Prioritization of Public Investment Projects in Vietnam

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ABSTRACT

Recently enforced Public Investment Law (PIL) provides a strong basis for the enhancement of the PIM system's efficiency, however, the implementation of the PIL is progressing slowly. Quang Ninh province has been selected for an analysis of the practical difficulties authorities face in complying with PIL requirements, particularly in the preparation of investment intention reports. Discussions with provincial authorities revealed two major constraints:

1. lack of an investment intention report template and guidelines;
2. absence of methodologies and guidelines on the preliminary assessment of the socio-economic effectiveness of PIPs.

The efficiency of the PIM system in Vietnam can only be improved if the investment intention reports prepared by project promoters are to form the basis for technical analysis of PIPs. The major component of technical analysis is an evaluation of PIP socio-economic returns. This evaluation should be done using CBA methodologies formulated from basic principles of applied welfare economics. The results of technical analysis must drive the project approval (or rejection) process, in sharp contrast to the current practice of approving projects to be included in regional development master plans before due diligence has been carried out.

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Acronyms

CBA	Cost Benefit Analysis
CEA	Cost Effectiveness Analysis
DPI	Department of Planning and Investment
ENPV	Economic Net Present Value
FDI	Foreign Direct Investment
FNPV	Financial Net Present Value
GRDP	Gross Regional Domestic Product
IIA	Integrated Investment Appraisal
IRR	Internal Rate of Return
IS	Information System
MPI	Ministry of Planning and Investment
MTEF	Medium Term Expenditure Framework
NPLRD	National Program for Local Roads Development
PIL	Public Investment Law
PIM	Public Investment Management
PIP	Public Investment Project
PMU	Project Management Unit
PPC	Provincial People's Committee
PPP	Public Private Partnership
SOE	State Owned Enterprise
VAT	Value Added Tax
VND	Vietnamese Dong

Executive Summary

Recently enforced Public Investment Law (PIL) provides a strong basis for the enhancement of the PIM system's efficiency, however, the implementation of the PIL is progressing slowly. Quang Ninh province has been selected for an analysis of the practical difficulties authorities face in complying with PIL requirements, particularly in the preparation of investment intention reports. Discussions with provincial authorities revealed two major constraints:

3. lack of an investment intention report template and guidelines;
4. the absence of methodologies and guidelines on the preliminary assessment of socio-economic effectiveness of PIPs.

Integrated investment appraisal methodology is recommended for the assessment of socio-economic effectiveness of PIPs. Under this methodology the project assessment begins with an evaluation of the financial profitability of the proposed investment project. A simplified financial analysis is used for projects that do not generate a revenue stream. The financial analysis is required to estimate the minimum amount of government subsidy or transfers required to stimulate private or quasi-private (state-owned enterprise) sector participation. The financial analysis lays the foundation for the socio-economic assessment analysis, greatly reducing the time and resources usually required for such assessments.

The socio-economic analysis is based on the principles of applied welfare economics[1], the postulates of which permit the attachment of socio-economic benefits with corresponding monetary values. This allows one to assess PIPs using efficiency indicators widely employed for the assessment of investment projects. Such indicators include Economic Net Present Value (ENPV), analogous to Financial Net Present Value (FNPV), and Economic Rate of Return (ERR), analogous to Internal Rate of Return (IRR). Social benefits to which it is not possible to assign a monetary value should be clearly detailed in the investment intention, along with an explanation of why these benefits would not be realized if the project were not implemented.

It is recommended to use ENPV and ERR as the main criteria to prioritize PIPs. These criteria are used in the prioritization process by many governments including Korea, Chile, Canada, UK, New Zealand and others. When social benefits that were not quantified and monetized are considered the decision-maker must raise a number of questions. What techniques are available to measure unvalued benefits? Are there better alternatives for the use of investment funds? What do stakeholders in the use of that funds think?

Significant waste of public funds will arise if decisions on projects are made without considerable attention being paid to the quantifiable socio-economic returns of these projects. The process of preparing an investment intention report should focus on estimating the quantifiable socio-economic benefits of PIPs, including a comparison of expected benefits with preliminary project cost estimates. The purpose of assessing the investment intention report of a project is to determine if it should be allowed to proceed to the detailed design stage. If the anticipated project benefits still outweigh the updated cost of the project, then the

[1] See "Three Basic Postulates for Applied Welfare Economics", A. Harberger, 1971.

project should be eligible to be approved for implementation. Such a multi-phase, legally enforced, evaluation process would greatly improve the efficiency of the PIM system.

Two sectors, provincial roads construction and potable water supply, were selected to test the applicability of the investment intention report template and project appraisal methodology. The proposed report and appraisal methodology were well received by the provincial authorities and project promoters. The pilot has revealed that data required to complete appraisals of the public investment projects is either readily available with project promoters or can be collected at a minimum cost. There is, however, a strong need to initiate capacity building programs that would allow responsible authorities to gain the professional skills required to conduct appraisal of PIPs and prepare investment intention reports.

It is recommended that MPI and DPI assume an independent review role at the project preparation stage. An independent PIP review process is a pillar of any efficient PIM system. The existing PIM system in Vietnam, in which project promoters such as sectorial ministries and Provincial People's Committees (PPCs) decide on investment intentions, results in conflicts of interest. The effectiveness of the review function is undermined if project promoters have decision-making power. It is therefore recommended that the independent review of PIP appraisals be undertaken by the Ministry of Planning and Investment (MPI), and that the power of final project approval be returned to it. The investment intention reports submitted to MPI should include appraisal results (ENPV, EIRR, FNPV, etc.) and an Excel models of PIPs, minimizing the resources required to fulfill the independent review function.

The assessment of the quantifiable socio-economic benefits and cost of PIPs at the investment intention preparation stage will help ensure that public funds are channeled into projects that are most needed by the people of Vietnam. Project promoters will soon focus their efforts on the identification of projects with positive socio-economic returns. This will greatly improve the efficiency of public sector investment, stimulating further economic growth. The reform of PIM is, however, a time- and resource-intensive task that requires capacity development, legal reforms, and the development of technical resources.

1. Analysis of Public Investment Management System in Vietnam

1.1. Introduction.

Public investment plays an important role in the economy of Vietnam and accounts for a big share of total investment. The share of public investment increased from 38.1% in 2010 to 40.4% in 2013. The state budget on average contributed 54% of the public investment over the 2006 – 2013 period.

Table 1: Public Investment Composition, 2006-2013(%)

	2006	2007	2008	2009	2010	2011	2012	2013
Public Investment in Total Investment	45.7	37.2	33.9	40.6	38.1	38.9	37.8	40.4
Include								
Budget	54.1	54.2	61.8	64.3	44.8	52.1	50.4	46.7
State credit	14.5	15.4	13.5	14.1	36.6	33.4	36.8	36.9
SOEs	31.4	30.4	24.7	21.6	18.6	14.5	12.8	16.4

Source: GSO Vietnam

Over 2010-14, the authorities have appraised and approved 54,367 new investment projects and revised a further 20,222. In the same period the government has completed the audit and evaluation of a total of 142,916 projects.

Table 2: Inventory of PIPs for 2010-2014 period

	2010	**2011**	**2012**	**2013**
Investment Intentions	16,862	18,407	13,949	14,196
Projects that received the implementation approval	15,392	15,228	11,630	12,117
Rejection rate	8.72%	17.27%	16.62%	14.65%
Projects in the implementation (construction) stage	34,607	38,420	34,509	35,379
Newly commenced projects	14,493	14,145	11,508	12,988
Audited projects	20,332	26,125	21,371	23,890
Projects that violated investment procedures	112	100	42	195
Projects with cost-overruns	3,386	4,436	4,063	3,391
Revised projects	5,239	5,447	5,554	3,982

Source: Ministry of Planning and Investment

Several conclusions can be drawn from the figures presented in Table 1:

1. A moderate average rejection rate of 14.3% indicates that the PIM system performs a gatekeeping role. However, consultations with stakeholders revealed an absence of documented practices, procedures, and criteria, according to which projects are accepted or rejected. Instead, projects are approved according to the availability of funds, with investment intentions grouped to match investment requirements with the budget available.
2. An average project revision rate of 14% points to weaknesses in the project preparation stage. Many projects exhibit cost overruns that are a multiple of the total investment costs, while revisions often result in changes to initial project objectives and scale.
3. The project preparation process, including detailed design preparation, frequently fails to produce accurate estimates of the work required to implement a project. At the same time, work phases are often significantly reduced as a result of limited fund availability. In many instances construction plans must be updated, requiring additional studies, resources, and delays to the project implementation process. Overall, the quality of detailed design falls below the level required.
4. The process of appraising investment intentions does not pay adequate attention to the capacity to mobilize funds required for effective implementation, resulting in a spread of incomplete projects.
5. Given that the appraisal function is undertaken only once a project has been approved, with no real effort made to assess the feasibility of investment intentions, the process is no more than a formality.

The World Bank (Rajaram et al. 2010) identified eight "must-have" features of a Public Investment Program that supports government decision-making:

1. Clearly articulated strategy and formal process to ensure adequate project screening. The objectives of the investment intention should be closely aligned with the strategic development plans of the country and sector development plans. Compliance with development objectives is assessed through Key Performance Indicators (KPIs), which act as a first-level filter for the removal of projects that do not correspond to the national development vision.
2. Formal project appraisal. Projects should be subjected to an appraisal (financial, environmental, economic, distributional, and risk) commensurate with the phase, size, and specificities of the project. In Vietnam, the project appraisal function is not fully functional. The socio-economic assessment of PIPs is very qualitative and fails to provide a basis for a decision on implementation on the basis of socio-economic effectiveness. In addition, cost benefit analysis is only conducted for large projects, and only after a decision on implementation/financing.
3. Presence of an independent project appraisal review. An essential component in ensuring project quality in countries with a strong PIM system, including Chile, Korea, Canada, the UK, and the USA is a well functioning independent review process. This function has not been assigned to any government body in Vietnam.
4. Integration of project selection and budget. Capital expenses, maintenance costs, and operational expenses must be integrated. Prior to enforcement of the PIL, PIP recurrent expenditures were not recorded and budgeted for. A weak project preparation process also mitigates against resourcing technically feasible recurrent expenditure requirements in the budget preparation phase.

