



GREEN CITIES, INFRASTRUCTURE AND ENERGY PROGRAMME (GCIEP)

Designing a funding and financing framework for Indonesia's infrastructure goals

The Government of Indonesia has set ambitious investment targets for the country's infrastructure development. To achieve these goals, Indonesia's Ministry of National Development Planning (Bappenas) requires a structured approach for identifying and assessing potentially suitable funding and financing mechanisms for infrastructure projects. Currently, the process relies on fairly unstructured and potentially subjective brainstorming sessions, which reduces accountability on decision making and undermines the strategic allocation of resources.

The need for a project financing framework

Bappenas leads the national-level planning and financing strategies for projects crucial to advancing Indonesia's climate, environmental, social and economic goals. To do so they need a framework that provides strategic insights and considerations for the effective funding and financing of projects, ensuring the delivery of intended benefits whilst maintaining the financial sustainability of the overall portfolio.

Such a framework should assist Bappenas in identifying a diverse range of funding and financing options (including innovative mechanisms) for projects that have



been shortlisted for inclusion in the government's National Medium-Term Development Plan (RPJMN) 2025-2029, thereby supporting the plan's achievement of its development objectives. This structured approach is essential for moving beyond ad hoc decision-making towards a more accountable effective and transparent process.

GCIEP's solution: The Project Funding and Financing Options Framework

GCIEP was therefore commissioned to create a framework that met these criteria resulting **Project Funding and Financing Options Framework (PFFOF)**. The PFFOF provides a structured, accountable approach for Bappenas and private-sector applicants to assess suitable funding and financing options for infrastructure projects. The PFFOF tool has now been formally adopted by Bappenas Deputy of Development Finance and Investment (the relevant Standard Operating Procedures are currently under development by Bappenas).

GCIEP Solution

The Project Funding and Financing Options Framework provides a structured, accountable approach for Bappenas and private sector applicants in assessing the suitable funding and financing options for a project.

Funding is the ultimate source of funds, typically obtained from the provision of goods/services that does not need to be repaid. i.e. customer charges, LVC.

Financing are short term sources of funds, in the form of equity or debt, which needs to be repaid with returns. i.e. bank loans, new shares subscription.

The framework uses several assumptions based on current conditions:

1. Due to national budget efficiency efforts, the framework prioritises private funding; consider policy reforms before subsidies or government intervention.
2. Leverage competitive markets, relying on the private sector for competitive areas and SOEs for non-competitive areas.
3. Prioritise private financing whilst minimising the risk-adjusted finance cost, using government/blended financing to achieve lower borrowing rates.
4. Justify private finance costs with genuine risk transfer or service improvements.
5. Leverage private sector strengths in innovation and cost efficiency, and utilise the public sector for addressing social issues.

Figure 1: Overview of GCIEP's rationale behind the PFFOF

Distinguishing between funding and financing

As its name implies, the PFFOF makes a clear distinction between funding and financing. **Funding is the ultimate source of funds**, typically obtained from the provision of goods or services that does not need to be repaid, such as customer charges or land value capture. **Financing, by contrast, represents short-term sources of funds in the form of equity or debt, which needs to be repaid with returns** – such as bank loans or new share subscriptions.

This distinction is fundamental to the framework's logic, as it ensures that users first identify sustainable revenue streams before determining how to bridge any financing gaps during construction or implementation phases.

Framework assumptions and guiding principles

The framework operates on several assumptions based on Indonesia's current economic and policy conditions. **Due to national budget efficiency efforts, the PFFOF**

prioritises private funding and encourages consideration of policy reforms before resorting to subsidies or government intervention.

The framework is designed to leverage competitive markets, relying on the private sector for competitive areas whilst deploying state-owned enterprises (SOEs) for non-competitive markets. Private finance costs must be justified with genuine risk transfer or service improvements. **Where government involvement is necessary, the framework prioritises minimising the risk-adjusted finance cost** by using government or blended financing to achieve lower borrowing rates.

Importantly, the framework leverages private sector strengths in innovation and cost efficiency, whilst utilising the public sector for addressing social issues. This balanced approach recognises that different actors have comparative advantages in different contexts, and that optimal outcomes require thoughtful allocation of responsibilities.

