toll evaders, which may include technologies such as automated number plate recognition (ANPR) and dedicated enforcement units. Exemptions for emergency vehicles, such as ambulances and fire trucks, should also be clearly outlined to ensure that these essential services are not hindered by toll requirements. These exemptions must be carefully defined to prevent abuse while ensuring that emergency services can operate without delay.

ii. Public Private Partnership Regulation

When private investors are involved in toll road projects, clear Public-Private Partnership (PPP) regulations are crucial. These regulations should outline the terms of revenue-sharing agreements, ensuring that both public and private stakeholders benefit fairly from the toll revenues. The revenue-sharing model must be designed to provide adequate returns to private investors while ensuring that the public sector retains sufficient funds for road maintenance and improvements.

Service standards must be established to guarantee that the private operators maintain the toll roads to a high standard, ensuring safety and reliability for users. These standards should cover various aspects of road maintenance, including pavement quality, signage, lighting, and emergency response services. Regular audits and inspections are necessary to ensure compliance with these standards. Additionally, maintenance obligations should be clearly defined to ensure that the roads are kept in good condition throughout the duration of the partnership. This includes specifying the frequency and scope of maintenance activities, as well as the responsibilities of each party in funding and executing these activities. Clear maintenance obligations help prevent disputes and ensure that the toll road remains safe and functional for users.

iii. Environmental and Social Safeguards

Environmental and social safeguards are critical to mitigating the adverse effects of toll road projects on local communities and the environment. Conducting thorough impact assessments is essential to identify potential negative impacts and develop strategies to address them. These assessments should consider factors such as noise pollution, air quality, and the displacement of residents. Mitigating environmental impacts may involve implementing measures such as noise barriers, air quality monitoring, and the preservation of natural habitats. These measures help minimize the toll road's environmental footprint and protect the health and well-being of nearby communities. Social safeguards are equally important and may include strategies to minimize the displacement of residents and ensure fair compensation for those affected. Engaging with local communities throughout the planning and construction phases can help

address their concerns and build support for the project. Providing alternative routes and ensuring access to essential services are also crucial components of social safeguards.

6. Public Awareness and Stakeholder Engagements

Public acceptance is crucial for the success of toll road projects. To achieve this, the government must engage in comprehensive public awareness campaigns to communicate the necessity and benefits of toll roads. These campaigns should emphasize how the funds collected from tolls will be used for road maintenance and expansion, ensuring that the public understands the direct benefits of the toll system.

i. Awareness Campaigns

Awareness campaigns play a vital role in explaining the rationale behind toll roads. These campaigns should be designed to reach a wide audience through various media channels, including television, radio, social media, and community meetings. The messaging should focus on the long-term benefits of toll roads, such as improved road quality, reduced congestion, and enhanced safety. Clearly articulating these benefits, the NRF will build public support and reduce resistance to the implementation of tolls. To ensure the effectiveness of these campaigns, it is important to use clear and relatable language that resonates with the public. Visual aids, such as infographics and videos, can help illustrate the positive impacts of toll roads. Additionally, addressing common misconceptions and concerns directly in the campaign materials can help alleviate public fears and build trust.

ii. Stakeholder Consultations

Engaging with stakeholders is another critical component of public acceptance. The NRF should conduct consultations with various groups, including government agencies, transport unions, and the private sector. These consultations provide an opportunity to gather input, address concerns, and build consensus around the toll road project. The stakeholder consultations should be structured to facilitate meaningful dialogue and collaboration. This involves organizing workshops, focus groups, and public forums where stakeholders can voice their opinions and contribute to the decision-making process. It is also important to document the feedback received and incorporate it into the project plans. For the NRF to foster sense of ownership and commitment among stakeholders, it will have to demonstrate that stakeholder's inputs are valued and considered.

iii. Transparency Measures

Transparency is essential for building trust and ensuring compliance with toll road regulations. The NRF should implement measures to ensure that toll revenue and expenditure are transparent and accountable. This can include publishing regular reports detailing toll revenue collection and how the funds are being used. Providing a clear breakdown of expenditures, such as maintenance costs, infrastructure improvements, and administrative expenses, helps demonstrate that the funds are being managed responsibly. Transparency measures can also include independent audits and public oversight committees to monitor the use of toll revenues. It should be analytically designed to provide comprehensive and accessible information to the

public – involving clear and straightforward reporting formats that are easy to understand. Additionally, leveraging digital platforms, such as dedicated websites and mobile apps, can enhance accessibility and allow the public to track toll revenue and expenditures in real-time.

iv. Alternative Routes

Providing alternative, non-tolled routes where feasible can also help gain public support. The NRF can alleviate concerns about being forced to pay tolls by offering drivers a choice. The alternative routes should be well-maintained and clearly marked to ensure that they are a viable option for road users. This approach helps balance the need for toll revenue with the public's desire for free travel options. Analytically, the planning and implementation of alternative routes should involve a thorough assessment of traffic patterns and road conditions. This includes identifying key routes that can serve as viable alternatives and ensuring that they are capable of handling increased traffic volumes. Additionally, clear signage and communication about the availability of these routes are essential to guide drivers effectively. This can be a demonstration of the NRF commitment to offering fair and flexible travel options.

7. Revenue Potential: Expected Income and Economic Impact

A well-structured tolling system under Liberia's NRF has the potential to generate significant revenue, estimated to be between US\$20 million and US\$50 million annually. This projection is based on factors such as vehicle volumes and toll rates, which are carefully analysed to ensure accurate forecasting. The economic impact of this revenue generation extends beyond mere financial gains, encompassing several key benefits that contribute to the overall improvement of the transportation infrastructure and the economy.

i. Improved Road Maintenance and Service Levels

One of the primary economic benefits of a well-structured tolling system is the enhancement of road maintenance and service levels. The revenue generated from tolls can be directly reinvested into the upkeep and improvement of Liberia's road network. This includes regular maintenance activities such as resurfacing, repairing potholes, and upgrading road safety features. By ensuring that roads are well-maintained, the tolling system helps extend the lifespan of the infrastructure, reducing the need for costly repairs and replacements in the long run. Additionally, improved road conditions lead to a smoother and more comfortable driving experience for users, which can enhance public satisfaction and support for the tolling system. Analytically, the reinvestment of toll revenues into road maintenance ensures a sustainable cycle of improvement and upkeep. This proactive approach to infrastructure management not only preserves the quality of the roads but also prevents the escalation of minor issues into major problems, thereby optimizing the use of funds and resources.

ii. Reduced Government Reliance on Fuel Levies

Another significant economic impact of a tolling system is the reduction in government reliance on fuel levies as a primary source of funding for road maintenance and infrastructure projects. Fuel levies are often subject to fluctuations in fuel prices and consumption patterns, making them an unstable and unpredictable revenue source. For the NRF to achieve a more stable and

reliable stream of income, it will have to diversify the funding base through toll collection. This financial stability allows for better planning and execution of infrastructure projects, ensuring that necessary improvements and expansions can be carried out without delays or budget constraints.

From a critical perspective, reducing reliance on fuel levies mitigates the risks associated with volatile fuel markets. It provides a more predictable and consistent revenue stream, enabling long-term strategic planning and investment in infrastructure. This shift also aligns with global trends towards sustainable and diversified funding mechanisms for public infrastructure.

iii. Faster and Safer Travel, Leading to Enhanced Economic Productivity

The implementation of a tolling system can lead to faster and safer travel, which has a direct positive impact on economic productivity. Well-maintained toll roads typically experience less congestion and fewer accidents, resulting in shorter travel times and increased safety for road users. This efficiency in transportation can have a ripple effect on the economy, as goods and services can be transported more quickly and reliably. Businesses benefit from reduced transportation costs and improved logistics, while commuters enjoy shorter and more predictable travel times. The overall increase in productivity and efficiency contributes to economic growth and development, making the tolling system a valuable investment for the future.

Contextually, these improvements in economic productivity can be measured through various indicators such as reduced travel time, lower vehicle operating costs, and increased business efficiency. For instance, a reduction in travel time can lead to more productive hours for businesses and workers, while lower vehicle operating costs can result in savings that can be reinvested into the economy. Additionally, improved logistics will enhance the competitiveness of Liberian businesses, leading to increased trade and investment opportunities. Methodically, the economic productivity improvements can be quantified by examining metrics such as the reduction in average travel times, the decrease in vehicle operating costs, and the increase in business output and efficiency. These metrics provide tangible evidence of the positive impact of the tolling system on the economy, supporting the case for its implementation and expansion.