5. Efficient project design and realistic implementation/execution. All project costs need to be budgeted over their life cycle using a multi-year approach, rather than as separate or independent yearly expenses. While multi-year budgeting has recently been introduced in Vietnam, project execution plans are not technically optimized, preventing the efficient implementation of the multi-year approach.
6. Existence of a system encouraging active monitoring of project delivery. Vietnam's project monitoring function is weak, with no evidence of an appropriate re-evaluation process where a project runs into significant delays and cost overruns.
7. Existence of a framework supporting the use of capital assets once they have been built. Assets need to be utilized and maintained if they are to fulfill their productive potential, as per ex-ante appraisals. Most infrastructure in Vietnam is poorly maintained, mainly because of an inability to budget for recurrent project expenses. The enforcement of PIL is expected to assist in resolving this issue.
8. Detailed guidelines requiring both a completion report and an impact assessment following the construction of an infrastructure asset. Ex-post evaluation of PIPs is not performed in Vietnam.

In a bid to meet these challenges, the Government of Vietnam has made a commitment to reform the national Public Investment Management (PIM) system. The recent implementation of a Public Investment Law (PIL) provides a strong framework for the full-fledged reform, demonstrating political commitment towards improving the efficiency of the PIM system. Political support has been identified as a key driver of PIM efficiency around the world, with the most prominent examples coming from Chile, South Korea, the UK, and Canada.

In practice, political commitment is reflected in a willingness to commit the resources required to establish operational tools and institutional arrangements that support an efficient PIM system, including enforcing accountability for compliance. To that end, the PIL of Vietnam needs to be supplemented by operational guidelines and other legal infrastructure to facilitate the exercise of responsibilities.

International experience has shown the fundamental pillars of an efficient PIM system to include:

a) political support;
b) fiscal accountability;
c) methodologies for the preparation and appraisal of Public Investment Projects (PIPs), supplemented by sector-specific methodologies used by stakeholders;
d) well-defined and legally enforced project approval criteria;
e) ministerial power to stop projects that do not meet criteria, or that exceed available resources;
f) information-system infrastructure, including unified database of PIPs and system of easy access to national parameters and economic prices;
g) continuous capacity-building programs in project appraisal for government officials; and
h) introduction of project-appraisal disciplines into university curriculums.

While the introduction of PIL is a big step toward improving Vietnam's PIM system, achieving fully-fledged reform will be a time- and resource-intensive task requiring political commitment over the long term.

2. Appraisal and Prioritization Methodologies for PIPs

Vietnam is at the beginning of reforms to its PIM system. Critical to the success of those reforms is the choice of methodologies to be used in project preparation, appraisal, and selection should. The Government of Vietnam has therefore requested World Bank technical assistance to develop the following:

1. A template Investment Intention Report, ensuring project compliance with requirements stipulated by the PIL;
2. A methodology to conduct preliminary analysis of the socio-economic effectiveness of PIPs; and
3. A methodology to rank and prioritize public investment projects (PIPs) in the context of limited resources available.

This section discusses proposed methodologies, as well as outlining the advantages and disadvantages of alternative strategies based on international experience.

2.1. Investment Intention Report

2.1.1. Requirements of PIL

The content of investment intention reports for Group B[2] and Group C[3] projects is stipulated by Article 36[4] of the PIL, No. 49/2014/QH13, as of June 18, 2014. The terms of Article 36 aim to determine if a given investment project is:

a) consistent with strategic development plans;

b) achievable within resource constraints; and

c) socio-economically effective and efficient.

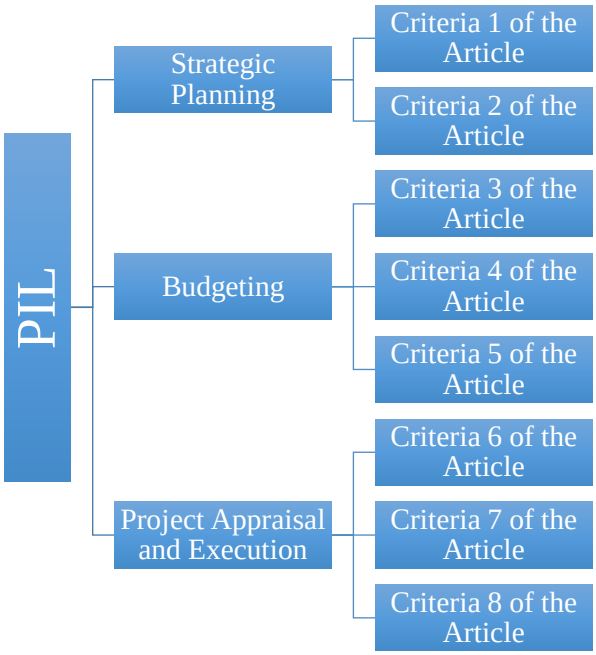
The schematic view of Article 36 of the PIL is presented in Figure 1.

[2] The total investment cost of the Type B projects ranges from VND 5 billion to VND 2,300 billion on the economic sector the project belongs to.

[3] The total investment cost of the Type C projects is up to VND 120 billion billion depending on the economic sector the project belongs to.

[4] Please refer to Annex A for the details of Article 36.

Figure 1: Schematic View of Article 36.



Strategic planning, budgeting, and project appraisal and execution are commonly referred to as the fundamental pillars of a PIM system. Although closely related, these three functions are often controlled by different Departments or even different Ministries, such as the Ministry of Planning and the Ministry of Finance. A common challenge in efforts to reform and strengthen a PIM system is therefore to build effective linkages between those responsible for these three key components.

2.1.2. Structure of the Investment Intention Report

The proposed structure of the Investment Intention Report aims to achieve efficiency in the selection of PIPs by building a clear connection between the strategic planning, budgeting, and project appraisal and execution functions. The Report is designed to:

a) identify the major problem a project is expected to resolve;
b) formulate the direct objective of the investment project;
c) focus feasibility analysis on the socio-economic effectiveness of the proposed investment in achieving that objective;
d) list and provide qualitative explanation of secondary objectives/purposes/benefits of the project, facilitating an informed assessment of viability.

The decision to approve an Investment Intention Report for a type B or C project in Vietnam signals the start of project implementation. It is therefore essential to build in adequate due diligence from the earliest stages, to assist informed decision-making. Article 15.1 of the PIL stipulates that expenses incurred in the formulation of an Investment Intention Report should be funded from the operating budgets of PIP-promoting entities.

The Investment Intention Report contains eight sections (see Annex B for the Investment Intention Report template and Annex C for guidelines on completion):

1. *Information about the PIP and the public investment program (Program)* – aims to collect general information about the PIP and the corresponding Program, to assess the degree to which PIP objectives and anticipated results comply with the objectives and

targets of the Program. The assessment entails both qualitative and quantitative analysis. The qualitative analysis aims to assess the alignment of PIP objectives and schedule with those of the Program. Quantitative analysis, based on Key Performance Indicators (KPIs), determines the quantitative contribution expected of the PIP to meeting Program targets.

2. *Project identification* – identifies the particular problem that the PIP is expected to solve, including a discussion of the root causes and their effect on a specific population. This will assist in directing project assessment from a broad discussion of sectoral challenges to the identification of direct objectives, benefits, and expected results of a given PIP intervention. This section is designed to focus project assessment on the area of project influence[5] as opposed to geographical location, and on the affected population[6] as opposed to the population of the geographic location or population residing within the area of PIP influence. This section also requires project proposers to state if a decision on land allocation has been made, and if the PIP involves construction of supplementary infrastructure. Sub-section 2.2 enables project promoters to refer to major findings of any relevant previous PIP's studies.
3. *Market analysis of the industry* – describes the quantitative indicators of existing and future demand, and the supply of goods and services produced by the PIP. Assumptions that drive the demand projections should be explained in detail. Many such assumptions (population growth, expected income growth rate) are common to projects across sectors, and can therefore be collated and made available to all project promoters. The recommended evaluation period is the useful life of the main project assets, if less than 20 years, to a maximum of 20 years. The residual value of PIP's assets should be reflected.

   Supply projections should take account of a possible expansion of available goods and services from new or existing suppliers, as well as the effects of deteriorating infrastructure and additional supply from previously approved PIPs.

   The section concludes with estimates of the demand-supply gap and the quantitative justification of need for a PIP.
4. *Identification and description of alternative solutions* – discusses alternatives to the proposed solution, outlining how the proposed project is the most cost-effective way to achieve the desired outcome. Analysis should focus on the appropriate choice of technology, scale, timing, etc. The section should provide only a preliminary discussion, based on project promoters' observations and experience. No additional studies should be conducted for this section.
5. *Financial and socio-economic benefits* – centers on analysis of the demand-supply gap as the basis of the project appraisal exercise, to determine if the investment is needed and socially desirable. In some sectors, such as water supply, cost-effectiveness analysis can

[5] Area of project influence corresponds to the inhabited area directly affected by the project.

[6] Affected population refers to the population that will be affected by the project.

be used to calculate cost-effectiveness ratios[7] and to prioritize projects for implementation. In other sectors, such as road construction, common practice is to estimate the monetary value of social services delivered by the project. A number of the required technical parameters can be estimated and made available to project promoters, improving consistency and simplifying the evaluation process. In the case of road construction, such parameters may include periodic maintenance cost for specific types of roads, value of travelers' time, vehicle operating costs by type of vehicle, and average traffic growth rates (See Annex D). Estimating the monetary value of expected social benefits is a straightforward technical exercise if these parameters are made available.

Financial analysis of a project is essential, in order to establish:

a) PIP financial sustainability; [8]
b) projects that are strongly financially profitable should be rejected (to save budget resources) and referred for the implementation by the private sector; and
c) the minimum government subsidy required to stimulate private participation (or the minimum budget transfer for state-owned enterprises to take part).

PIPs are frequently launched with multiple objectives and expectations of a range of socio-economic benefits. However, while the importance of secondary benefits should not be underestimated, in practice these tend to be similar across sectors.[9] It is therefore practically impossible to rank projects on this basis.[10]

The Report encourages project promoters to state any expected secondary social benefits/objectives. These may be stated qualitatively. However, an explanation as to why these benefits will not otherwise be achieved should be included, based on the problem/constraint the project is intended to resolve.

6. *Financial and Economic Costs* – as stipulated by Article 36 of the PIL, the Report requires project promoters to state total project cost, proposed schedule of investment, preliminary estimate of project execution and operating costs, and proposed source of funding for each cost component.

   The financial value of project inputs and outputs, including investment, operating, and maintenance costs, should be converted into economic value, taking account of market

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[7] The cost/effectiveness ratio is the ratio of project cost to project output. Such a calculation is recommended where it is difficult to estimate the monetary value of services delivered by the project.

[8] Financial sustainability refers to the ability of a project to generate sufficient cash flow to cover its operating and maintenance expenditures.

[9] The PIPs primary objective is to solve the core problem identified in section 2 of the Report.

[10] For example, poverty eradication and regional development objectives are typically attached to road construction projects. However, if virtually all road construction projects under consideration are attributed with the same benefits, those benefits are useless for ranking purposes.

distortions such as taxes and subsidies. An online database of commodity-specific conversion factors would facilitate calculations of the total resources required by a project, as well as maintaining consistency across assessment of various PIPs.