Main objectives of the framework

The PFFOF has three core objectives that guide its structure and application:

1. **To improve national-level planning:** The framework enhances national-level planning and financing strategies for projects crucial to advancing Indonesia's climate, environmental, social development, and local and national economic development goals.
2. **To provide strategic portfolio considerations:** It offers strategic insights and considerations for the effective funding and financing of projects, ensuring future delivery of intended benefits and the financial sustainability of the overall portfolio.
3. **To identify potential funding and financing options:** The framework assists Bappenas in identifying diverse and innovative funding and financing options for projects shortlisted for inclusion in the RPJMN 2025-2029, supporting the achievement of development objectives.

Overall framework process

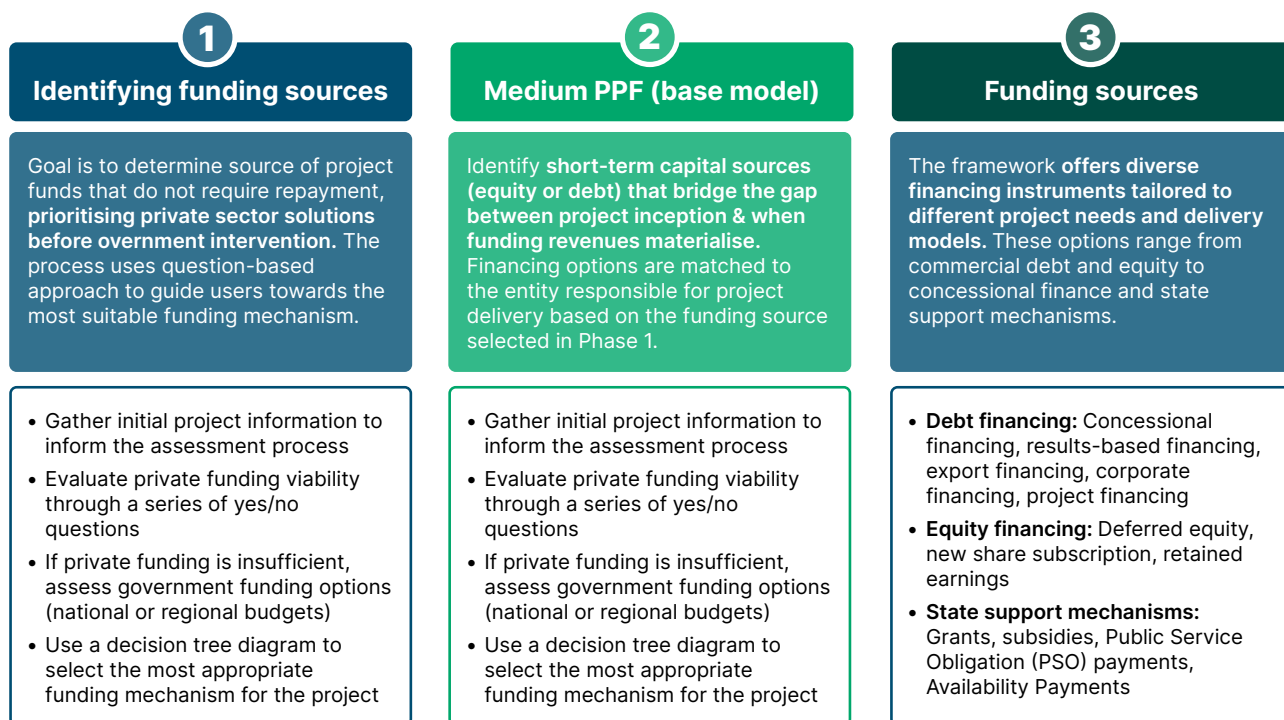


Figure 2 – Summary of PFFOF

The PFFOF follows a systematic eight-step process – simplified in the above diagram (figure 1) – that **starts by assessing the suitable funding source and mechanism, followed by financing source identification, based on the funding sources obtained.**

The process commences with **gathering the project’s initial information**, which provides essential context for all subsequent assessments. Following this initial data collection, the framework conducts a **private funding assessment** that evaluates whether private funding sources are viable for the project. This assessment takes the form of yes/no questions that guide users systematically through various options. **When all answers are “no”, the framework directs users to government funding options.** Conversely, if any answer is “yes”, the framework proceeds with private funding mechanisms.

Should private funding prove insufficient or inappropriate, the framework moves to a government funding assessment. Importantly, if private funding sources have been considered and further funding or financing is still required, users may return to the government funding assessment stage. This iterative approach ensures that all viable

combinations of funding sources are explored before finalising the funding strategy.

Central to the process is **the funding mechanism tree diagram – see Figure 3, which uses a decision tree approach to identify the most suitable funding option.** Starting at the selected funding source obtained from the previous assessments, a series of questions determines the appropriate funding mechanism for the project. This systematic questioning process ensures that the chosen mechanism aligns with both the project’s characteristics and the broader policy environment.