8. Challenges: Potential Obstacles and Mitigation Strategies

Implementing a tolling system presents several challenges that need to be addressed to ensure its success. These challenges include public resistance, leakages and corruption, and the high initial capital investment required for infrastructure. Each of these obstacles requires careful consideration and strategic mitigation to achieve a smooth and effective implementation.

i. Public Resistance

One of the primary challenges is public resistance. Citizens may oppose the introduction of additional charges, viewing tolls as an unnecessary financial burden. This resistance can stem from a lack of understanding of the benefits of toll roads or concerns about the affordability of tolls for everyday commuters. To mitigate this challenge, it is essential to engage in comprehensive public awareness campaigns that clearly communicate the necessity and

benefits of toll roads. These campaigns should emphasize how toll revenues will be used to improve road maintenance and expand infrastructure, ultimately leading to better travel experiences for all users. Additionally, providing alternative free routes can help alleviate concerns by offering drivers a choice, thereby reducing the perception of being forced to pay tolls.

ii. Leakages and Corruption

Another significant challenge is the potential for leakages and corruption. Weak oversight and inadequate control mechanisms can lead to revenue loss, undermining the financial viability of the tolling system. To address this issue, implementing automated toll collection systems can significantly reduce the risk of fraud and human error. Automated systems, such as Electronic Toll Collection (ETC) and Open Road Tolling (ORT), ensure accurate and transparent revenue collection by minimizing direct cash handling and providing real-time data on toll transactions. Furthermore, establishing robust oversight mechanisms, including regular audits and independent monitoring, can help detect and prevent corrupt practices, ensuring that toll revenues are managed responsibly and transparently.

iii. Initial Capital Investment

The high initial capital investment required for infrastructure development is another major challenge. Building toll booths, installing electronic toll collection systems, and upgrading road infrastructure involve substantial upfront costs. To mitigate this financial burden, leveraging Public-Private Partnerships (PPPs) can be an effective strategy. PPPs allow for the sharing of costs and risks between the public and private sectors, enabling the government to access private capital and expertise for the development and management of toll roads. These partnerships can also enhance efficiency and innovation in project implementation, ensuring that the infrastructure is built to high standards and maintained effectively over time.

D. Considering Public Private partnership

Public-Private Partnerships (PPPs) present an exciting opportunity for Liberia to tackle its road infrastructure challenges by combining the strengths of both the public and private sectors. This collaborative approach can bring in the necessary funding, expertise, and innovation to develop and maintain high-quality roads, easing the financial burden on the government. Imagine smoother, safer roads that connect communities and boost economic activities - this is the potential that PPPs hold for Liberia.

In this section, we will explore various aspects of implementing PPPs in Liberia's road sector. We start by examining different PPP models, such as Build-Operate-Transfer (BOT), Design-Build-Finance-Operate (DBFO), and Rehabilitate-Operate-Transfer (ROT). Each model offers unique advantages and challenges, making it essential to carefully assess which one best fits Liberia's needs. For instance, the BOT model allows private companies to build and operate a road for a set period before handing it back to the government, ensuring that the road is well-maintained throughout its lifecycle.

Next, we highlight the benefits of leveraging private sector investment. Increased funding, enhanced efficiency, and reduced fiscal burden on the government are just a few of the

advantages. By adopting PPPs, Liberia can ensure that road projects are completed on time and within budget, while also fostering economic growth and social development. Improved road infrastructure will enhance connectivity, reduce transportation costs, and provide better access to markets, healthcare, and education.

We also look at successful case studies of PPP projects in road infrastructure, providing valuable insights and lessons that can be applied to the Liberian context. These examples demonstrate the potential of PPPs to deliver high-quality infrastructure and significant economic benefits. Finally, we outline the necessary steps to establish a conducive environment for PPPs in Liberia. This includes developing a robust legal and regulatory framework, ensuring transparent governance, and engaging stakeholders effectively. Addressing these considerations will enable Liberia to establish a sustainable and resilient road network that supports long-term progress and significantly enhances the quality of life for its citizens.

1. Models: Different PPP Models and Their Applicability in Liberia

Liberia can explore several Public-Private Partnership (PPP) models for financing road infrastructure. Each model has distinct characteristics and is suitable for different types of projects. Here, we delve into three primary PPP models and their applicability, along with the benefits of leveraging private sector investment and examples of successful PPP projects.

i. Build-Operate-Transfer (BOT)

The Build-Operate-Transfer (BOT) model involves the private sector building and operating a toll road for a specified period before transferring it to the government. This model is particularly suitable for major highways where significant investment and expertise are required. The private entity is responsible for the construction, operation, and maintenance of the road during the concession period, after which the road is handed over to the government. This model allows the government to leverage private sector efficiency and investment while ultimately retaining ownership of the infrastructure. The BOT model is ideal for major highway projects that require substantial investment and technical expertise. It ensures that the government benefits from private sector efficiency and innovation while retaining long-term ownership of the infrastructure.

ii. Design-Build-Finance-Operate (DBFO)

In the Design-Build-Finance-Operate (DBFO) model, the private sector is responsible for designing, building, financing, and operating the road infrastructure. This model is ideal for large-scale projects that require substantial private investment. The private entity takes on the financial risk and is incentivized to deliver high-quality infrastructure and efficient operations. The government benefits from the private sector's expertise and financial resources, enabling the completion of complex projects that might otherwise be unfeasible due to budget constraints. The DBFO model is suitable for large-scale infrastructure projects that require significant private investment and expertise. It allows the government to undertake ambitious projects without overburdening public finances.

iii. Rehabilitate-Operate-Transfer (ROT)

The Rehabilitate-Operate-Transfer (ROT) model involves private firms rehabilitating existing roads and operating them under a concession agreement. This model is particularly suitable for deteriorating roads that need urgent upgrades. The private sector invests in the rehabilitation of the road, improving its condition and extending its lifespan. During the concession period, the private entity operates and maintains the road, ensuring high service standards. After the concession period, the road is transferred back to the government. This model allows for the revitalization of critical infrastructure without immediate public expenditure. The ROT model is ideal for rehabilitating deteriorating roads that require urgent upgrades. It leverages private investment to improve existing infrastructure, ensuring high service standards and extending the road's lifespan.

Table 8: Summarised PPP Models for Road Infrastructure Financing

PPP Model	Description	Applicability
Build-Operate-Transfer (BOT)	Private sector builds and operates the toll road before transferring it to the government.	Suitable for major highways.
Design-Build-Finance-Operate (DBFO)	Private sector designs, builds, finances, and operates road infrastructure.	Large-scale projects requiring private investment.
Rehabilitate-Operate-Transfer (ROT)	Private firms rehabilitate existing roads and operate them under a concession.	Ideal for deteriorating roads needing urgent upgrades.

2. Benefits: Advantages of Leveraging Private Sector Investment

Leveraging private sector investment in road infrastructure through Public-Private Partnership (PPP) models offers several significant advantages. The benefits are not only geared to enhancing the quality and efficiency of infrastructure projects but also have a profound impact on expected income and economic growth. Here, we delve into three primary PPP models and their applicability, along with the benefits of leveraging private sector investment and two Case studies (examples) of successful PPP projects.

i. Increased Investment

One of the primary benefits of leveraging private sector investment is the influx of additional capital for road projects. Private investors bring substantial financial resources that can be used to develop and maintain infrastructure. This increased investment reduces the financial burden on the government, allowing public funds to be allocated to other critical sectors such as healthcare, education, and social services. By attracting private capital, the government can undertake larger and more ambitious infrastructure projects that might otherwise be delayed or unachievable due to budget constraints.

The increased investment from the private sector leads to the development of high-quality infrastructure, which in turn attracts more economic activities. Improved roads facilitate smoother and faster transportation of goods and services, boosting trade and commerce. This

increased economic activity generates higher toll revenues, contributing to the overall income of the National Road Fund. Additionally, the enhanced infrastructure supports economic growth by improving access to markets, reducing transportation costs, and increasing productivity.

ii. Efficiency Gains

Private sector involvement in infrastructure projects brings expertise, innovation, and efficiency. Private entities are often more agile and motivated to implement cost-effective solutions, leading to better project outcomes. They employ advanced technologies and management practices to ensure timely and within-budget project completion. The private sector's focus on efficiency results in higher quality infrastructure and improved service delivery.

Efficiency gains from private sector involvement can lead to reduced construction and maintenance costs, maximizing the return on investment. High-quality infrastructure with lower maintenance needs ensures that roads remain in good condition for longer periods, reducing the frequency and cost of repairs. This efficiency translates into higher net revenues for the NRF, as more funds can be directed towards new projects rather than recurring maintenance. Furthermore, efficient infrastructure supports economic activities by minimizing delays and disruptions, enhancing overall economic productivity.

iii. Reduced Fiscal Burden

By involving the private sector in financing and managing road projects, the government can reduce its fiscal burden. Public-Private Partnerships (PPPs) allow for the sharing of costs and risks between the public and private sectors. This collaboration enables the government to leverage private sector expertise and resources while retaining oversight and regulatory control. The reduced fiscal burden allows the government to reallocate public funds to other essential services and development initiatives.

The reduced fiscal burden on the government frees up public funds that can be invested in other critical areas, such as social infrastructure, healthcare, and education. This reallocation of resources supports broader economic development and improves the overall quality of life for citizens. Additionally, the financial stability provided by private sector investment ensures that infrastructure projects are completed on time and within budget, leading to reliable and sustainable revenue streams for the National Road Fund. The long-term economic impact includes increased investor confidence, higher economic growth rates, and improved public services.

3. Case Studies: Successful PPP Projects in Road Infrastructure

i. Example 1: Kenya's Nairobi Expressway

The Nairobi Expressway in Kenya is a successful example of a PPP project implemented using the DBFO model. The private sector was responsible for designing, building, financing, and operating the expressway. In its first year of operation, the project generated over \$50 million in revenue and reduced travel time by over 60 percent. This project highlights the potential of

PPPs to deliver high-quality infrastructure and significant economic benefits. The financial gains from this project include substantial toll revenues, while the economic impact is seen in the form of improved transportation efficiency and reduced congestion, which boosts overall economic productivity.

ii. Example 2: Ghana’s Accra-Tema Motorway Expansion

The Accra-Tema Motorway Expansion in Ghana was implemented using the BOT model with private financing. The project increased traffic capacity and reduced congestion on a critical transportation corridor. Toll collections from the motorway fully financed its maintenance, demonstrating the financial sustainability of the PPP model. This project underscores the effectiveness of leveraging private investment to enhance infrastructure and improve transportation efficiency. The financial gains include consistent toll revenue, and the economic impact is evident in the improved traffic flow and reduced travel times, which enhance business operations and economic activities.