Similarly all project costs, including secondary and indirect social costs, should be detailed by project promoters.

7. *Environmental and social impacts* – entails qualitative analysis of the environmental and social impact of PIPs. The project promoters should state and qualitatively explain the impact of the project on the environment (noise, pollution) during the investment and operating periods. Social impact such as resettlement-related issues, and impact on employment and poverty-reduction should be discussed. Where appropriate, countermeasures to lessen negative effects should also be outlined.
8. *Project management scheme* – requires project promoters to propose an effective project management scheme that will contribute to successful implementation. Project promoters may refer to the reputation of direct stakeholders as an indicator of the likely successful and timely completion of a PIP. Information in this section should help the Ministry of Planning and Investment (MPI) to reward project promoters with a history of good performance, and to penalize promoters with a track record of identifying and promoting bad investments.

Box 1: Process of Project Appraisal in the United Kingdom

Project appraisals in the UK are often iterated a number of times before a decision on implementation is reached. In addition, the data used is refined at each stage (investment intention, pre-feasibility study, feasibility study) of the assessment process, increasing specificity and accuracy. In general, the PIP appraisal and evaluation process consists of 5 stages:

1. **Justifying action –** analysis to determine that two main criteria are met: first, there is a clearly identified need and second, benefits are likely to outweigh costs.
2. **Setting objectives –** clearly defined desired objectives in order to identify a range of options that may be available to deliver these objectives.
3. **Option appraisal –** wide range of options devised and reviewed, in order to set the parameters of an appropriate solution. A shortlist is then created according to CBA of each option.
4. **Developing and implementing solution –** decision criteria or judgment used to select the best option, which is refined to a solution. Procurement routes are also considered.
5. **Evaluation –** ex-post evaluation of completed projects. In contrast to ex-ante appraisal, ex-post evaluation uses actual data rather than forecast data. The main purpose is to ensure that lessons are widely learned, communicated, and applied when assessing new investment intentions.

Source: Green Book

2.2. Assessment of Socio-economic Benefits

2.2.1. Methodology to conduct integrated appraisal of PIPs

Article 36 of the PIL stipulates the undertaking of a preliminary assessment of the socio-economic effectiveness of PIPs. The proposed methodology—Integrated Investment Appraisal (IIA)—evaluates both the financial and the socio-economic effectiveness of PIPs, estimating the impact of an investment from various perspectives. IIA is the only single-model approach that quantifies the impact of every PIP-related transaction, from the private investor to tax revenues, fiscal expenditure, consumers, and the environment. The methodology is used and recommended for project evaluation by major development banks, donor agencies, and public investment units.

Alternative methods of impact analysis require separate studies, including financial analysis, economic impact assessment, and environmental impact analysis. Such studies are segregated and are often carried out by independent analysts, at different stages of project development, and rarely allow experts to reformulate and improve overall project impact.

Under the IIA framework, the project assessment begins with an evaluation of the financial profitability of the proposed investment project (Financial module). A simplified Financial module[11] is used for projects that do not generate a revenue stream. The Financial module is required to estimate the minimum amount of government subsidy or transfers required to stimulate private or quasi-private (state-owned enterprise) sector participation. The Financial module lays the foundation for the socio-economic assessment module (Economic module), greatly reducing the time and resources usually required for such assessments. The Economic module is based on the principles of applied welfare economics[12], the postulates of which permit the attachment of socio-economic benefits with corresponding monetary values. This allows one to assess PIPs using efficiency indicators widely employed for the assessment of investment projects. Such indicators include Economic Net Present Value (ENPV), analogous to Financial Net Present Value (FNPV), and Economic Rate of Return (ERR), analogous to Internal Rate of Return (IRR). Social benefits to which it is not possible to assign a monetary value should be clearly detailed, along with an explanation of why these benefits would not be realized if the project were not implemented.

[11] For such projects, the construction of common financial statements (for example, income statement, balance sheet) is not required.

[12] See "Three Basic Postulates for Applied Welfare Economics", A. Harberger, 1971.

Box 2: Process of Project Appraisal Using CBA (United Kingdom)

The project appraisal process in the UK consists of seven key steps:

1. Identify and value the cost of the project;
2. Identify and value the benefits of the project;
3. If required, adjust the valued costs and benefits according to
    a. Impacts on different groups of society
    b. Relative price movements
4. Discount time value of money and risks of costs and benefits;
5. Adjust for difference in taxes between project options;
6. Consider impacts of changes in key variables;
7. Consider unvalued impacts (both costs and benefits).

Source: Green Book

For certain types of project (water supply, health, national defense), where it may be impractical to attempt to monetize the benefits of PIPs, Cost-Effectiveness Analysis[13] (CEA) should be used instead of Cost-Benefit Analysis (CBA). The indicator of the socio-economic effectiveness in this case is a ratio of cost per unit of output delivered by the project.

This methodology for appraisal of public investment projects has long been used by Chile, a country widely recognized for its efficiency in PIM. Many other Latin-American countries, as well as Canada, use the same methodology to appraise socio-economic impacts of PIPs.

2.2.2. Cost of PIP appraisal

Limited information and resource availability are commonly cited as obstacles to estimating the socio-economic returns of PIPs at the earliest project stages. It is therefore important to understand the cost-composition of PIP assessments, and to select the methodology that best fits the country context.

The cost of project appraisal typically consists of three main components:

a. estimates of financial and economic returns;
b. detailed design and cost estimates; and
c. assessments of compliance with environmental, safety, and other regulatory issues.

The cost of estimating financial and economic returns lies mainly in developing official capacity to conduct CBA of PIPs, and in the collection of data required for sound CBA.

The capacity-development process depends on existing government expertize, and may initially require only moderate investment. However, ensuring the collection of high quality data is extremely important, as inaccurate information will lead to spurious results. Nonetheless, data collection for the assessment of projects at the idea stage, particularly small-scale projects, should focus on critical parameters, usually two to five variables. In the case of rural road upgrade projects, for example, such variables include estimates of existing

[13] Application of CEA refers to the Economic module of IIA methodology. The Financial module remains unchanged in revenue-generating projects, for example water supply.

traffic and average trip time by type of road user. Remaining parameters can be kept constant across the same types of project[14] (see annex D).

Project promoters usually possess a sufficient amount of knowledge and experience to provide reliable estimates for most of the data inputs required for the CBA. Preliminary investment and operating cost estimates are good examples of the data that can be obtained from project promoters, based on recent experience of similar projects. Alternatively, cost norms can be used at the idea stage, to derive preliminary project cost estimates. Supplementary information systems, such as a PIP database and accessible information on national parameters and economic prices, will further reduce the resources required to conduct an assessment of PIPs, and improve the consistency of the assessment across projects as well as accuracy of estimates.

The procedures and techniques required to conduct CBA analysis are the same across investments of different sizes (types A, B, or C). The main difference between mega-investments and small projects of types B and C is the opportunity cost of approving the implementation of projects with negative socio-economic returns. CBA of mega-projects requires greater resources to obtain accurate data. The knowledge gained from capacity-building investments will therefore assist the improved efficiency of PIPs of all sizes.

The largest share of project preparation costs is spent on detailed design, project cost estimates, and engineering studies. Technical drawings and project costing, which are undertaken at the pre-feasibility or feasibility analysis stage, require primary data that can only be obtained through expensive research. The cost of these studies ranges on average from 5 to 15 percent of total PIP investment costs. Conducting CBA at the idea stage reduces unnecessary expenditure by establishing early on whether a project is economically feasible.

Environmental impact assessments and compliance with safety standards and other legal requirements are usually financed by organizations that are external to the project government bodies (Ministry of Science, Technology, and Environment), and are therefore not included in PIP costs. Again, however, the goal should be to eliminate non-viable projects early, minimizing unnecessary expenditure on their assessment.

In summary, moderate investment is required to develop project-assessment capacity, after which the incremental cost of appraising PIPs is limited to the data collection process. The cost of data collection is usually insignificant compared to savings achieved by the early elimination of projects that do not justify their costs.

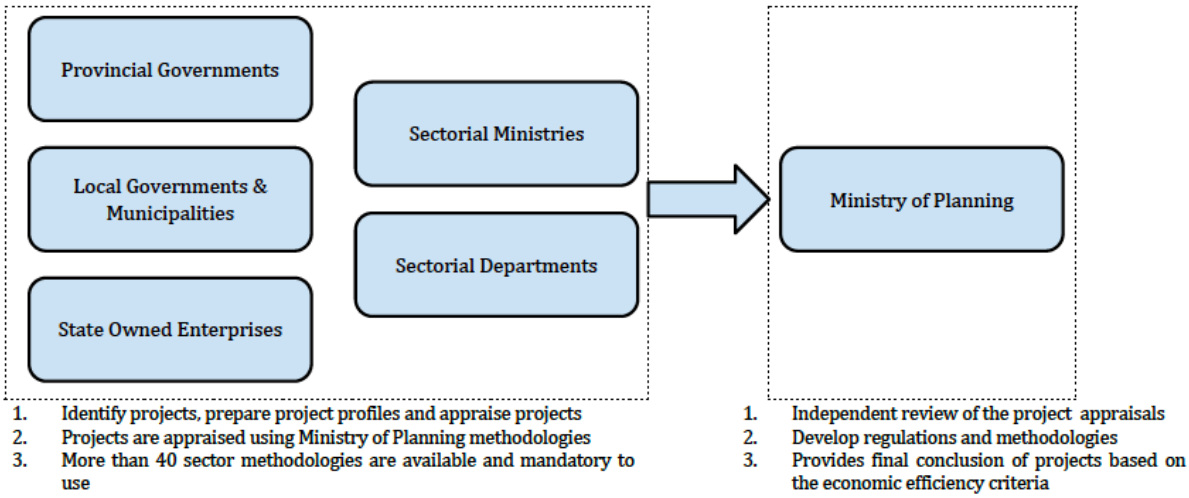
2.3. Institutional framework

Many countries have tried to centralize the process of evaluating public sector projects. However, the number of project ideas and investment intention reports inevitably proves too large for a single entity to conduct high quality cost-benefit analysis across the board.

Chile took a different approach. In the mid-1970's, Chile implemented the National Investment System, under which the Ministry of Planning assumed an indirect role, providing guidelines and institutionalizing a project appraisal program undertaken by public officials. Today most countries with advanced PIM systems (Canada, Korea, the United Kingdom) follow the same institutional framework.

[14] The project promoters, however, should have the flexibility to modify parameters if there is strong evidence that average numbers are not representative of a particular situation.

Figure 2: Structure of PIM in Chile.