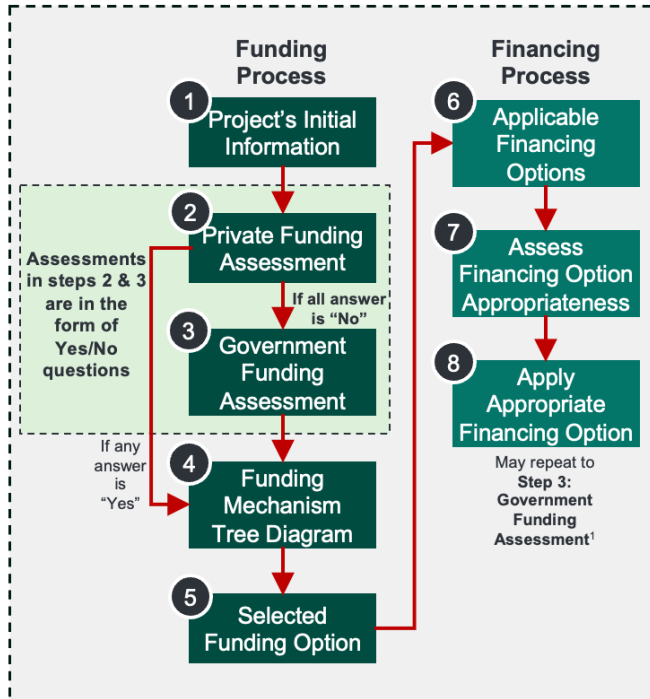
Once the funding mechanism is confirmed through the selected funding option stage, the framework transitions to financing considerations. Depending on the answers obtained in the earlier assessments, there are two entities that may seek financing: business entity or government. The framework first identifies which financing options are applicable based on the selected funding source. Questions are then asked to determine the suitability of the financing options to the specific project context. Finally, the process concludes with applying the most appropriate financing option identified through this assessment.

Funding sources and mechanisms

The framework identifies two primary entities that may be responsible for funding: **business entities (private or SOE) or government**. This fundamental distinction shapes the entire range of mechanisms available to project sponsors. For business entities, the framework presents several distinct funding pathways. User-charge mechanisms enable projects to generate revenue directly from consumers who pay for services received. This approach is particularly suitable for infrastructure that delivers measurable benefits to identifiable users, such as toll roads or water supply systems. Similarly, consumer payments from service provision create a direct link between project outputs and revenue generation.

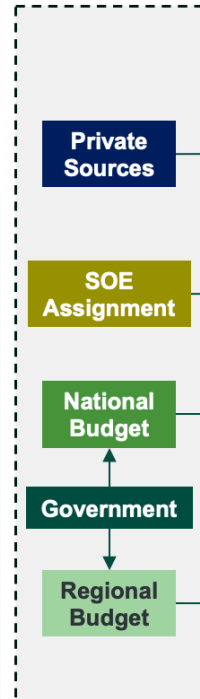
Public-Private Partnership (PPP) arrangements represent another funding option for business entities, allowing risk and responsibility to be shared between the public and private sectors. The framework also recognises charity or philanthropy as a potential funding source, particularly for projects with strong social or environmental benefits that may attract donor support. Additionally, state equity participation provides a mechanism whereby government takes an ownership stake in a project, aligning public interest with private sector delivery.

Overall Framework Process

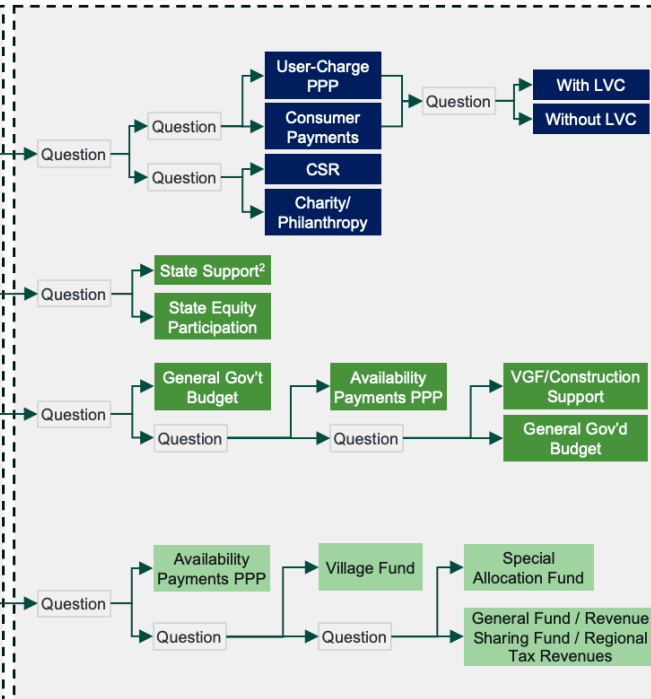


The framework starts by assessing the suitable funding source and mechanism through steps 1 - 5, followed by financing source identification through steps 6 - 8 based on the funding sources obtained.