E. Special Regime for Electric Vehicles

As Liberia begins to transition toward cleaner and more sustainable transportation systems soon, the anticipated increase in the adoption of electric vehicles (EVs) will have long-term implications for the revenue base of the NRF. EVs do not consume petroleum products and thus do not contribute to the road user charge derived from the petroleum levy, which currently forms the principal financing source for the NRF. However, like conventional vehicles, EVs utilize road infrastructure and contribute to its wear and tear. It is therefore imperative that a forward-looking strategy be adopted to ensure that EV users contribute equitably to road maintenance and development.

The introduction of a dedicated EV road user charge is a necessary and equitable response to not just Liberia’s evolving vehicle fleet but global trend. As the country pursues greener transportation solutions, ensuring that all road users contribute fairly to the maintenance and expansion of infrastructure will be vital to the sustainability of the NRF. By establishing a legal, operational, and stakeholder-informed framework now, Liberia can proactively manage the fiscal transition that will accompany the shift toward electric mobility.

F. Circulation Permit for Vehicles Entering Liberia

The proposed measure seeks to introduce a circulation permit regime for foreign-registered vehicles entering Liberia on a temporary basis. These vehicles, while not registered domestically, utilize Liberia’s road infrastructure during their stay and currently contribute little or no revenue to the NRF. A circulation permit system would serve as a temporary road usage charge specifically targeted at non-resident vehicles, thereby expanding the NRF’s revenue base and ensuring that all road users contribute to the upkeep of the country’s transport infrastructure.

The objective here is to establish a non-intrusive, enforceable, and fair fee system for foreign-registered vehicles operating in Liberia temporarily, thereby ensuring that road usage by these vehicles contributes directly to the financing of road maintenance and development under the NRF. Proposed design of the of the Circulation Permit Regime are outlined in the matrix below.

Features	Explanation or description
1. Permit Requirement and Coverage	
	<ul style="list-style-type: none"> • All foreign-registered vehicles entering Liberia for a temporary period (e.g., up to 90 days) must obtain a circulation permit before or at the point of entry. • The permit will authorize road use for a specific duration and may be renewable based on defined conditions.
2. Fee Structure	
	<ul style="list-style-type: none"> • Fees will be tiered by vehicle category, such as motorcycles, passenger cars, vans, buses, and cargo trucks. • Rates may reflect the expected road impact and vehicle class, like Liberia's existing domestic registration fee system.
3. Collection Mechanism	
	<ul style="list-style-type: none"> • Permit fees will be collected at designated border points by the Liberia Revenue Authority (LRA) in collaboration with the Liberia Immigration Service and customs authorities. • Payment can be made through digital platforms, mobile payments, or on-site terminals, with options for pre-registration.
4. Integration with NRF	
	<ul style="list-style-type: none"> • All revenues generated from circulation permits will be earmarked for the NRF and transferred to its account, under an automatic or scheduled remittance arrangement. • The circulation permit regime will be legally anchored in the NRF Act and supporting regulations to ensure compliance and transparency.
5. Enforcement and Monitoring	
	<ul style="list-style-type: none"> • Law enforcement agencies, including the Liberia National Police (LNP), will be empowered to verify valid permits during random roadside checks. • Non-compliant vehicles will face penalties or fines, including possible temporary vehicle impoundment.
6. Regional Harmonization	
	<ul style="list-style-type: none"> • The permit framework can be aligned with ECOWAS regional transport protocols, ensuring reciprocity or mutual recognition where applicable.
7. Public Awareness and Cross-Border Coordination	
	<ul style="list-style-type: none"> • Launch a communication campaign targeting regional transporters and travellers. • Coordinate with neighbouring countries' transport and customs authorities to inform cross-border road users of the new requirement.

G. City Parking Permit Fees Sharing Mechanism

Urban roads are among the most frequently used parts of Liberia’s road infrastructure and incur significant maintenance needs due to high traffic volumes, especially in major cities like Monrovia, Paynesville, Buchanan, Ganta, and Gbarnga. Although Monrovia and Paynesville currently operate city parking permit fee regimes, the revenue generated is retained entirely by the city corporations, and other cities are yet to operationalize similar systems.

Given that city roads are public infrastructure whose maintenance partially falls under the broader national road maintenance plan, it is reasonable and efficient to integrate city parking permit fees into the financing structure of the NRF. A revenue-sharing mechanism between local governments and the NRF would ensure that urban road usage contributes directly to their upkeep and allows the NRF to support the rehabilitation and maintenance of urban roads.

A parking permit fee sharing scheme will not only diversify NRF’s revenue base by capturing urban road usage fees but will also help improve the condition of city roads through direct investment from the shared revenue. Additionally, it will encourage local government participation in road maintenance planning and cost sharing, as well as creating a predictable and legally grounded revenue stream for urban infrastructure. Below is an outline of key considerations in instituting parking permit fee sharing scheme.

Key consideration
1. Legal and Institutional Framework
<ul style="list-style-type: none">• Amend the Local Government Act and relevant municipal ordinances to authorize a joint parking revenue regime between city corporations and the NRF.• Create a Memorandum of Understanding (MoU) between the Ministry of Internal Affairs (MIA), the Ministry of Finance and Development Planning (MFDP), the NRF Office, and individual city governments.
2. Fee Structure and Distribution
<ul style="list-style-type: none">• Maintain city-level autonomy in setting parking rates, but establish a uniform revenue-sharing ratio, for example:<ul style="list-style-type: none">- 70% retained by city government- 30% transferred to the NRF• The NRF share will be used exclusively for urban road maintenance projects, possibly through a special Urban Road Sub-Account within the NRF.
3. Expansion to Other Cities
<ul style="list-style-type: none">• Provide technical support and incentives for cities like Buchanan, Ganta, and Gbarnga to develop and implement standardized parking permit systems.• Standardize:<ul style="list-style-type: none">- Zoning of parking spaces- Permit types (daily, monthly, commercial, residential)- Collection systems (manual or electronic)
4. Integration and Oversight
<ul style="list-style-type: none">• Develop a centralized parking permit reporting dashboard managed by the NRF Office in collaboration with city parking departments.• Require monthly or quarterly reporting and remittance by cities.• Conduct periodic compliance audits to ensure correct fee sharing and system transparency.

H. Third Party Insurance Fee under the Road User Charge

The inclusion of a third-party motor vehicle insurance fee as part of the road user charge framework aims to broaden and stabilize the revenue base for road maintenance in Liberia. All legally operating vehicles are required to maintain valid third-party insurance, and this existing compliance structure presents an opportunity to introduce a nominal road maintenance levy as a surcharge on insurance premiums. The core objective is to ensure that all road users, particularly vehicle owners, contribute proportionately to the upkeep of the infrastructure they utilize, in alignment with the “user-pays” principle.

Key Considerations
1. Legal and Regulatory Framework
<ul style="list-style-type: none"> • The Liberia Insurance Act and related transport laws may need amendment to authorize a dedicated road maintenance surcharge on third-party motor insurance. • The legislation should clearly specify: <ul style="list-style-type: none"> - The rate or structure of the surcharge - Collection and remittance procedures - The designation of the surcharge as a road user fee earmarked for the National Road Fund (NRF)
2. Institutional Collaboration
<ul style="list-style-type: none"> • Coordination among key institutions is critical: <ul style="list-style-type: none"> - Central Bank of Liberia (CBL) – regulator of the insurance sector - Liberia Insurance Association – representing insurers - Ministry of Transport – linked to vehicle licensing and insurance compliance - Liberia Revenue Authority (LRA) and NRF Office – to oversee revenue flow
3. Design of the Surcharge
<ul style="list-style-type: none"> • A flat rate or percentage-based surcharge (e.g., US\$5 per annual policy) could be applied to all third-party insurance policies. • Consider graduated charges based on vehicle type (motorcycle, sedan, truck, etc.), reflecting road impact levels.
4. Revenue Collection and Transfer
<ul style="list-style-type: none"> • Insurance companies collect the surcharge as part of policy issuance or renewal. • Funds are transferred monthly or quarterly into the NRF account under a transparent remittance schedule. • Incorporate reporting obligations and penalties for non-compliance.
5. Equity and Administrative Simplicity
<ul style="list-style-type: none"> • Ensure the surcharge remains affordable and non-disruptive to insurance uptake. • Use the existing insurance distribution network to minimize administrative costs and enforcement challenges.
6. Transparency and Public Trust
<ul style="list-style-type: none"> • Clearly communicate the purpose of the surcharge to the public. • Provide periodic NRF expenditure reports to show the use of revenues from this new source.

I. Others: Sustainable Financing Mechanisms

Exploring diverse and innovative financing mechanisms is crucial for ensuring the long-term sustainability of Liberia's road infrastructure. Beyond the traditional funding sources, other alternative financing mechanisms that can provide stable and predictable revenue streams for the National Road Fund (NRF) should be considered. Accordingly, this section delves into various sustainable financing options that can complement existing revenue sources and enhance the financial resilience of Liberia's road sector. We begin by examining the potential of green bonds, which offer an environmentally friendly way to raise capital for road projects. Green bonds can attract global climate finance, supporting projects that promote sustainability and climate resilience. Next, we explore the concept of carbon credits, which can generate revenue by monetizing emissions reductions through international carbon markets. This mechanism not only provides funding but also incentivizes sustainable practices.