The institutional framework of Chile is very similar to that of Vietnam. It is therefore recommended that project promoters (provincial governments, State-Owned Enterprises (SOEs), municipalities, sectorial ministries) adopt the process outlined above in the preparation of project intention reports and the preliminary assessment of socio-economic effectiveness. The main advantage of this approach is that it draws on the knowledge of project promoters, improving the quality of analysis while reducing the cost of data collection. The probity of the project appraisal process can then be ensured through independent review.

An independent PIP review process is a pillar of any efficient PIM system. The existing PIM system in Vietnam, in which project promoters such as sectorial ministries and Provincial People's Committees (PPCs) decide on investment intentions, results in conflicts of interest. The effectiveness of the review function is undermined if project promoters have decision-making power. It is therefore recommended that the independent review of PIP appraisals be undertaken by the Ministry of Planning and Investment (MPI), and that the power of final project approval be returned to it.

Box 3: Project Appraisal Process in Korea

Projects with a total cost of over US$50 million are subject to pre-feasibility assessment using multi-criteria analysis. A cost-benefit analysis of economic benefits is weighted at 40 to 50 percent, with benefits defined as the monetary value attached to expected demand for services the project will provide. The economic costs are the sum of capital expenditure and operating costs for the lifecycle of the project. The standard set of criteria to assess the economic viability of a project includes Benefit Cost Ratio, Economic Net Present Value and Economic Rate of Return. The other two elements of multi-criteria analysis are policy analysis and regional development analysis. The analysis assesses project consistency with higher-level policy, project riskiness, and other project specific aspects. Balanced regional development is also considered, according to an index of eight factors.

The consistency of the project appraisal process can be maintained through the introduction of sector-specific methodologies for the evaluation of PIPs, and the mandatory employment

in appraisals of common, easily accessible, national parameters and economic prices. It is recommended that MPI retains control over the development of these and other tools, methodologies, and regulations.

2.4. Prioritization approach

Prior to the introduction of the PIL, Investment Intention Reports tended to be generic in content, providing little scope for informed judgment as to the feasibility of PIPs, their ranking, or prioritization for approval. In recognition of this weakness of the PIM system, the PIL requires a preliminary assessment of PIPs' socio-economic benefits during Report preparation.

The proposed approach to prioritization rests on the preliminary assessment of PIPs' socio-economic effectiveness. For sectors in which CBA is employed to assess socio-economic effectiveness, such as road construction, prioritization will be on the basis of indicators such as ENPV and EIRR. For other sectors, were CEA is more applicable, PIPs will be ranked using cost-effectiveness ratios. Table 1 outlines the prioritization process using a set of ten hypothetical PIPs.

Table 3: Investment cost and socio-economic effectiveness of hypothetical PIPs

	Investment Cost (VND Billion, Nominal)						
	Y-1	Y-2	Y-3	Y-4	Y-5	**Total**	**ENPV**
Project A	13	10	11			**34**	**80**
Project B	52	60				**112**	**25**
Project C	35	23	40	50	15	**163**	**15**
Project D	10	9				**19**	**3**
Project E	40					**40**	**1.5**
Project F	20	28	40	35		**123**	**-30**
Project G	15	15				**30**	**-42**
Project H	94	102	104	118		**418**	**-80**
Project K	120	120	100	100		**440**	**-100**
Project L	94	125	15	20		**254**	**-101**

The results of Table 1 illustrate that Projects F to L should be rejected, given that a preliminary assessment of their socio-economic efficiency revealed negative ENPVs. This indicates that the benefits of these projects are not outweighed by the opportunity cost of resources foregone if the projects were to be implemented.

Box 2: Consideration of Non-valued Socio-economic Benefits

Suppose projects B and C are considered lead options for implementation, with respective net present costs of VND 87 billion and VND 148 billion, taking account of valued benefits. The selection of project C over project B depends on whether the unvalued benefits of project C are considered to be worth at least VND 61 billion.

The decision-maker must consider a number of questions. What techniques are available to measure unvalued benefits? Are there better alternatives for the use of VND 61 billion? What do stakeholders in the use of that sum think?

It is important to note, however, that a significant number of PIPs that are not economically feasible at the time of assessment can become feasible in the near future if demand for project services rises. Information relating to the projects should therefore remain available, greatly reducing future demands of project preparation. Such system functionality would be easily achieved through the introduction of the integrated PIP database.

In order to improve PIM system efficiency and functionality, it is also important to introduce legal barriers against the approval of economically unviable projects. In Chile, for instance, no project with a negative ENPV can be approved for financing. The only exception is the legally-defined right of the President to veto the results of technical analysis, on the ground that a project is of national importance. In Korea, although projects are assessed on the basis of multi-criteria analysis, results of economic appraisal account for up to 50 percent of project weighting, with the remaining 50 percent shared between balanced regional development (quantitative indicators) and policy feasibility (qualitative indicators).

Since Projects A to E in Table 1 were established as economically justified by the technical analysis they should be approved for implementation. Where budget constraints do not permit the implementation of all projects with positive ENPVs, a combination of projects with the highest total ENPV should be selected. For example, if the available budget for Y-1 is VND 50 billion, then projects A and C should be selected as yielding the highest total ENPV for that budget. Similarly, in sectors were CEA is applicable, projects with the highest cost-effectiveness ratio should be selected.

The remaining projects (B, D, and E) should be considered along with other qualifying projects and subject to budget restrictions, for a maximum of the following two years. Projects that receive technical approval but are not implemented in the following three years should be reappraised.

In practice, other factors will affect the selection and prioritization of PIPs. Weighting and scoring techniques are also used to compare projects. However, the application of scores will frequently require subjective judgments to compare results with those derived from cost benefit analysis. Alternatively, the Korean multi-criteria approach (MCA) may be employed. Here again, however, the weighting of criteria is frequently subjective and itself subject to regular adjustments to reflect shifting development priorities. The problem of subjectivity can be avoided if technical analysis is legally separated from the decision-making process, with

technical analysis serving the gatekeeper function. In other words, projects that pass the technical analysis stage can then be subject to negotiations among stakeholders during the decision-making process.

In the context of the Medium Term Expenditure Framework (MTEF), it is important to prepare an investment schedule based on the technically optimal project implementation plan. The investment requirements of approved projects normally serve as a starting point for the allocation of annual development budgets under MTEF. This frequently results in project promoters reducing the investment requirements of new projects for the coming fiscal year, thereby obtaining positive decisions on a higher number of projects. This situation prevails in a number of countries, including Vietnam. For instance, the proposed construction schedule of the 3-km Yen Tu road upgrade project spans 3 years, whereas the project could be completed in a few months if funds were available.

Investment requirements of VND 10 billion and VND 23 billion, for Projects A and C respectively, should serve as the starting point in the allocation of funds in the Y-2 development budget. Investment requirements for projects approved for Y-3, Y-4 and Y-5 should be recorded and assigned the highest priority in subsequent development budget allocations.

3. Pilot Study in Quang Ninh Province

3.1. Fiscal Structure and Investment Composition in Quang Ninh Province.

The Gross Regional Domestic Product (GRDP) of the Quang Ninh Province is expected to reach VND 100,299 billion in 2015, at 2015 prices. Growth in real GRDP from 2013 to 2014 was 9.86 percent. Export and import duties contribute about 54% of provincial budget revenues, with the remaining 46% coming from other local revenue sources. The share of foreign direct investment (FDI) in total investment has increased significantly since 2011, from 5.2 percent to 30.2 percent. The state government continues to play a significant role in financing investment projects in the province, although the share of state capital in total investment has decreased by an annual average of 3.94% since 2011, mainly because of growth in FDI.

There are about 1,000 PIPs ongoing in the province. Infrastructure projects in the electricity supply, forestry, irrigation, and transportation sectors account for 41.2 percent of investment, social projects and national defense for a further 22 percent, and security sector projects for 2.5 percent. The remaining 34.3 percent of PIPs are in other economic sectors.

In accordance with instructions from MPI, the provincial authorities have identified the following priority areas to be financed in the 2016-20 period:

a) PPP investments;
b) projects co-financed with Official Development Assistance (ODA);
c) repayment of capital construction debt; and
d) financing of ongoing projects.

The provincial government budget for investment in the 2016-20 period has been set at VND 58,073 billion, of which VND 40.2 billion is expected to be financed from the local budget and the remaining VND 17.9 billion from target-based state budget transfers to the province. However, the central government has planned for the target-based state budget transfer to

Quang Ninh province of just VND 4.2 billion—less then 25% of the requested amount. This situation further emphasizes the need for robust methodology in the selection of PIPs, with the goal of identifying those with the highest socio-economic returns, thereby reducing demand for budget resources.

3.2. Objectives and results of the pilot study

While the PIL provides a strong basis for the enhancement of the PIM system's efficiency, the implementation of the PIL is progressing slowly. Quang Ninh province has been selected for an analysis of the practical difficulties authorities face in complying with PIL requirements, particularly in the preparation of investment intention reports. Discussions with provincial authorities revealed a number of constraints:

1. lack of an investment intention report template and guidelines;
2. absence of methodologies and guidelines on the preliminary assessment of socio-economic effectiveness of PIPs.

Two sectors, provincial roads construction and potable water supply, were selected to test the applicability of the Investment Intention Report and project appraisal methodology. The main objectives of the pilot study include to:

a. Collect feedback on project appraisal methodology and Investment Intention Report template from project promoters, PPCs, and Department of Planning and Investment (DPI) of Quang Ninh Province;
b. Collect information on a sample of projects in the two sectors;
c. Complete appraisal of selected PIPs, to test applicability of methodology to Vietnam context;
d. Establish availability of data to fulfill Report requirements.

The proposed Report and project appraisal methodology were well received by the provincial authorities and project promoters. Two major issues, however, were raised by the authorities:

- The PIL calls for a preliminary assessment of PIPs' socio-economic effectiveness. However, no additional resources (budget) were made available to project promoters to prepare investment intention reports, or to DPIs to conduct their review and appraisal.
- Proposed methodology to estimate socio-economic effectiveness of PIPs should be adjusted to allow project promoters to justify the investment intention in terms other than direct benefits, such as poverty reduction or development impacts.

It is recommended that MPI and DPI assume an independent review role at the project preparation stage. Project promoters have a direct interest in the proposed project being implemented and should remain responsible for its appraisal. The investment intention reports submitted to DPIs should include appraisal results (ENPV, EIRR, cost-effectiveness ratio, FNPV, etc.) and an Excel model of the PIP, minimizing the resources required to fulfill the independent review function. Such an institutional model is in place in many countries, including Chile and Canada. The operational budget of the reviewing entity (DPIs) normally covers the cost of independent review of PIPs. However, Article 15.2 of Vietnam's PIL stipulates that expenses incurred in the formulation and appraisal of investment intentions should be financed by the special fund for the preparation of investment projects.