Selected Funding Source

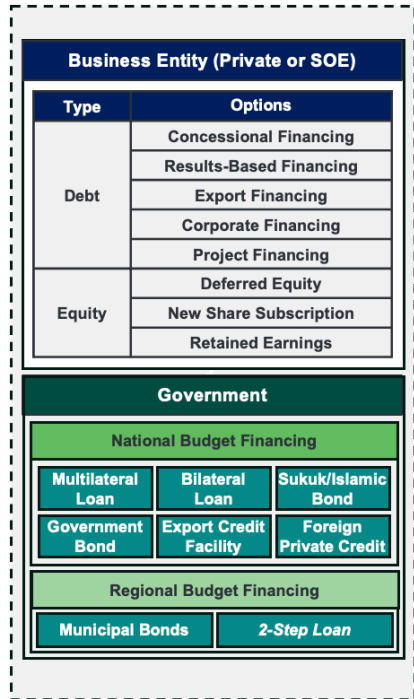


Funding Mechanism Tree Diagram



The funding mechanism tree diagram in Step 4 are shown above. Starting at the selected funding source obtained in Steps 2 and 3, a series of questions will be asked to determine the suitable funding option for the project. Depending on the answers obtained in Steps 2 and 3, there are 2 entities that may seek financing: **business entity** or **government**. Questions will be asked to determine the suitability of the financing options to the project.

Financing Options



1) If private funding sources have been considered, and further funding/financing is still required, proceed to Step 3: Government Funding Assessment.

2) State support are in the form of grants, subsidies, Public Service Obligation, Availability Payments

Figure 3 – Funding Mechanism Tree

For government funding, the **framework distinguishes between national and regional budget sources, each with its own suite of mechanisms.** National Budget Financing encompasses a broad range of options designed to address different project needs and characteristics. The general government budget provides direct allocations from national resources, representing the most straightforward form of public funding. Availability Payments PPP structures allow government to pay for service availability rather than upfront capital costs, spreading the fiscal burden over the operational life of the asset.

Viability Gap Funding (VGF) or Construction Support mechanisms bridge the gap between commercial viability and public benefit, making projects financially feasible that would otherwise struggle to attract private investment. **Multilateral loans** from international or development finance institutions provide access to development finance, often at concessional rates. The framework also recognises Sukuk or Islamic bonds as a funding option compliant with Islamic finance principles, reflecting Indonesia's context as a majority-Muslim nation.

Export credit facilities linked to procurement offer another national budget mechanism, particularly relevant when projects involve significant imported equipment or technology. Foreign private credit from international lenders expands the pool of available capital beyond domestic sources. The framework also includes **Special Allocation Funds** designated for specific purposes within the national budget structure.

Regional Budget Financing sources comprise mechanisms available at the subnational level. These include General Fund allocations at regional level, Revenue Sharing Fund distributions that allocate national revenues to regions, and Regional Tax Revenues generated locally. The framework also recognises Availability Payments PPP as a regional budget option, mirroring the national-level mechanism but funded from regional resources.

The funding mechanism tree diagram presented in the

framework visually represents these options and the decision pathways between them. This diagram serves as a navigational tool, guiding users from their selected funding source through a series of questions that ultimately determine the suitable funding option for their specific project.

Financing options and state support

Once funding sources are identified, the framework moves to determine appropriate financing mechanisms. For business entities, whether private companies or SOEs, the framework presents a comprehensive menu of financing options organised by type.

Debt financing options include several distinct mechanisms. Concessional Financing provides capital at below-market interest rates, typically from development finance institutions seeking to support projects with strong development impacts. Results-Based Financing links disbursement to achievement of predefined outcomes, ensuring that financing flows only when projects deliver intended benefits. Export Financing ties capital provision to international procurement, often supported by export credit agencies in supplier countries. Corporate Financing utilises company balance sheets to raise capital, whilst Project Financing bases lending decisions on project cash flows rather than sponsor creditworthiness.