Land value capture (LVC) is another innovative approach discussed in this section. LVC ensures that the benefits of public investments are equitably shared and reinvested into further development by harnessing the increased land value resulting from public infrastructure improvements. Additionally, we consider the potential of advertising and naming rights, which can generate substantial revenue by leveraging public assets for commercial purposes. These methods provide a way to monetize public spaces and infrastructure, creating a steady income stream without directly taxing the public. Each of these mechanisms offers unique advantages and can be tailored to fit the specific needs and context of Liberia's road infrastructure projects.

Finally, we look at the role of international grants and concessional loans in financing road infrastructure. These sources often come with favorable terms and additional support for capacity building, making them attractive options for sustainable development. Integrating these diverse financing mechanisms will enable Liberia to build a robust and resilient road network that supports economic growth and significantly improves the quality of life for its citizens. Establishing a mix of these innovative funding sources will ensure that the NRF has a stable and diversified revenue base, capable of meeting the country's infrastructure needs now and in the future.

1. Green Bonds

Issuing green bonds is a detailed process that starts with identifying projects that align with environmental sustainability goals. These projects are then structured into a bond, which undergoes third-party verification to ensure they meet green standards. Once issued, the proceeds are allocated to the specified projects, with ongoing reporting to maintain transparency and investor confidence. Green bonds offer significant environmental benefits by funding projects that mitigate climate change and promote sustainability, such as renewable energy installations and energy-efficient buildings. Financially, they attract a diverse range of investors, particularly those focused on environmental, social, and governance (ESG) criteria, thereby broadening the investor base and potentially lowering borrowing costs. Despite their benefits, green bonds come with risks. One major risk is the lack of liquidity, making it difficult to enter and exit positions easily. Additionally, the absence of a universally accepted definition for green bonds can lead to ambiguity about how the funds are used¹. Other risks include low yields, mispricing, and the potential for greenwashing, where funds are not used for genuinely green projects.

2. Carbon Credits

Carbon credits are generated through projects that reduce or sequester greenhouse gas emissions. These credits can be sold to companies needing to offset their emissions, providing a market-based approach to incentivize emission reductions and generate revenue for sustainable projects. The revenue potential of carbon credits is substantial, with the global market projected to grow significantly, potentially reaching \$3.1 trillion by 2030. They also contribute to other sustainable development goals when generated in developing countries. The carbon credit market is fragmented and under-regulated, leading to concerns about the integrity of available credits. There is also the risk of greenwashing, where credits may not represent genuine emission reductions. Ensuring project validity, avoiding double counting, and meeting regulatory standards are critical challenges that must be addressed to maintain market integrity.

3. Land Value Capture

Land value capture involves harnessing the increased land value resulting from public infrastructure improvements. This can be achieved through various methods, including property taxes, betterment levies, and development charges, ensuring that the benefits of public investments are equitably shared and reinvested into further development. The revenue potential from land value capture is significant, contingent on the economic value generated by the infrastructure improvements. Effective implementation can provide a substantial funding source for further development. However, there are risks involved, such as the potential for inequitable distribution of project impacts, where certain communities may bear more burdens than benefits. Additionally, the complexity of implementing these mechanisms can pose administrative challenges.

4. Advertising and Naming Rights

Selling advertising space and naming rights for public assets like stadiums and transit stations can generate substantial revenue. These high-visibility assets attract commercial interest, providing a steady income stream. The income from these activities can be substantial, especially for high-visibility assets. It offers a way to monetize public spaces without directly taxing the public. Balancing commercial interests with public aesthetics and community values is crucial to maintaining public support. There are also legal and reputational risks if the naming rights are associated with controversial brands or if the commercial activities detract from the public's enjoyment of these assets.

5. International Grants and Loans

Securing international grants and concessional loans from organizations, development banks, and bilateral aid agencies can provide essential funding for sustainable projects. These sources often offer favourable terms and additional support for capacity building, making them attractive options for financing. These grants and loans often come with favourable terms and additional support for capacity building, making them attractive options for financing. Aligning with donor priorities and preparing strong project proposals are critical challenges that must be addressed to secure these funds. There is also the risk of dependency on external funding, which can lead to vulnerabilities if the funding is withdrawn or reduced.

V. Assessing the Proposed NRF Options

Developing a sustainable and effective financing strategy for Liberia's National Road Fund (NRF) is crucial for the long-term maintenance and expansion of the country's road infrastructure. This section outlines various financing options, each evaluated based on key criteria such as revenue potential, sustainability, economic impact, and operational feasibility. The goal is to identify the most viable and effective mechanisms to ensure a stable and diversified revenue base for the NRF.

The analysis will cover a range of potential financing options, including adjustments to existing fuel taxes, the introduction of toll roads, and leveraging Public-Private Partnerships (PPPs). Additionally, innovative mechanisms such as green bonds, land value capture, and advertising and naming rights will be considered. Each option will be thoroughly examined to highlight its strengths, challenges, and overall suitability for Liberia's road sector.

Exploring these diverse financing options will provide a comprehensive roadmap for securing the necessary funds to support the development and maintenance of Liberia's road infrastructure. This approach aims to ensure that the NRF can meet the country's current and future infrastructure needs, fostering economic growth and improving the quality of life for all Liberians. Establishing a mix of these innovative funding sources will create a robust and resilient financial foundation for the NRF, capable of adapting to changing economic conditions and infrastructure demands.

A. Evaluation of Financing Options

Evaluating various financing options is essential for ensuring the sustainable and effective funding of Liberia's National Road Fund (NRF). This section provides a comprehensive analysis of potential revenue sources, assessing their viability based on key criteria such as revenue potential, sustainability, economic impact, and operational feasibility. Systematic evaluation of these options will help identify the most promising mechanisms to support the long-term development and maintenance of Liberia's road infrastructure.

The analysis will cover a range of financing options, including adjustments to existing fuel taxes, the introduction of toll roads, leveraging Public-Private Partnerships (PPPs), and innovative mechanisms like green bonds and land value capture. Each option will be examined in detail, highlighting its strengths, challenges, and overall suitability for the NRF. This thorough evaluation will guide the selection of the most effective strategies to ensure a stable and diversified revenue base for Liberia's road sector.

1. Criteria for Evaluation

A well-funded and sustainable National Road Fund (NRF) is crucial for maintaining and expanding Liberia's road network. As the country explores new revenue sources to strengthen its road financing mechanism, a structured evaluation framework is necessary to ensure that each potential source meets key financial, economic, and operational requirements. In this regard, the evaluation of above revenue sources is being guided by four fundamental criteria: **revenue potential, sustainability, economic impact, and operational feasibility**. Each of these criteria provides insights into the viability of different funding mechanisms and informs decision-making on the most effective strategies for mobilizing resources.

i. Revenue Potential: Assessing Financial Contributions

One of the most critical factors in evaluating new revenue sources is their ability to generate substantial and predictable financial inflows for the National Road Fund (NRF). The analysis of revenue potential considers the estimated annual income a source can provide, the stability of these funds over time, and how responsive the source is to economic fluctuations. Key points include:

Evaluation Criteria	Description
Comparison of Funding Sources	Revenue potential is assessed to compare different funding mechanisms based on their expected financial yield.
Prioritization of High-Yield Sources	Funding sources with high revenue potential, such as fuel levies and road tolls, are prioritized for their ability to generate consistent revenues. Lower-yield sources, such as voluntary donations or donor-driven grants, are deprioritized due to their unpredictability.
Economic Sensitivity	The analysis evaluates whether revenue collection would be significantly impacted during economic downturns, helping to determine the financial resilience of each source.

ii. Sustainability: Ensuring Long-Term Financial Stability

Beyond revenue potential, a viable funding source must be sustainable, meaning it can provide a stable financial inflow over an extended period without excessive dependency on external factors or creating long-term economic distortions. A sustainable revenue source remains viable across different economic conditions and enjoys broad public and political support. Key points include:

Evaluation Criteria	Description
Assessment of Economic Fluctuations	Sustainability is analyzed to determine whether a funding source can withstand economic downturns, shifts in government priorities, or social resistance.
Link to Road Usage	Funding sources directly tied to road usage—such as road user charges, congestion pricing, and vehicle registration fees—are considered more sustainable due to their direct correlation with transportation demand.
Risk Considerations	Potential risks, including dependency on donor contributions, are assessed to identify vulnerabilities such as funding withdrawals due to shifting donor priorities.

iii. Economic Impact: Weighing Costs and Benefits

Any new revenue source must be evaluated not only on its ability to generate funds but also on its broader economic implications. This includes the direct financial burden on consumers and businesses, potential inflationary effects, and its influence on economic growth and productivity. Key points include:

Evaluation Criteria	Description
Economic Efficiency	Assesses whether a new revenue source improves economic efficiency or imposes excessive costs on key sectors such as transport, trade, and agriculture.