An additional section added to the initial version of the Report allows project promoters to list and explain a PIP's indirect benefits[15]. It is often argued that PIPs stimulate development and/or employment in an area. In addition, PIPs in poor areas usually have attached poverty alleviation impacts. However, such a broad classification of project benefits does little to assist the process of allocating limited resources to the most productive investments. An evidence-based analysis of these secondary benefits (to establish a quantitative estimate of their value) requires sophisticated econometric techniques that are frequently not feasible to undertake for small-size PIPs. Sections 5.3, 7.3, and 7.4 of the Report request project promoters to detail perceived secondary benefits in qualitative and quantitative terms, and to provide a rationale as to why the same benefits would not be realized if the project were not implemented.

MPI officials were also concerned about availability of data required to complete the appraisal of PIPs. However, the pilot study revealed that project promoters do have the required information or can collect it at little incremental cost. For example, Quang Ninh Water Supply JSC collect demand data for every project they propose. Company officials stated that they would have collected most of the data required by the Report in any case.

The Project Management Unit (PMU) of the road upgrade project did not have estimates on existing traffic on the road. However, unit officials identified the alternative measure of parking tickets to estimate monthly car numbers.

The PMUs of water supply and road construction projects were also familiar with the proposed methodology to appraise PIPs—additional impetus to requesting project promoters to complete appraisal of a proposed PIP subject to MPI rules and guidelines.

3.3. Appraisal of Public Investment Projects

Four provincial road construction projects and two potable water supply projects were selected to pilot the appraisal methodology in Quang Ning Province. A number of consultations with PMUs and PPCs were held to collect the data required to complete the appraisal. This section of the report will provide a brief description of the selected projects, describe the analytical process, and reveal key findings of the analysis.

3.3.1. Rural road construction

The provincial road projects selected for the pilot study were: the Ba Che-Ha Long road project, from the center of Don Dac Commune to the northern ring road of Ha Long City (Ba Che road); the expansion of the road connecting National Road No. 18 and the Yen Tu relic site (Yen Tu road); the upgrade of provincial road No. 329; and the construction of Bac Luan II bridge.

[15] The direct benefit of a road construction project is to provide a convenient mode of transportation and therefore reduce costs to citizens. Although there are other benefits, most are not unique to the project and are therefore referred to as secondary/indirect benefits.

Table 4: Investment cost and socio-economic effectiveness of sample road construction PIPs

Road Construction Projects								
	Investment Cost (VND Billion, Nominal)					**Total**	**ENPV**	**ERR**
	Y-1	Y-2	Y-3	Y-4	Y-5			
1. Yen Tu Road	13.8	10	10.3			**34.2**	**39**	**26%**
2. Bac Luan II Bridge	336.2					**336.2**	**278**	**26%**
3. Road No. 329	139.8	144.0				**283.8**	**129**	**18%**
4. Ba Che-Ha Long Road	103	105	102	109		**419**	**-181**	**-5%**

Ba Che-Ha Long Road Project

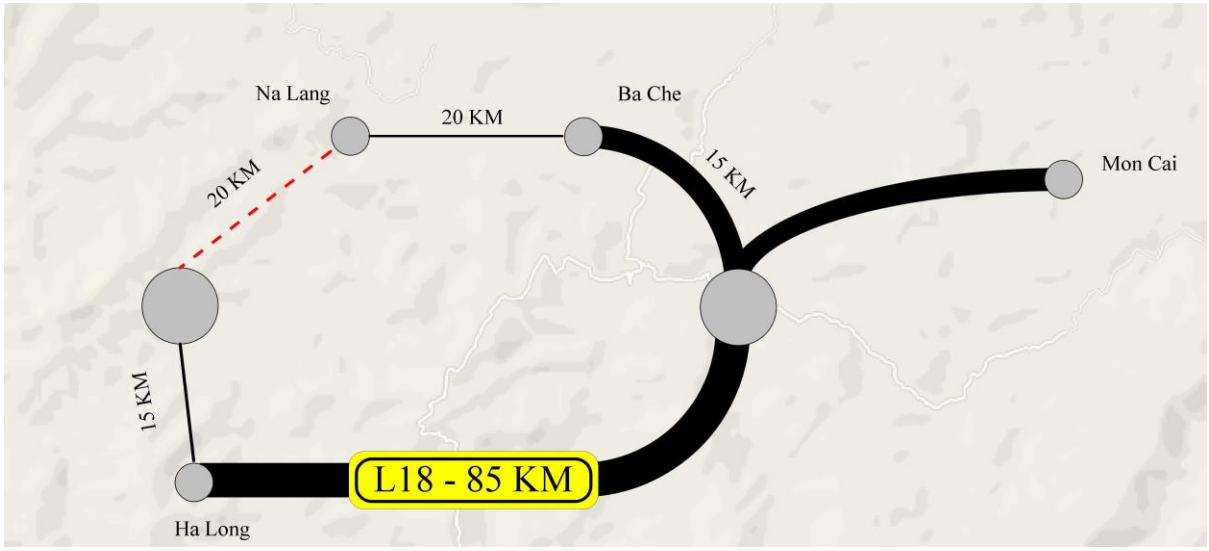
The Ba Che project proposes to construct a new road connecting Na Lang Commune to the northern ring road of Ha Long City. Na Lang is a low-income area with a population of about 5,000. The population of Ba Che Commune is also about 5,000. The total population of the geographic area is around 20,000. There are about 130 vehicle units in the geographic area, with another 30 vehicles delivering cargo on a daily basis.

The objective of the Ba Che road is to develop transport infrastructure to provide local people with a safe and convenient means of travel in the rainy/flood season, to improve cultural and spiritual standards of life in remote areas of the Ba Che District, and to stimulate socio-economic development of the area[16]. More specifically[17], the road project's objective is to provide a shorter route of travel between Na Lang Commune and Ha Long City. Figure 3 details roads in the area.

[16] As provided by PMU in the project Investment Intention Report.

[17] Information obtained during consultation with the PMU.

Figure 3: Ba Che District road map



The proposed 20-km road is presented as the dashed red line in Figure 3. The investment intention report provides two main justifications for the project:

1. The road from Na Lang to Ha Long begins with a narrow, poorly-maintained, and unsafe stretch through mountainous terrain to Ba Che—a trip that takes 45-60 minutes—followed by a further 100-km stretch from Ba Che to Ha Long on good quality roads with free-flowing traffic. The proposed project will cut the distance by road from Na Lang to Ha Long from 120 km to 35 km, and from Ba Che to Ha Long from 100 km to 55 km.
2. The new road is expected to attract private sector investment in the surrounding area of forest, stimulating trade in forest products, boosting overall local economic growth, and reducing poverty levels.

On these grounds alone, the proposed project could be deemed feasible. However, cost-benefit analysis reveals a negative ENPV of -VND -181 billion and an ERR of -5%. The project is therefore not economically effective and should be rejected. In order to further illustrate the utility of the methodology and the Report, key analytical points are presented below.

a) The total cost of the project is VND 419 billion. Although the investment intention report[18] provided a detailed cost estimate and proposed investment schedule, no basis for the cost was provided. According to cost norms, a tarred road of the proposed length should not exceed VND 276 billion. The PMU unit explained that the area periodically suffers from floods, which requires more expensive technology to ensure the long operational life of the road. Although such information was available and is important in justifying the technology selected, the PMU did not include it in the investment intention report, since there was no requirement for making it available. Section 4 of the Report requests that project promoters justify the technology selected, as well as the scale of the project.
b) The project cost of VND 419 billion is equal to 11 percent of the budget allocated to the National Program for Local Roads Development (NPLRD), totaling VND 3.8

[18] Here "investment intention report" refers to that provided by the project promoters, while "Report" refers to the authors' proposed structure of investment intention report.

trillion. However at just 19 km in length, the proposed project would account for 1.2 percent of the NPLRD objective of 1,524 km of surfaced road. Such facts, which are critical to the project prioritization process, are required under Section 1 of the Report.

c) Poor road conditions raise the cost of traveling the 20 km by road from Ba Che to Ha Lang. Most drivers from Ba Che travelling to Ha Long are therefore likely to prefer the 100 km alternative even if the new road is built. And any diversion of traffic from L18 to the proposed new road would not realize significant cost savings, as L18 is currently underused. Use of the new road would therefore be limited to the population of Na Lang Commune (5,000 people).

When the Ba Che road PMU was asked to complete the Report, the response was that a quantitative assessment of the project's socio-economic returns might not be appropriate as the results would be negative, and that justification of the project should focus on a qualitative discussion of development and poverty alleviation objectives, such as attraction of private investments and increased trade of forest goods. However, the following points should be noted.

- If the Ba Che road stimulated the production of timber and other forest goods, traffic would consist mainly of heavy vehicles, for which a gravel-surface road is the most common choice.
- It is more efficient to construct a gravel-surface road in the first instance, upgrading it to a tarred surface once demand for the latter is evident.
- While the need for the proposed road is obvious in terms of improved safety and traffic flow, the potential stimulus to economic growth is subject to a high degree of uncertainty. Indeed, as every road construction project is deemed to stimulate economic growth, the criterion is of little use in the prioritization process.

Two main findings emerge from the Ba Che road project pilot study.

1. The Report and project appraisal methodology facilitate the identification of inefficient projects at the early stage of project idea, and provide quantitative justification for removing such projects from the pipeline.
2. Although the rate at which PIPs are rejected under the proposed methodology is initially likely to be high, in many instances PMUs have a good understanding of the likely socio-economic returns of PIPs. Once the system is fully implemented, PMUs are therefore likely to focus on identifying best able to meet current socio-economic priorities.

Yen Tu Road Project

The Yen Tu road project entails the widening of a 3-km section of road connecting National Road No. 18 to the Yen Tu relic area, between the 9^{th} and 12^{th} km, at Uong Bi City, Quang Ninh Province. The project aims to increase the section from a width of 8.5m to 10.5m.

Yen Tu is known as the Buddhist capital of Vietnam. Vietnamese say, "*You may be charitable and lead a religious life for a hundred years, but if you haven't made it to Yen Tu, you haven't reached the highest religious bliss*". About 2.5 million local and foreign tourists visit Yen Tu every year. During the peak season, which lasts around six months of the year, congestion at the site frequently means that visitors are required to leave their buses and walk the 3 km of road proposed for widening. Off-season traffic is 35 to 40 percent of peak-season flows, and traffic jams are a far less common event.

The objective of the project is to meet local and visitor demand for convenient travel to the Yen Tu historical site, and to contribute to the socio-economic development of Uong Bi City and Quang Ninh Province.