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Equity financing options comprise mechanisms that increase ownership stakes rather than debt obligations. Deferred Equity allows equity contributions to be staged over time, reducing upfront capital requirements. New Share Subscription involves issuing additional shares to raise capital from new or existing investors. Retained Earnings reinvested from company profits provide an internal source of equity that avoids dilution or external financing costs.

The framework acknowledges that **some projects may require state support to become viable or achieve social objectives**. Such support can take various forms, including grants, subsidies, Public Service Obligation (PSO) payments and Availability Payments. These mechanisms bridge the gap between commercial viability and public benefit, ensuring that socially valuable projects can proceed even when they do not generate sufficient revenue to

attract purely private financing. State support represents a critical tool for addressing market failures and ensuring that infrastructure development serves broader development objectives beyond financial returns.

Identifying appropriate investments

The framework's structured approach guides users through a logical progression from funding to financing. It begins by assessing suitable funding sources and mechanisms, followed by identifying a financing source appropriate to the selected funding. A detailed series of questions guides users to either a business entity – which could be a private-sector business or a state-owned enterprise – or the government.

For all options, the framework then provides the possible financing options that may be available, such as results-based financing,

multilateral loans and government bonds. This comprehensive approach ensures that all viable options are considered systematically, reducing the risk of overlooking suitable mechanisms due to incomplete analysis or institutional biases.

Reflecting national budget efficiency efforts, the PFFOF prioritises private funding over subsidies or government intervention. This prioritisation leverages private-sector strengths in innovation and cost efficiency, whilst justifying private finance costs with genuine risk transfer or service improvements. To minimise risk-adjusted finance costs, government funding or blended finance helps secure lower borrowing rates. Under GCIEP's framework, the public sector is responsible for addressing social issues, and state-owned enterprises step in to support projects in non-competitive markets.

Future Enhancement of PFFOF through AI

The PFFOF provides planners a robust way to identify viable funding and financing pathways beyond direct state provision, including private and blended finance. At present, much of the information needed to complete a PFFOF assessment is not held within the Bappenas Document and Information Database, KOMENS, but sits instead across feasibility studies, internal reports, regulations, and project documents, which are held primarily by external stakeholders such as regional authorities. As a result, planners must retrieve, interpret, validate, and reconcile information manually across multiple sources, creating time-intensive workflows, inconsistent inputs, and limited transparency in how recommendations are reached.

In this context, there is potential for PFFOF to be enhanced by AI so that planners can identify and assess relevant options more quickly and consistently, helping accelerate project development while leaving decisions on the most appropriate pathway with planners themselves.

In response to these information challenges, the study defined three priority AI use cases to improve how planners apply the framework in practice. These are intended as decision-support only and do not replace planner judgement, financing decisions, or formal approval processes.

- 1. Use Case 1 – Minimum Data and Early-Stage Project Structuring Assistant:** This use case would support planners in identifying, structuring, and validating the minimum project information required to begin a PFFOF assessment. It would help reduce time spent extracting and interpreting baseline project inputs from project studies and related documentation.
- 2. Use Case 2 – KOMENS Smart Search and Data Extraction Assistant:** This use case would support planners to locate, retrieve, and extract relevant information from KOMENS and related documents more efficiently. It would reduce search effort, improve access to comparators and financing information, and reduce dependence on institutional memory.
- 3. Use Case 3 – PFFOF Output Explanation and Decision Logic Generator:** This use case would support planners to explain how PFFOF outputs were derived by linking project inputs, applied filters, assumptions, and recommended pathways in a clearer and more traceable way.

These use cases form the basis of an AI Roadmap to enhance the PFFOF.



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GCIEP is a demand-driven initiative focused on sustainable green cities and climate-resilient infrastructure in lower-income countries. As the flagship programme of the UK's Centre of Expertise for Green Cities, Infrastructure and Energy, GCIEP supports the UK Government's mission to accelerate investment in, and delivery of, infrastructure and urban development that is responsible, reliable, inclusive, low-carbon and climate-resilient.

A significant proportion of GCIEP's work is carried out in seven priority countries: Ethiopia, Ghana, Indonesia, Philippines, Mozambique, Vietnam and Zambia, where a Deep Offer programme provides long-term, systemic interventions focused on transformative change and infrastructure financing.

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The UK's Green Cities, Infrastructure and Energy Programme accelerates the delivery of sustainable green cities and climate-resilient infrastructure – tackling climate change and extreme poverty.