Cost-Benefit Analysis	Weighs the positive impacts (e.g., better road quality reducing vehicle maintenance costs) against potential drawbacks (e.g., higher fuel prices affecting food and transport costs).
Equity Considerations	Ensures that new charges do not disproportionately burden vulnerable populations, promoting fair and inclusive road financing policies.

iv. Operational Feasibility: Implementing Revenue Collection Efficiently

Even if a revenue source is financially viable and economically sustainable, it must also be operationally feasible. This means that the government must have the administrative capacity, enforcement mechanisms, and technological infrastructure required to efficiently collect and manage the funds. Key points include:

Evaluation Criteria	Description
Existing Tax Structures	Determines whether a revenue source can be integrated into current tax collection systems or if it requires significant new enforcement mechanisms.
Enforcement Costs & Tax Evasion	Prioritizes sources with low enforcement costs and minimal risk of tax evasion, such as fuel levies and vehicle registration fees.
Technological Requirements	Assesses the need for advanced technology, recognizing that complex systems like per-kilometer road usage taxes may be impractical in Liberia's current administrative setup.

2. Evaluation Results

The comparative analysis examines proposed new revenue sources to ensure sustainable financing for Liberia's road infrastructure, given the financial constraints of the National Road Fund (NRF) and the limitations of traditional funding sources such as government allocations and donor assistance. Using a comparative framework, each revenue source is assessed across four key criteria—Revenue Potential, Sustainability, Economic Impact, and Feasibility—and categorized as High, Medium, or Low to guide the selection of viable financing mechanisms. The results provide a comprehensive analysis of strengths, weaknesses, and implementation practicality, supporting informed decision-making for long-term infrastructure funding.

i. Evaluation Results: Toll Roads as a Revenue Source

The evaluation of toll roads as a revenue-generating mechanism for the National Road Fund (NRF) in Liberia highlights both opportunities and challenges. One key strength is that toll roads provide a direct, user-based revenue stream, reducing dependence on government budgets and ensuring a stable funding source for road maintenance and future infrastructure projects. By shifting costs to actual road users, toll roads promote cost recovery and contribute to the sustainability of Liberia's road network. With a medium to high revenue potential, toll roads offer a highly sustainable financing option if enforcement is strong, and revenues are reinvested. From an economic perspective, toll roads have a moderate impact, as they increase transport costs for users but reduce the government's financial burden in road maintenance.

However, several weaknesses affect the feasibility of implementing toll roads in Liberia. The high upfront investment required for tolling infrastructure—such as booths, monitoring

systems, and enforcement mechanisms—poses a significant challenge, making feasibility only moderate. Additionally, public resistance may arise due to increased transportation costs, which could limit acceptance. Another critical concern is limited feasibility in rural areas, where low traffic volumes may result in revenue generation that does not justify investment.

Table 9: Summary of Toll Road Revenue and Feasibility Assessment

Evaluation Criteria	Assessment	Key Considerations
Revenue Potential	Medium-High	Depends on traffic flow and highway selection
Sustainability	High	Stable if well-enforced and maintained
Economic Impact	Moderate	Increases transport costs but reduces government maintenance burden
Feasibility	Medium	Requires significant upfront investment; public resistance possible

ii. Evaluation Result: Public-Private Partnerships (PPPs) as Revenue Source

The assessment of Public-Private Partnerships (PPPs) as a potential revenue source for Liberia’s National Road Fund (NRF) highlights significant advantages and challenges. PPPs reduce the government’s capital burden by leveraging private sector investment, allowing infrastructure projects to be financed without immediate reliance on public funds. They also promote efficiency and innovation in road development while ensuring long-term maintenance through performance-based contracts. Compared to direct public funding, PPPs offer a more sustainable approach to financing roads, depending on project scope and traffic levels. Additionally, their economic impact is high, as they enhance infrastructure quality and stimulate private sector participation.

Despite these benefits, PPPs present notable challenges. Their feasibility is medium, primarily due to the need for robust legal and regulatory frameworks to ensure transparency and prevent exploitation. A major concern is that private investors may prioritize profit over public interest, potentially leading to high user fees that limit accessibility. Additionally, contract mismanagement and political interference can undermine project success, posing risks to long-term sustainability. In comparison to other revenue sources, PPPs offer high revenue potential but require strong governance mechanisms to balance public benefits with investor returns.

Table 10: Summary of PPP Revenue and Feasibility Assessment

Evaluation Criteria	Assessment	Comparison to Other Revenue Sources
Revenue Potential	High	Higher than toll roads, fuel taxes, and land value capture
Sustainability	High	Ensures long-term financing, unlike one-time grants or loans
Economic Impact	High	Greater than direct taxation, as it attracts private investment and improves infrastructure quality
Feasibility	Medium	More complex than direct taxation but more scalable than carbon credits or green bonds

iii. Evaluation Result: Fuel Tax Adjustment as Revenue Source

The evaluation finds that fuel tax adjustment offers a strong and scalable revenue source for Liberia’s National Road Fund (NRF), due to its potential to increased revenue annually. This funding mechanism is cost-effective, as it allows for automatic revenue collection with minimal

administrative expenses, reducing leakages and ensuring a stable revenue flow for road maintenance. Additionally, fuel taxes promote fuel efficiency and discourage excessive consumption, aligning with environmental sustainability goals. Compared to other funding mechanisms, fuel taxes are relatively easy to implement through policy adjustments, making them a highly feasible option for infrastructure financing.

However, the analysis also highlights key weaknesses associated with fuel taxes. Higher transportation costs resulting from increased fuel prices can lead to inflationary effects, raising the cost of goods and services. Additionally, revenue generation is dependent on fuel consumption, making it vulnerable to economic downturns and the adoption of alternative energy sources. Political sensitivity further complicates the ability to introduce or adjust fuel tax rates, as public resistance may pose implementation challenges. While fuel taxes provide a relatively stable revenue source, their sustainability is rated medium, given market fluctuations.

Table 11: Summary of Fuel Taxes Revenue and Feasibility Assessment

Evaluation Criteria	Assessment	Comparative Insights
Revenue Potential	High	Higher than land value capture and advertising revenue, but lower than PPPs
Sustainability	Medium	More stable than international grants, but subject to fuel price and consumption fluctuations
Economic Impact	Moderate	Increases transport costs but ensures road maintenance funding
Feasibility	High	Easier to implement than PPPs, green bonds, and carbon credits

iv. Evaluation Result: Green Bonds as Revenue Source

The evaluation highlights green bonds as a strong financing mechanism for Liberia’s road infrastructure, offering access to long-term funding at competitive interest rates. With the potential to raise increased revenue per issuance from global climate finance, green bonds align with Liberia’s sustainable development goals and can support climate-resilient infrastructure projects. By attracting investment into environmentally friendly road projects, they promote climate change mitigation and sustainable urban development. Their long-term repayment structure ensures a stable revenue stream, making them a viable alternative to traditional debt-financed infrastructure projects.

However, the feasibility of green bonds remains moderate due to structural and regulatory challenges. Liberia’s financial markets and credit ratings are still underdeveloped, which may limit investor confidence and increase borrowing costs. Additionally, issuing green bonds involves high compliance costs and requires robust regulatory frameworks to meet international transparency and governance standards. While green bonds provide a high-revenue and sustainable funding option, legal and financial market reforms are needed to enhance feasibility and attract global investors.

Table 12: Summary of Green Bonds Revenue and Feasibility Assessment

Evaluation Criteria	Assessment	Comparative Insights
Revenue Potential	High	Higher than fuel taxes and toll roads, but requires strong financial markets

Sustainability	High	More stable than international grants, as funds are secured at low interest rates
Economic Impact	High	Supports sustainable infrastructure and climate resilience
Feasibility	Medium	Requires financial market and governance improvements

v. Evaluation Result: Carbon Credits as Revenue Source

The assessment identifies carbon credits as a potential revenue source for Liberia’s road infrastructure financing by monetizing emissions reductions through international carbon markets. This mechanism encourages sustainable infrastructure development while providing access to global climate finance. If effectively implemented, carbon credits could support green projects that reduce greenhouse gas emissions, aligning with climate resilience strategies. However, the revenue potential remains low, as access to international markets depends on certification and compliance with global standards.

Despite their potential, carbon credits face significant feasibility challenges. The certification process is complex and costly, requiring technical expertise, monitoring systems, and regulatory oversight that Liberia currently lacks. Institutional weaknesses further hinder the ability to leverage carbon markets effectively. Additionally, revenue from carbon credits is highly volatile, influenced by fluctuating carbon prices and uncertain market demand. While carbon financing presents long-term opportunities for sustainable development, substantial regulatory and institutional improvements are necessary to increase feasibility and revenue stability.

Table 13: Summary of Carbon Credits Revenue and Feasibility Assessment

Evaluation Criteria	Assessment	Comparative Insights
Revenue Potential	Low	Less reliable than fuel taxes and green bonds
Sustainability	Low	Revenue fluctuates due to market demand and price volatility
Economic Impact	Low	Limited short-term benefits, but long-term potential for green projects
Feasibility	Low	Requires significant regulatory and institutional improvements

vi. Evaluation Result: Land Value Capture (LVC) as Revenue Source

Land Value Capture (LVC) presents a moderate revenue opportunity by leveraging increased land values resulting from public infrastructure investments. This mechanism ensures private sector contributions to road development, reducing reliance on government funding while generating long-term revenue without raising direct taxes. By tying infrastructure financing to urban expansion and property appreciation, LVC can help create a more equitable cost-sharing model for road projects. If properly implemented, it has the potential to generate reasonable revenue per year, particularly in rapidly growing urban areas.

However, successful implementation of LVC requires strong property tax enforcement, an area where Liberia currently faces significant challenges. The legal and political complexities

surrounding land taxation may delay adoption, while revenue collection depends on gradual land value appreciation, limiting the immediate availability of funds for infrastructure projects. Despite these hurdles, if land tax laws are reformed and enforcement mechanisms strengthened, LVC could provide a sustainable and equitable financing model for Liberia’s road infrastructure.