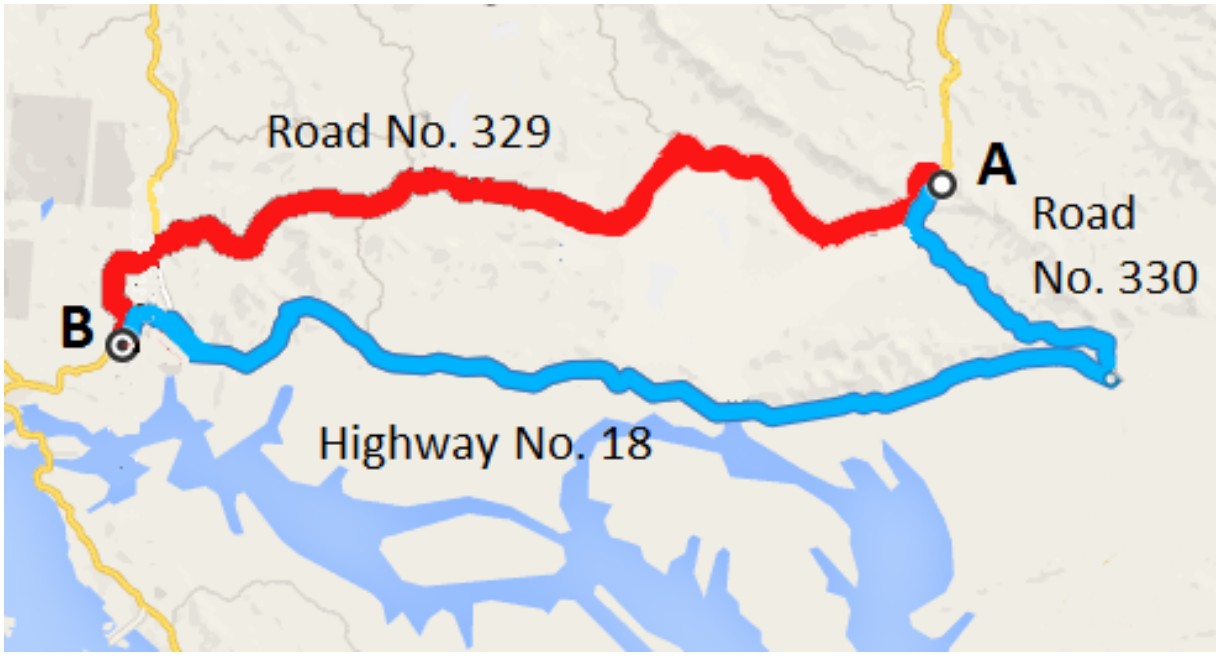
The total cost of the project is VND 34.2 billion, which is 18 percent less than the maximum cost of paved road as stipulated by the cost norms (see annex D). The ENPV of the project is positive and equal to VND 39 billion. The ERR is 26 percent.

The PMU of the Yen Tu road project did not have estimates for current levels of traffic on the existing road. However, officials indicated that a proxy could be derived using parking tickets. PMU and PPC personnel agreed that the proposed appraisal methodology is a convenient and efficient way to analyze road construction projects in Vietnam.

Upgrade of Provincial Road No. 329

Prior to the upgrade and rehabilitation of National Road No. 18A in the 1980s, provincial road No. 329 was one of the two[19] main transport routes connecting Ha Long city with Ba Che and other eastern districts and towns of Quang Ninh province. However, No. 329 has since suffered severe degradation due to a lack of regular maintenance, and is now used only for forest development activities. Nevertheless, at 30.64 km road No. 329 offers the shortest route from Ba Che district to Ha Long city—20 km less than the alternative route via road No. 330 and highway 18.

Figure 4: Comparison of Road No. 329 and Road No. 330 + HW18 alternatives



The objective of the road No. 329 rehabilitation project is to develop transport infrastructure, providing the local population with a shorter route connecting Ba Che and Cam Pha districts and Ha Long city. The project will also stimulate bilateral trade between the districts and Ha Long city, helping to meet the socio-economic development objectives of the Ba Che and Cam Pha districts.

[19] Road No. 330 is the second route.

The total cost of the project is VND 283.8 billion, which is 20 percent higher than the cost norm for periodic (10-yearly) maintenance (see annex D) of the tarred road. However, given that there has been no maintenance work on the road for more than 30 years, the project is more accurately viewed as a new build. Assessed in terms of the cost norms for the construction of tarred roads, the cost of the project is 33 percent below the stipulated threshold.

The expected socio-economic returns of the road rehabilitation project are also positive. The ENPV of the project is positive and equal to VND 129 billion, using 12 percent real discount rate. The ERR of the project is 18 percent—6 percent above the discount rate.

Bac Luan II Bridge Construction

The existing Bac Luan bridge is the only such structure between Dongxing, China and Mong Cai, Vietnam. Since the establishment of the ASEAN-China Free Trade Zone, trade between the two countries has expanded beyond the capacity of existing infrastructure. For example, traffic volumes on the existing bridge have increased from an average of 49 vehicles/day in 2006 to more than 2,898 vehicles/day in 2015.

The objective of the Bac Luan II bridge construction project is therefore to facilitate further growth in cross-border trade. The construction of the bridge is jointly promoted by Vietnam's Quang Ninh province and the Guangxi Zhuang Autonomous Region of China.

The proposed bridge is 618 m in length, of which 154.4 m is on the Vietnamese side. The government of China will finance the construction of the remaining 463.5 m on the Chinese side. The total cost of the project is VND 336.2 billion and the construction period is 300 days. The project is expected to result in positive socio-economic returns with ENPV estimated at VND 278 billion and the ERR of 26 percent.

3.3.2. Potable water supply

Appraisal of water supply projects can be done using either CBA or CEA. CBA requires an estimate of the cost of water shortages to households and industry. However, such estimates can be drawn up using inexpensive techniques (questionnaires, discussions). CEA is easier and demands fewer data inputs, although it does require an initial estimate of maximum cost per unit of benefit (ceiling ratio) for each type of water supply project. Projects with a cost per unit of benefit higher than the ceiling rate should be rejected. One approach to estimating the ceiling ratio is to conduct CBA of a water supply project and then estimate the break-even[20] point of the all-in[21] cost of the project. The ceiling ratio can be estimated by dividing this cost by the present value of the project output/number of beneficiaries. Ceiling ratios may also differ from region to region.

[20] The break-even point will set an ENPV of the project equal to zero.

[21] All-in cost is defined as the present value of investment, operating, and maintenance costs of the project.

Table 5: Investment cost and socio-economic effectiveness of sample water supply PIPs

Water Supply Projects							
	Investment Cost (VND Billion, Nominal)					**Total**	**Cost Effectiveness Ratio**
	Y-1	Y-2	Y-3	Y-4	Y-5		
1. Yen Lap Water Treatment Plant	121.4					**121.4**	**5,327 VND/m^3**
2. Water Supply System in Dai Yen Precinct	48.2					**48.2**	**4,480 VND/m3**

Water Supply System in Dai Yen Precinct

Dai Yen Precinct is located in the western gate area of Ha Long City. The 2011 census put the population of Dai Yen precinct at 9,600. Economic activities in Dai Yen Precinct include agriculture, trade, services, tourism, handicrafts, and forestry. Trade, services, and tourism account for 52.4 percent of economic activity. The Dai Yen Commune was transferred to the precinct in 2010.

A lack of infrastructure, including water supply systems, is one of the main constraints to rapid development of the precinct. The population of Dai Yen faces increasing difficulties in obtaining water. Households use water from mountain streams and drilled wells, and collect rainwater. However, these resources have been depleted by pollution and climate change. The 2011 census put the number of households in the precinct at 2,072, with demand for water estimated at 1,367 m^3 per day. Total industrial/institutional demand for water is estimated at 1,990 m^3 per day. With an average water leakage rate of about 15 percent, total demand for water in the area is estimated at 3,949 m^3.

The diversification of the Dai Yen precinct economy from agriculture to industry, tourism, and trade is expected to put additional burdens on water supplies. A number of new urban areas have been approved for construction, including an ecological tourist zone, sports complex, and resettlement developments. The precinct is also expected to host a navy battalion, hospital, and fishery, taking overall demand for water to some 8,000 m^3 by 2020.

A proposed project aims to satisfy existing demand for water in Dai Yen Province, with the construction of a primary pipeline network from the Lam Sinh pumping station in Ha Khau Precinct to Dai Yen Precinct, in addition to the construction of a secondary pipeline and distribution pipelines, and the installation of water meters.

The existing capacity of Lam Sinh pumping station is 5,280 m^3 of which 4,280 m^3 is currently idle. The capacity of the proposed pipeline network is 8,000 m^3 to accommodate predicted growth in water demand by 2020. The construction of a greater capacity pipeline is the most feasible option, given the high level of investment required to increase pipeline capacity in the future.

The Quang Ninh Water Supply Company has estimated the total investment cost of the project at VND 48.2 billion. However, initial years of project operation are expected to see low financial returns, while essential demand for water must be met. The project is therefore expected to require government support totaling VND 30.6 billion, about 64 percent of total

investment cost. Quang Ninh Water Supply Company will provide the investment required to increase the capacity of Lam Sinh pumping station to supply 8,000 m^3 of water per day to Dai Yen Precinct, as demand rises.

CBA of the Dai Yen project resulted in an ENPV equal to VND 149 billion, and an ERR of 43.5 percent in real terms. The ENPV of the project was estimated using conservative assumptions regarding the cost of water shortages to households and industry. The financial internal rate of return (FIRR) was estimated at 43 percent in nominal terms or 38 percent in real terms. If a required minimum FIRR on water supply projects is assumed to be a nominal 15 percent, then the required government subsidy to stimulate private investment is VND 10 billion—compared to the VND 30.6 billion of government financing requested by the project promoter.

The financial and economic attractiveness of the Dai Yen water supply project is to an extent driven by the existing idle capacity of the Lam Sinh pumping station. This idle capacity minimizes the investment cost of the project and improves its financial and economic viability. IIA methodology also permits project benefits and costs to be allocated to respective stakeholders. For instance, the net fiscal impact of the Dai Yen project is estimated at VND 4 billion in real terms. The initial subsidy of VND 30.6 billion is balanced by the present value of:

1. raw water fee collection (VND 27.5 billion)
2. corporate income tax collection (VND 6.1 billion)
3. Value Added Tax (VAT) collections (VND 2.5 billion)

Significantly less data is required to appraise water supply projects by CEA. Present value discounted at 10 percent of the quantity of productive water generated by the project over the evaluation period, is 10.8 billion m^3. Present value of the investment cost divided by present value of the productive water supply—the cost effectiveness ratio—is estimated at VND 4,480/m^3. Water-supply sector PIPs can be compared using the cost-effectiveness ratio. However, informative decision-making will rest on a project specific, qualitative discussion of the severity and effects of water shortages faced by households and industry.