Table 14: Summary of Land Value Capture Revenue and Feasibility Assessment

Evaluation Criteria	Assessment	Comparative Insights
Revenue Potential	Moderate	Linked to urban expansion and land appreciation
Sustainability	Medium	Requires improved property tax enforcement
Economic Impact	Positive	Ensures equitable cost-sharing for infrastructure
Feasibility	Medium	Dependent on land tax law reforms and enforcement capacity

vii. Evaluation Results: Advertising & Naming Rights as Revenue Source

Advertising and naming rights offer a non-tax revenue source by leveraging corporate sponsorship for road infrastructure. This mechanism provides long-term, contract-based income, ensuring a stable funding stream without increasing the financial burden on the public. It also encourages private sector participation, fostering collaboration in infrastructure development. With proper branding and strategic partnerships, advertising and naming rights can serve as a sustainable financing option for the National Road Fund.

However, the success of this approach depends on corporate sponsorship demand, which can fluctuate based on market conditions. Strong branding and commercial strategies are necessary to attract investors and maximize revenue. Additionally, public resistance may arise if corporate branding affects the aesthetic value of public infrastructure. Despite these challenges, advertising and naming rights remain a highly feasible option as they require minimal regulatory hurdles and can be easily implemented through private-sector partnerships.

Table 15: Summary of Advertising and Naming Rights Revenue Assessment

Evaluation Criteria	Assessment	Comparative Insights
Revenue Potential	Moderate	Dependent on corporate sponsorship demand
Sustainability	High	Revenue is contract-based through long-term agreements
Economic Impact	Neutral	No direct burden on taxpayers
Feasibility	High	Easily implemented through private-sector partnerships

viii. Evaluation Result: International Grants & Concessional Loans as Revenue Source

International grants and concessional loans provide low-cost, long-term financing for road infrastructure projects, reducing the government’s fiscal burden. These funding sources inject foreign capital into Liberia’s economy, supporting large-scale infrastructure investments without immediate reliance on domestic revenue. Additionally, they align with multilateral development goals, enabling Liberia to access global funding for sustainable development and road improvement initiatives.

However, this funding approach is highly dependent on donor priorities, making revenue flows unpredictable and conditional. Grant and loan agreements often come with policy requirements that may not always align with Liberia’s economic and governance interests. Additionally, poorly managed concessional borrowing can lead to increased sovereign debt, creating financial strain over time. Despite these challenges, international funding remains a feasible option if Liberia strengthens project proposals, ensures transparency, and aligns projects with donor priorities.

Table 16: Summary of International Grants and Concession Loan Revenue and Feasibility Assessment

Evaluation Criteria	Assessment	Comparative Insights
Revenue Potential	Variable	Dependent on donor alignment and funding availability
Sustainability	Medium	Often time-limited and tied to specific conditions
Economic Impact	Positive	Injects foreign capital into infrastructure projects
Feasibility	Medium	Requires strong project proposals and transparency

3. Recommended NRF Financing Options

The evaluation of various NRF financing options highlights key opportunities and challenges. Standouts among the various options assessed are:

- i. Adjustments of the existing petroleum levy
- ii. Expansion of the road user charge to include vehicle registration and driver license fees
- iii. Operation of toll roads
- iv. Consideration of public private partnership
- v. Special regime for EVs
- vi. Circulation permits for vehicles entering Liberia
- vii. City parking permit fees sharing mechanism
- viii. Third party insurance fees under the road user charge

Together these options offer high revenue potential and ease of implementation. Reform of the existing fuel levy and expansion of road user charge to include drive license and vehicle registration fees provide a stable and scalable funding source with minimal administrative costs. Toll roads and PPPs ensure sustainable financing by engaging the private sector, leveraging investment for long-term road maintenance and development. Also, of priority in the medium to long term is the introduction of green bonds. Green bonds present an attractive financing option, supporting climate-resilient infrastructure while aligning with Liberia’s sustainability goals and global climate finance opportunities.

Moderate-priority options include land value capture (LVC) and advertising or naming rights. LVC provides a long-term revenue mechanism by capturing increased land values from infrastructure investments, but it requires legal and administrative reforms. Advertising and naming rights offer a non-tax revenue stream through corporate sponsorships, though their financial impact is limited. Lower-priority revenue sources, such as carbon credits and international grants or concessional loans, present significant feasibility challenges. Carbon credits require strong institutional capacity and are subject to fluctuating market prices, while

international grants and loans depend on donor priorities and often come with restrictive conditions.

Table 17: Summary of Evaluation Results

Priority Level	Revenue Source	Key Considerations
Top Priorities (High Revenue, High Feasibility)	Fuel Tax Adjustments	Reliable, scalable revenue; easy policy implementation.
	Toll Roads & PPPs	Sustainable funding with private sector involvement.
	Green Bonds	Climate-focused financing with access to global funds.
Secondary Options (Moderate Revenue, Moderate Feasibility)	Land Value Capture (LVC)	Captures rising land values from infrastructure improvements.
	Advertising & Naming Rights	Non-tax revenue through corporate sponsorships.
Lower Priority (Low Revenue, Low Feasibility)	Carbon Credits	High compliance costs; subject to market volatility.
	International Grants & Loans	Unpredictable funding, dependent on donor priorities.

4. Key Considerations: Roadmap for Sustainable Financing

To ensure sustainable financing for Liberia’s road infrastructure, immediate and targeted actions must be taken. The NRF should prioritize high-impact revenue sources such as fuel tax adjustments, toll roads, and Public-Private Partnerships (PPPs), which offer scalable and stable funding. Strengthening governance and transparency in PPP agreements and toll revenue management is essential to build investor confidence and prevent misuse of funds. Additionally, Liberia must develop a structured green bond framework in collaboration with multilateral financial institutions to attract climate-focused investments and support eco-friendly infrastructure projects.

A phased implementation approach is necessary to translate these recommendations into action. The government should immediately roll out toll roads on high-traffic corridors such as Monrovia-Ganta, Monrovia-Buchanan, and Monrovia-RIA, ensuring that toll revenues are strictly allocated for road maintenance and upgrades. Simultaneously, a transparent legal and procurement framework for PPPs should be established, attracting investors through fair risk-sharing models. Fuel tax adjustments should be introduced gradually, with revenues ring-fenced for road infrastructure projects. To mitigate potential economic hardships, the government should implement targeted public transport subsidies for vulnerable populations.

To enhance long-term revenue generation, the government should strengthen property tax systems to facilitate the gradual implementation of land value capture (LVC), ensuring that public infrastructure investments generate financial returns. Carbon credit programs should be piloted, focusing on reforestation and climate-resilient projects to assess long-term viability. Liberia must also partner with development finance institutions to establish a green bond regulatory framework and pilot eco-friendly infrastructure projects to demonstrate the viability of this financing mechanism.

The next phase should focus on integrating carbon credits into Liberia’s revenue strategy by launching pilot projects in reforestation and climate-resilient road infrastructure to build capacity and attract international carbon market participation. Land value capture (LVC) should be implemented strategically, starting in high-growth urban areas like Monrovia, Paynesville, and Buchanan, supported by stronger property tax enforcement and regulatory reforms. Additionally, corporate sponsorships through advertising and naming rights should be pursued, ensuring that revenue generation aligns with public aesthetics and community values. Finally, Liberia must strengthen its institutional framework to increase its chances for more of less restricted international grants and concessional loans, ensuring efficient project proposals, transparent fund management, and compliance with donor priorities.

B. Implementation of Priority Options

Achieving sustainable and reliable financing for NRF requires a structured and strategic approach to revenue generation. Based on the assessment of the current funding mechanisms and the need for diversification, four priority revenue-enhancing strategies have been identified:

1. Priority Strategy One: Reforming the road user charge by adjusting the petroleum levy and incorporating vehicle registration and driver’s license fees.
2. Priority Strategy Two: Introducing a toll road system
3. Priority Strategy Three: Leveraging public-private partnerships (PPPs) for road infrastructure development
4. Priority Strategy Four: Issuing green bonds to finance climate-resilient roads.

Below is a detailed implementation plan for each priority strategy, including key actions, responsible agencies, and expected timelines. The proposed measures aim to strengthen the NRF’s financial capacity, ensure timely road maintenance, and support the long-term development of Liberia’s road network.

1. Reforming the Road User Charge

The objective here is to enhance the design, collection, and transfer of the petroleum levy and integrate vehicle registration and driver’s license fees into the NRF funding mechanism. measures or activities under this priority strategy can be implemented over a 12–18-month timeline. Key stakeholders concerned are the MFDP, MOT, LRA and LPRC.

Implementation Steps	Activities
A. Adjusting or redesigning the petroleum levy	
	<ol style="list-style-type: none"> 1. Review and adjust the rate: <ul style="list-style-type: none"> - Conduct a financial analysis to determine an optimal rate for the levy, ensuring alignment with road maintenance needs. - Propose an amendment to the annual Budget Law to adjust the levy from the current rate. 2. Strengthen collection mechanism:

Implementation Steps	Activities
	<ul style="list-style-type: none"> - Collaborate with the LRA to change the application of the levy from lifting of petroleum products to importation. - Implement digital reporting and tracking systems to minimize revenue leakages. This will include working with the LRA to digitalize processes at the LPRC collectorate. - Establish a real-time audit mechanism to track petroleum imports and levy remittances. <p>3. Ensure automatic and timely remittance:</p> <ul style="list-style-type: none"> - Amend the NRF Act or include a provision in the annual Budget Law mandating automatic remittance of the petroleum levy from the GOL consolidated revenue account to the NRF account at the Central Bank of Liberia (CBL). - Reduce discretionary intervention by the MFDP in fund transfers.
B. Integrating Vehicle Registration and Driver's License Fees into the NRF	
	<p>1. Amend the Legal Framework:</p> <ul style="list-style-type: none"> - Propose amendment to the annual Budget Law to integrate vehicle registration and driver license fees into the NRF as enshrined in the NRF Act. - Work with the LRA to accordingly revise the required provision of the LRC and revenue chart of account pertaining to vehicle registration and driver license. - Consummate MOU with MOT modifying the Ministry's mandate to include direct coordination with the NRF Office. <p>2. Improve collection and compliance:</p> <ul style="list-style-type: none"> - Implement an integrated digital system for vehicle registration and licensing to ensure accurate and transparent fee collection. - Consummate MOU with LNP and MOT to NRF Office in roadside check and real time tracking of registered vehicles. <p>3. Public awareness and stakeholder engagement:</p> <ul style="list-style-type: none"> - Launch a public campaign explaining the changes in the levy and new road user charge policies. - Engage stakeholders, including transport unions and businesses, to ensure smooth implementation.

2. Introduction of Toll Roads

The objective here is to ensure the sustainable financing of the NRF by diversifying the revenue sources. Revenues from toll road system, unlike the petroleum levy that is subject to global oil prices, are more insulated from the oil price fluctuations. The expected timeline is 24-36 months, and the concerned stakeholders are MFDP, MPW, LRA, MOT and private contractors.

Implementation Steps	Activities
A. Preliminary Activities	
	<ol style="list-style-type: none"> 1. Conduct feasibility study: <ul style="list-style-type: none"> - Identify high-traffic corridors (e.g., Monrovia-Ganta, Monrovia-Buchanan, Monrovia-RIA) for tolling - Assess traffic volume, willingness to pay, and projected revenue streams for each toll road. 2. Develop toll road regulatory framework: <ul style="list-style-type: none"> - Draft policy and adopt regulation (or law) to legalize and regulate tolling under the NRF Act. - Set toll rates based on vehicle type, road maintenance costs, and economic conditions. - Define exemptions for public service vehicles and emergency services.
B. Implementation of Toll Road System	
	<ol style="list-style-type: none"> 1. Infrastructure development and technology: <ul style="list-style-type: none"> - Design and construct toll plazas, with a focus on electronic toll collection (ETC) systems to reduce congestion. - Install Automated Number Plate Recognition (ANPR) technology for enforcement. 2. Public engagement and stakeholder involvement: <ul style="list-style-type: none"> - Conduct consultations with transport unions, business groups, and road users. - Educate the public on the benefits of toll roads, emphasizing improvements in road quality and safety. 3. Launch and monitor toll operations: <ul style="list-style-type: none"> - Implement a pilot toll road project on a selected highway.

Implementation Steps	Activities
	<ul style="list-style-type: none"> - Regularly review and adjust toll rates based on revenue performance and road maintenance costs.

3. Public Private Partnership in Road Infrastructure Development

The objective is to attract private sector investment to finance, build, and maintain roads through long-term concessions. This is more a medium to long term strategy and the timeline for its implementation is roughly place between 36-48 months. The concerning stakeholders include the MFDP, MPW, NIC, and major development partners.

Implementation Steps	Activities
A. Preliminary Activities	
	<ol style="list-style-type: none"> 1. Develop a PPP legal and institutional framework: <ul style="list-style-type: none"> - Draft and enact a PPP Road Infrastructure Act to provide legal clarity on revenue-sharing, risk allocation, and contract enforcement. - Assign function to or establish an NRF PPP Unit to oversee project selection, negotiation, and contract management. 2. Identify priority roads for PPP investment: <ul style="list-style-type: none"> - Conduct market assessments to determine the viability of PPP-funded toll roads. - Prioritize high-traffic highways with potential commercial viability. 3. Design PPP Models and Revenue Sharing Mechanisms: <ul style="list-style-type: none"> - Consider Build-Operate-Transfer (BOT) and Rehabilitate-Operate-Transfer (ROT) models. - Define revenue-sharing agreements, ensuring private investors recover costs while the NRF retains a share for road maintenance.
B. Implementation of PPP Models	
	<ol style="list-style-type: none"> 1. Engage investors and secure financing: <ul style="list-style-type: none"> - Launch an international investor roadshow to attract financing for key road projects. - Offer incentives such as tax breaks, guarantees, and revenue-sharing arrangements to encourage private sector participation.

Implementation Steps	Activities
	2. Monitor and enforce contract performance: <ul style="list-style-type: none"> - Establish performance-based contracts to ensure private operators meet service quality standards. - Implement annual audits and compliance checks on PPP-funded road projects.

4. Introducing Special Regime for Electric Vehicles

The objective here is to ensure equitable and sustainable financing of road infrastructure by establishing a dedicated road usage contribution mechanism for electric vehicles. The special EV regime recognizes that although EVs do not consume taxable petroleum products, they still utilize and impact the road network. This regime aims to preserve the revenue integrity of the NRF in the context of growing EV adoption, while promoting fairness among all road users and supporting Liberia’s transition to a low-carbon transport system.

Implementation Steps	Activities
1. Develop a Dedicated EV Road Usage Fee Framework	
	<ul style="list-style-type: none"> - Introduce an annual EV road usage fee to be collected at the time of registration or renewal. This fee would serve as a proxy for the petroleum levy paid by internal combustion engine (ICE) vehicles. - Fee levels could be tiered based on vehicle weight and type (e.g., compact EVs, SUVs, commercial EVs), reflecting their impact on road infrastructure
2. Legislative and Regulatory Amendments	
	<ul style="list-style-type: none"> - Amend the NRF Act and the Revenue Code to include road usage contributions from non-petroleum-fueled vehicles. - Develop a supporting regulation through the Ministry of Finance and Development Planning (MFD) and the Ministry of Transport to operationalize the EV road user regime.
3. Create a National EV Registry and Tracking System	
	<ul style="list-style-type: none"> - Establish a digital registry for electric vehicles, capturing vehicle types, usage patterns, and annual mileage (if possible), to inform and update road usage charge policies. - Integrate this system with the Liberia Revenue Authority (LRA) and the Ministry of Transport’s licensing and registration database.
4. Encourage Data-Driven Policy Development	
	<ul style="list-style-type: none"> - Commission periodic impact assessments on EV adoption trends, road usage, and fiscal implications for the NRF.

Implementation Steps	Activities
	<ul style="list-style-type: none"> - Use these assessments to refine and adjust the EV road user regime as EV adoption expands.
5. Public Communication and Stakeholder Engagement	
	<ul style="list-style-type: none"> - Launch a public awareness campaign to explain the rationale behind EV-specific road usage fees, emphasizing equity and sustainability. - Engage EV importers, users, and advocacy groups to ensure transparency and gain buy-in for the regime.
6. Explore Mileage-Based or Charging Station Levies (Future Consideration)	
	<ul style="list-style-type: none"> - In the medium to long term, consider a mileage-based user fee or a levy on EV charging stations, especially as EV infrastructure matures. - These methods could provide a more usage-reflective approach to road financing for EVs.

5. Circulation Permit for Vehicles Entering Liberia

The expected outcome of the circulation permits for foreign registered vehicle entering Liberia for temporary stay is that it will broaden the NRF’s revenue base by including road users who were previously not contributing to infrastructure financing. It will also promote equity in road usage charges, ensuring all users—regardless of vehicle origin—share the cost of road upkeep; as well as enhancing road monitoring and enforcement, thereby contributing to better transport sector regulation.

Implementation Steps	Activities
Phase 1: Policy and Legal Framework Development	
1. Policy Design and Stakeholder Consultation	
	<ul style="list-style-type: none"> • Draft a policy proposal outlining the circulation permit system. • Conduct consultations with key stakeholders: <ul style="list-style-type: none"> - Ministry of Finance and Development Planning (MFDP) - Liberia Revenue Authority (LRA) - Liberia Immigration Service - Ministry of Transport - Ministry of Justice <p>Transport unions and regional trucking associations</p>
2. Legislative Review and Amendment	
	<ul style="list-style-type: none"> • Review the NRF Act, Revenue Code, and related transport legislation. • Draft amendments or regulations to authorize: <ul style="list-style-type: none"> - Imposition of the circulation permit fee - Collection and remittance procedures - Enforcement provisions and penalties for non-compliance
3. Legal Approval	
	<ul style="list-style-type: none"> • Submit the revised legal instruments for Cabinet and Legislative approval.