Yen Lap Water Treatment Plant

The Yen Lap water treatment plan will be located in the west of Ha Long City. The objective of the project is to supply water to the wards of Dong Mai, Minh Thanh, Dai Yen, Tuan Chau, and Bai Chay, as well as the Dong Mai Industrial Park, also in the west of the city.

The population of the affected area is more than 50,000 and is expected to increase to 66,000 by 2038. The population of the area encompassed by the project does not currently have access to the water supply system, although some communes have access to the rural clean water supply program. Wells account for 80 percent of water supplies, with rainwater contributing the remaining 20 percent.

Rainwater is used for drinking and cooking. Householders complain about the quality of rainwater, which is stored in tanks for long periods and is vulnerable to contamination by dust, bacteria, mosses, and algae. As a result, water-borne diseases are not uncommon. In addition, this water source is not stable and is unavailable in the dry season.

The quality of water from deep, dug wells does not satisfy the minimum standards required for drinking/cooking water, and is further degraded by surface soil contamination, irrigation run-off, and agricultural cropping.

The proposed Yen Lap water treatment plant project will have a capacity of 10,000 m^3/day, utilizing the water of Yen Lap lake. Project coverage and volumes of supply are as follows:

- By 2015, 80% of the population to have access to clean water at a rate of 87 liters per person, per day. Total water demand in 2015 is estimated at 3,508 m^3 per day.
- By 2017, 90% of the population to have access to clean water at a rate of 100 liters per person, per day. Total water demand in 2017 is expected to be 4,657 m^3 per day.

The project will also supply water to administrative and public service delivery institutions. Demand from such users is estimated to be 10 percent of demand from residential users.

The Quang Ninh Water Supply Company has signed a contract with Dong Mai Industrial Park to supply water in the following volumes:

- In 2015: 1,387 m^3/day
- In 2017: 2,945 m^3/day
- From 2020: 4,875 m^3/day

The total investment cost of the project is VND 121.4 billion, of which the Quang Ninh Water Supply Company will contribute 38.5%. The requested budget support is 42.1% of the investment cost (VND 51.1 billion). The remaining 19.4% will be borrowed from a commercial bank. Nominal FIRR is 21.2 percent or 16.9 percent real. The project will deliver a 15 percent nominal rate of return with a VND 15.5 billion subsidy from the government.

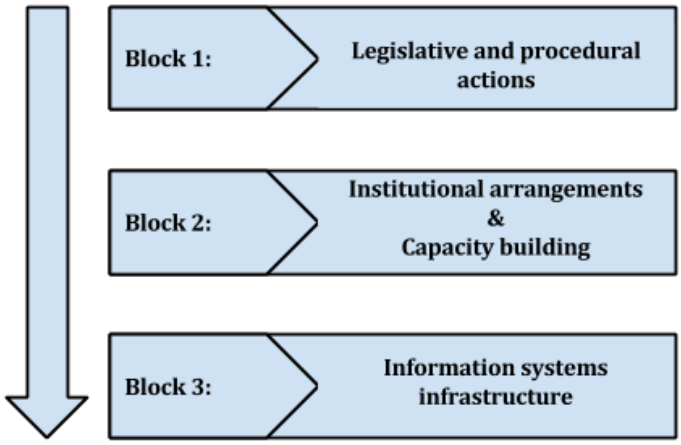
The team could not obtain information on the cost of coping with the water shortages that would prevail if the Yen Lap Water Treatment Plan will not be constructed. Estimation of indicators such as ENPV and ERR requires to conduct the coping cost survey. In the absence of such survey the cost effectiveness approach is utilized. The cost-effectiveness ratio is estimated at VND 5,327/m^3—19 percent higher than that of the Dai Yen project.

4. Action Plan to Enhance PIM

The proposed reform of PIM in Vietnam aims to establish a modern, well-functioning system, based on three broad groups of actions. These three groups can be disaggregated into 19 specific actions, which will enable the country to achieve higher PIM efficiency through:

1. Selection of PIPs with positive expected economic returns;
2. Improvement of project execution and monitoring processes to ensure expected returns are realized; and
3. Enhanced efficiency of the pre-investment phase by utilizing knowledge gained in the post-investment phase.

Figure 5: Building Blocks of the Proposed PIM Reform



4.1. Improved legislation and procedural guidelines

This set of actions is intended to strengthen and improve existing legislation and procedural guidelines relating to the country's PIM system. The aim is to provide a legislative basis for the improvement of the pre-investment and execution stages of the PIM system. Nine specific actions are suggested to achieve this objective.

Action 1. **Legally enforce CBA and introduce well-defined project approval criteria.**

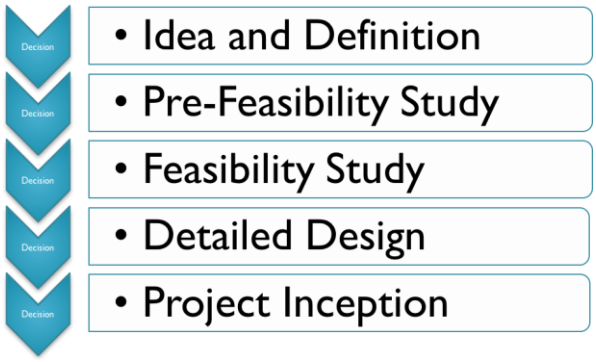
The PIL stipulates preliminary assessment of the economic viability of PIPs. It is recommended that such assessments be legally required to entail cost-benefit analysis. It is also recommended that a specific project approval mechanism be legally enforced. In Chile, for example, no positive recommendation can be given to a project if expected ENPV is negative.

Action 2. **Introduce multi-phase evaluation process with data requirements and "tollgates" at each stage.**

The project pre-investment phase should include the idea, pre-feasibility, and feasibility stages of the project lifecycle. The project profile is developed and

continuously updated as the project moves along each of these stages[22]. It is recommended that a multi-stage evaluation process be introduced, whereby secondary and relatively inexpensive sources of information are utilized to assess PIPs potential at the idea and pre-feasibility stages of analysis.

Figure 6: Multi-stage Project Evaluation Cycle



Detailed design and cost estimates should only be carried out for projects that pass the idea and pre-feasibility stages, using tollgates introduced in *Action 1*. The objective of the evaluation at the idea stage should be to eliminate projects that are clearly not feasible, or projects where anticipated benefits are subject to a high level of uncertainty.

After completion of the detailed design and cost estimates study, the project CBA should be updated to incorporate improved cost estimates. If the results of the CBA remain positive, the project should be approved for implementation. However, where the detailed cost estimates are significantly higher than the preliminary cost estimates, implementation of the project should be rejected[23].

At the project execution stage, an assessment of the validity of ex-ante approval criteria (for instance, if ENPV is still positive after changes are considered) should be made prior to the approval of the consequent funding tranche. This assessment should be based on the actual project performance as compared to ex-ante expectations.

Action 3. **Develop procedural guidelines for PIM system.**

The PIL should be supplemented with procedural guidelines outlining the role, detailed procedures, and responsibilities of stakeholders involved at different stages of the project lifecycle. While the PIL stipulates "*What should be done and by whom*", the guidelines should define "*How this should be done, when, and in what period of time*". The guidelines should legally enforce the multi-phase evaluation process outlined in *Action 2*.

[22] Projects of a small size may get approval for detailed design and cost estimates after concept note preparation stage (idea stage).

[23] The cost of conducting detailed design and cost estimates is normally included in the total cost of the project. After the completion of the study, this should be treated as a sunk cost.

Action 4. **Develop general project appraisal guidelines.**

A uniform project appraisal methodology must be implemented. This methodology with adaptation will apply to all economic sectors. The methodology will provide generic guidance for technical personnel involved at the project appraisal and independent review stages. It is recommended that project appraisal methodologies be based on the principles of applied welfare economics. This will allow for the introduction of the integrated project appraisal technique, capable of quantifying, disaggregating, and allocating PIP costs and benefits to relevant stakeholders.

Action 5. **Develop sector-specific appraisal manuals.**

It is recommended that a few infrastructure and social sectors be selected to prepare and pilot sector-specific appraisal manuals. The transportation, potable water supply, irrigation, and electricity sectors are good candidates for infrastructure appraisals, due to the relative importance of these sectors for the country. Health and education may be considered for social sectors.

Action 6. **Estimate national parameters and economic prices.**

Economic appraisal of PIPs requires estimation of:

a. Economic opportunity cost of capital;
b. Shadow price of foreign exchange;
c. Economic opportunity cost of labor;
d. Economic conversion factors for tradable and selected non-tradable commodities.

These national parameters and conversion factors should be estimated using a consistent methodology. It is also recommended to mandate the use of these parameters for the purpose of evaluating PIPs and public-private partnerships (PPPs).

Action 7. **Develop size-based thresholds to stipulate level of analysis required for a project.** The CBA of PIPs should not normally exceed 5 to 10 percent of the total investment cost. An exemption for small projects, for which CBA is not feasible, should be legally enforced. This can be achieved by introducing size-based thresholds. In Chile, projects above US$150,000 are subject to project appraisal. In Korea and Norway, the threshold is set at US$100 million and US$126 million respectively. Smaller-scale projects are subject to a simplified analysis.

Action 8. **Introduce the practice of grouping small projects for the purpose of feasibility analysis.** International practice is to group small-scale projects according to their functional classification. The level of operating expenditure should also be considered in this exercise, since there are sectors that may have relatively small investment costs but high operating costs.

Action 9. **Introduce a mechanism to budget for contingent liabilities.** PPP projects frequently impose contingent liabilities on the government's budget. The PIL should be amended to incorporate provisions to account for contingent liabilities arising from PPPs. A budgetary provision needs to be made for contingent liabilities that are expected to become due in the near future.

4.2. Institutional arrangements and capacity-building

This set of actions intends to create the institutional structure to support the main functions of an efficient PIM system, and may require an expansion of human resources. Capacity-building is a crucial component of the proposed reform. Taking into consideration the significant number of government officials involved in the PIM process, it is unlikely that capacity-building can happen simultaneously across all line ministries and governorates. It is therefore recommended that a pilot program be initiated within selected line ministries, with lessons learned used to facilitate further improvements in the system prior to wider dissemination.

Action 10. **Project appraisal function.**

It is recommended that project promoters (provincial governments, SOEs, municipalities, sectorial ministries) are requested to prepare project intention reports and carry out the preliminary assessment of socio-economic effectiveness, using the methodology outlined above. The main advantage of this approach is that project promoters usually possess significant knowledge about the projects they promote, and can therefore potentially improve the quality of analysis while reducing the cost of data collection.