Implementation Steps	Activities
	<ul style="list-style-type: none"> Publish the final circulation permit regulations in the official Gazette.
Phase 2: Operational Setup	
1. System Design and Permit Structure	
	<ul style="list-style-type: none"> Define vehicle categories and corresponding permit fees. Establish validity periods (e.g., 7-day, 30-day, 90-day permits). Design physical or digital permit formats (e.g., decals, QR codes, printed receipts).
2. Institutional Roles and Responsibilities	
	<ul style="list-style-type: none"> Assign roles for involved institutions: <ul style="list-style-type: none"> LRA – Lead agency for fee collection and reconciliation. Immigration and Customs Services – Support verification at borders. NRF Office – Receive and report revenue transfers. LNP and Transport Inspectors – Enforce compliance within the country.
3. Technical and Infrastructure Setup	
	<ul style="list-style-type: none"> Develop or upgrade digital systems for: <ul style="list-style-type: none"> Permit issuance and payment processing. Integration with border and transport monitoring systems. Establish permit issuance kiosks or offices at major border points.
Phase 3: Public Communication and Regional Coordination	
1. Awareness and Communication Campaign	
	<ul style="list-style-type: none"> Develop materials to inform road users and regional transporters. Disseminate through: <ul style="list-style-type: none"> Radio and media outlets Border point notices and ECOWAS road corridors Transport union outreach
2. Cross-Border Coordination	
	<ul style="list-style-type: none"> Engage customs and transport authorities in Guinea, Côte d'Ivoire, and Sierra Leone. Explore regional harmonization or reciprocity frameworks to ease implementation.
Phase 4: Launch and Enforcement	
1. Pilot Implementation	
	<ul style="list-style-type: none"> Launch a pilot phase at one or two major entry points (e.g., Bo Waterside, Ganta). Monitor vehicle flows, fee collection, and enforcement operations.
2. National Rollout	
	<ul style="list-style-type: none"> Scale to all designated land entry points following pilot review. Provide additional training and technical support to border agents.
3. Monitoring and Enforcement	
	<ul style="list-style-type: none"> Deploy joint inspection teams for roadside enforcement. Establish real-time reporting dashboards for LRA, NRF, and MFDP.
Phase 5: Monitoring, Evaluation, and Adjustment	
1. Revenue and Compliance Tracking	

Implementation Steps	Activities
	<ul style="list-style-type: none"> • Generate monthly and quarterly reports on: <ul style="list-style-type: none"> - Number of permits issued - Revenue collected and transferred - Compliance levels and violations
2. Policy Review and Adjustment	
	<ul style="list-style-type: none"> • Conduct annual assessments to: <ul style="list-style-type: none"> - Review fee levels - Adjust vehicle classifications - Introduce technology upgrades (e.g., e-permits, regional integration)

6. City Parking Permit Fee Sharing Mechanism

The objective of the city parking permit sharing scheme is to establish a collaborative and sustainable financing mechanism that ensures urban road users contribute equitably to the maintenance and improvement of city road infrastructure. By allocating a portion of city parking permit fees to the NRF, the scheme aims to strengthen the financial capacity of the NRF to support urban road maintenance, promote accountability in local revenue use, and expand road financing beyond petroleum-based levies—particularly in densely populated municipalities where road wear and congestion are most severe.

Implementation Steps	Activities
1. Stakeholder Engagement and Legal Drafting	
	<ul style="list-style-type: none"> • Convene meetings with Monrovia, Paynesville, and emerging city governments. • Draft and pass parking permit revenue-sharing regulations under the NRF framework.
2. Development of Parking Systems in Secondary Cities	
	<ul style="list-style-type: none"> • Identify target cities for initial expansion (e.g., Buchanan, Ganta, Gbarnga). • Develop standardized parking permit zones, signage, ticketing, and enforcement procedures.
3. Pilot Revenue-Sharing Agreement	
	<ul style="list-style-type: none"> • Implement the new system in Monrovia and Paynesville on a pilot basis, with revenue flows tracked and reported. • Use pilot findings to adjust design before national rollout.
4. Technology and Capacity Building	
	<ul style="list-style-type: none"> • Introduce electronic or mobile-based payment systems for transparency. • Train city staff in revenue tracking, permit issuance, and enforcement.
5. Monitoring and Adjustment	
	<ul style="list-style-type: none"> • Monitor: <ul style="list-style-type: none"> - Monthly revenue collected and shared - Road maintenance activities funded with shared revenues

Implementation Steps	Activities
	<ul style="list-style-type: none"> • Revise the revenue-sharing ratio as needed, based on performance and city capacity.

7. Third Party Insurance Fee under the Road User Charge

The objective here is to leverage an existing legal requirement (vehicle insurance) to reach a broad base of road users while minimizing collection costs. Integrating a road maintenance surcharge into third-party vehicle insurance offers a practical, scalable, and equitable way to strengthen road financing. With proper legal backing, stakeholder coordination, and transparent implementation, this measure can contribute significantly to the long-term sustainability of Liberia's National Road Fund.

Implementation Steps	Activities
1. Feasibility Assessment and Stakeholder Engagement	
	<ul style="list-style-type: none"> • Conduct financial modelling to estimate revenue potential. • Engage stakeholders (CBL, insurers, NRF, LRA, MOT) to secure buy-in and refine the proposal.
2. Legal and Policy Reforms	
	<ul style="list-style-type: none"> • Draft and propose amendments to relevant laws/regulations authorizing the surcharge. • Issue implementation guidelines through a joint policy directive (e.g., CBL and MFDP)
3. System Design and Pilot	
	<ul style="list-style-type: none"> • Design standard operating procedures (SOPs) for surcharge collection, accounting, and transfer. • Pilot the scheme with selected insurers for 3–6 months to evaluate efficiency and compliance.
4. Training and Public Communication	
	<ul style="list-style-type: none"> • Train insurers and regulators on reporting requirements. • Launch a public awareness campaign to inform policyholders and explain the link to road maintenance.
5. National Rollout and Monitoring	
	<ul style="list-style-type: none"> • Implement full-scale rollout across all licensed insurance providers. • Develop a digital monitoring tool to track collections and remittances in real-time.
6. Evaluation and Adjustment	
	<ul style="list-style-type: none"> • After 12 months, review performance, revenue yield, and compliance levels. • Adjust surcharge rate or collection protocols based on findings.

8. Introduction of Green Bonds

The objective here is to raise capital for road infrastructure projects through climate-aligned green financing mechanisms. This initiative offers an excellent opportunity to align Liberia's road infrastructure development to global sustainability goals. The timeline for effectuating this initiative is placed between 24–36-months. Concerning stakeholders include MFDP, CBL, international development banks and private investors.

Implementation Steps	Activities
A. Preliminary Activities	
	<ol style="list-style-type: none"> 1. Develop a green bond regulatory framework: <ul style="list-style-type: none"> - Draft and adopt Green Bond Issuance Guidelines based on international standards (ICMA, Climate Bonds Initiative). - Establish an NRF Green Finance Unit within the NRF Office to manage bond structuring and compliance. 2. Identify eligible projects: <ul style="list-style-type: none"> - Select road projects that align with environmental and sustainability goals (e.g., climate-resilient road infrastructure, low-carbon transport). - Conduct environmental impact assessments (EIAs) to meet investor requirements.
B. Implementation of Green Bonds Scheme	
	<ol style="list-style-type: none"> 1. Engage international development partners: <ul style="list-style-type: none"> - Collaborate with World Bank, African Development Bank (AfDB), and IMF to structure and guarantee bonds. - Secure credit enhancements to make bonds attractive to institutional investors. 2. Launch the first green bond issuance: <ul style="list-style-type: none"> - Issue pilot green bonds on domestic and international financial markets. - Set clear use-of-proceeds guidelines and reporting mechanisms. 3. Monitor and report on green bond performance: <ul style="list-style-type: none"> - Implement regular impact assessments and financial audits to ensure transparency. - Publish annual Green Bond Reports detailing project outcomes and environmental benefits.

VI. Conclusion

The sustainable financing of road infrastructure in Liberia is critical to national development and economic inclusion. The NRF, designed as a vehicle to provide consistent funding for road maintenance and expansion, has struggled to meet its full potential due to systemic reliance on a single revenue source and weak implementation structures.

This DRM Strategy offers a transformative yet pragmatic pathway to address these challenges. Through a rigorous assessment informed by technical analysis and stakeholder engagement, the strategy identifies and prioritizes a blend of reforms to existing revenue streams and complementary financing mechanisms. Measures such as toll road development, PPPs, vehicle-based user charges, and insurance-linked surcharges have been crafted not as isolated interventions, but as part of a cohesive and integrated funding framework.

Moreover, stakeholder feedback was instrumental in shaping the strategy's direction—underscoring the need for inclusive, practical, and enforceable solutions. By consolidating these insights into a unified financing roadmap, the strategy enhances the prospects for long-term financial sustainability and institutional resilience.

Successful implementation will, however, depend on strong political will, legal adjustments, inter-agency coordination, and a renewed commitment to transparency and accountability. If effectively executed, this strategy will enable the NRF to consistently support road infrastructure investments that enhance mobility, reduce poverty, and promote equitable economic growth across Liberia.

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11. Subodh Mishra (2024), “Carbon Credits: An Overview of a Climate Controversy”
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12. World Bank (2024), “Despite High Potential, 75 Vulnerable Economies Face ‘Historic Reversal’”, WASHINGTON
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B. Case Studies

1. **Kenya’s Nairobi Expressway**
 - Model: Design-Build-Finance-Operate (DBFO)
 - Details: The private sector was responsible for designing, building, financing, and operating the expressway. In its first year of operation, the project generated over \$50 million in revenue and reduced travel time by over 60 percent.
 - Source: [CAIS: “An Introduction to Private Infrastructure”, September 2023](#)
2. **Ghana’s Accra-Tema Motorway Expansion**
 - Model: Build-Operate-Transfer (BOT)
 - Details: The project increased traffic capacity and reduced congestion on a critical transportation corridor. Toll collections from the motorway fully financed its maintenance, demonstrating the financial sustainability of the PPP model.

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