Action 11. **Legally enforce the independent review function.**

It is recommended that MPI should assume an independent review function. It is also recommended that final approval type B and C PIPs be returned to MPI. The existing PIM system results in a conflict of interest since project promoters (heads of Ministries and Central Agencies[24]) decide on investment intentions. Efficient implementation of the independent review function is at the very least challenging if project promoters have final decision-making power.

Action 12. **Create project appraisal divisions.**

It is recommended that project appraisal divisions be created within line ministries and governorates. Although the existing practice of outsourcing feasibility analysis to the private sector should persist, the appraisal divisions can perform the economic viability assessment at the idea and pre-feasibility analysis stages. The divisions may also perform appraisal of small projects.

Action 13. **Identify government officials involved in the process of PIPs preparation and appraisal.**

The success of a capacity-building program can only be fully realized if the skills gained are applied to the appraisal of proposed PIPs. It is essential to identify those government officials involved in the process of PIP appraisals. Candidates might be sourced from, among others, the Public Private Partnership (PPP) unit and the appraisal divisions of the line ministries.

[24] Article 17.4 of the PIL.

Action 14. **Introduce regular capacity-building programs in project preparation and appraisal for government officials.**

Project appraisal skills are in high demand in most developing countries. The experience of many countries has shown that once government officials are trained in investment appraisal and have obtained a few years of experience, they tend to be promoted to higher positions within and outside government. It is important to ensure that capacity-building is a continuous effort, ensuring that the relevant skills are always available to the public sector.

Action 15. **Introduce cost-benefit analysis to the curriculum of state universities.**

This action will, in the long run help satisfy the private and public sectors' demand for specialists in project appraisal. In addition, it will permit the internalization of expertize in PIM and investment appraisal, initially brought in by international experts.

Action 16. **Create project management and monitoring divisions in line ministries and governorates at central and provincial levels.**

These divisions should develop and maintain project management standards. The creation of such divisions in the medium- to long-run will help promote a high standard of project execution. The most common problem faced by the private and public sectors is an inability to recruit a sufficient number of experienced project execution managers. The creation of project management divisions will assist in mitigating this problem. The divisions will also source much required information from the project execution phase to the project preparation phase. Such information might include deviation of the ex-ante cost estimates from actual costs realized by the PIPs, and the reasons for such deviations.

4.3. Information systems infrastructure

Action 17. **Development of PIPs registration system.**

The PIP database should form the backbone of the PIM system. The development of such a database would allow the government to track all data relating to PIPs, as well as providing an efficient linkage between pre-investment, investment, and post-investment stages of the project cycle. The most important and yet frequently overlooked function of the post-investment phase is to improve project preparation and the ex-ante appraisal of PIPs. A PIP database will provide significant opportunities to mine for data, deriving and analyzing deviations between ex-ante estimates and project performance. Valuable statistical information, such as average cost-overruns in different industries, delays, and performance of the agencies implementing PIPs, should be analyzed and made available to the various stakeholders.

Action 18. **Development of system of easy access to economic prices and national parameters.**

Economic prices and conversion factors outlined in *Action 6* should be made available through an online portal, allowing simultaneous access by government officials, donors, and private-sector stakeholders. This will stimulate the use of

parameters at all stages of PIP appraisal, and improve consistency in project appraisal.

Action 19. **Development and dissemination of procedural guidelines on the use of information systems.** Information Systems (ISs) cannot of themselves result in the success any reform process. Equally important is to obtain user commitment to utilize the system. To that end, accessible manuals and procedural guidelines must be made widely available, along with capacity-building programs on the use of ISs.

5. **Conclusions**

The local authorities in Vietnam face a challenge in the preparation of investment intention reports that comply with the requirements of the PIL. Since the PIL came into effect on January 1, 2015, the authorities of Quang Ninh Province have prepared only two such reports. A similar situation prevails in other provinces. A major difficulty for local authorities is the lack of an investment intention report template along with guidelines to its completion. Authorities are also concerned about the selection of an appraisal methodology for preliminary analysis of the socio-economic effectiveness of PIPs. The investment intention report template in Annex B, and guidelines on the completion of the investment intention report in Annex C, have been prepared to assist local authorities in this process.

The efficiency of the PIM system in Vietnam can only be improved if the investment intention reports prepared by project promoters are to form the basis for technical analysis of PIPs. The major component of technical analysis is an evaluation of PIP socio-economic returns. This evaluation should be done using CBA methodologies formulated from basic principles of applied welfare economics. The results of technical analysis must drive the project approval (or rejection) process, in sharp contrast to the current practice of approving projects to be included in regional development master plans before due diligence has been carried out.

Articles 9 and 10 of the PIL stipulate the size of road construction and water supply projects in category B (up to VND 1,000 billion or US$ 45 million) and in category C (up to VND 80 billion or US$ 3.6 million). Significant waste of public funds will arise if decisions on such projects are made without considerable attention being paid to the quantifiable socio-economic returns of these projects. This analysis must be done at the stage of the preparation of the investment intention reports. The process of preparing an investment intention report should focus on estimating the quantifiable socio-economic benefits of PIPs, including a comparison of expected benefits with preliminary project cost estimates. The purpose of assessing the investment intention report of a project is to determine if it should be allowed to proceed to the detailed design stage. If the anticipated project benefits still outweigh the updated cost of the project, then the project should be eligible to be approved for implementation. Such a multi-phase, legally enforced, evaluation process would greatly improve the efficiency of the PIM system.

The assessment of the quantifiable socio-economic benefits and cost of PIPs at the investment intention preparation stage will help ensure that public funds are channeled into projects that are most needed by the people of Vietnam. Project promoters will soon focus their efforts on the identification of projects with positive socio-economic returns. This will greatly improve the efficiency of public sector investment, stimulating further economic growth. The reform of PIM is, however, a time- and resource-intensive task that requires capacity development, legal reforms, and the development of technical resources.

Annexes

Annex A. Contents of the report on investment intentions for Group-B and Group-C investment projects

Major contents of the report on investment intentions for Group-B and Group-C investment projects include:

1. The significance and requirements as well as evaluation of the suitability of investment projects for investment planning and proposal;

2. Objectives, size, site location and coverage of investment projects;

3. Estimate of total investment, capital structure, the balancing capability of public investment portfolio, mobilization of different funds and resources for the project execution;

4. Proposed schedule of investment project execution in conformity with practical conditions and capability of resource mobilization in a proper order of priority, which ensures sufficient and effective investment;

5. Preliminary estimate of relevant costs incurred from the project execution and operating costs incurred upon completion of an investment project;

6. Analysis and preliminary evaluation of environmental and social impacts; preliminary assessment on the effectiveness of an investment project in terms of the socio-economic aspect;

7. Subordinate projects or subprojects (if any);

8. Approaches to the execution of investment programs or projects.

Annex B. Investment Intention Report Template.

1. INFORMATION ABOUT PUBLIC INVESTMENT PROJECT AND PUBLIC INVESTMENT PROGRAM

1.1. Public investment project:

Project Promoter:	
Title of the project:	
Title of the legal entity that is the recipient of investment (if any):	
Objective of the project:	
Final results:	

1.2. Implementation period of the project:

Implementation duration:	months
Beginning of implementation:	MM/YYYY
End of implementation:	MM/YYYY
Operational period:	years

1.3. Public investment program/decision/master plan:

Title of the program:	
Date of inclusion of the public investment project to the program:	
Objective of the program:	
Targets:	
Period of the program	From YYYY to YYYY

2. PROJECT IDENTIFICATION

2.1. Project location:

(Provide information on the geographic location of the project. Consider providing a map of locations clearly highlighting the area that the project is intended to serve).

2.2. Background Analysis

(Provide the major findings of previous studies on the project. Consider contacting various stakeholders such as Line Ministries, Peoples Committees, Department of Statistics and etc.)

2.3. Availability of land set aside for the project

Yes	***(****Date and number of the decision that allocated a plot of land and immovable property located on it);*
No	***(****Provide amount required for land acquisition).*
Explanations:	

2.4. Availability of supplementary infrastructure (railway lines, roads, pipelines, electricity, water, gas and other infrastructure)

Yes	***(****Please provide a list of required supplementary infrastructure that is available);*
No	*(Please provide a list of required supplementary infrastructure that is not available. For each item in the list please briefly state why infrastructure is required and what is the corresponding cost.)*
Explanations:	

2.5. Problem identification

(Please identify the problem that the project is intended to solve. The problem must be defined as a negative state affecting the population.)

3. MARKETING ANALYSIS OF THE INDUSTRY

(Please describe the existing and future demand for the proposed project's output (goods, works, services) in this region.)

3.1. Current and projected demand

(Provide quantitative indicators of the existing demand for the goods or services supplied by the project. Please include projections of the demand for the operating period of the project. Please state and explain the assumptions used to project the demand).

3.2. Current and projected competitive supply

(Provide quantitative indicators of existing supply of goods and services. Please include projections of the supply for the operating period of the project. Please state and explain the assumptions used to project the supply.).

3.3. Current and projected deficit

(Provide quantitative indicators of existing and projected deficit of goods and services supplied by the project.)

4. IDENTIFICATION AND DESCRIPTION OF ALTERNATIVE SOLUTIONS

(Discuss main alternative options that will allow to solve the main problem that is intended to be solved by the project. Provide brief analysis of main advantages and disadvantages of each option considered.)

5. FINANCIAL AND SOCIO-ECONOMIC BENEFITS

5.1. Financial revenues (if any)

(Provide projection of the expected annual financial revenues generated by the project. Please list and explain main assumptions that drive the financial revenues' projections. Such assumptions may include tariff rates, capacity utilization, working capital requirements and etc.)

5.2. Economic benefits

(Provide projection of the expected annual economic benefits generated by the project. Please list and explain main assumptions that drive the economic benefits' projections. Such assumptions generally include assumptions underlying estimation of the coping cost to deal with the problem that is intended to be solved by the project. (Ex. time spend to carry water, value of beneficiaries' time, and etc.)

5.3. Social and other benefits

(Please state all additional benefits that the project is expected to generate. Please include explanation of why these benefits will not be realized if the project is not implemented).

6. FINANCIAL AND ECONOMIC COSTS

6.1. Financial costs

6.1.1. Investment cost

Period and cost of the project implementation					
#	Title of activities and components	Period	Period	Period	Total (mill VND)
		cost	cost	cost	
1.					
1)					
2)					
2.					
1)					
2)					
Total					

6.1.2. Operating cost

Annual operating expenditures: million VND

Source if funding:

Periodic maintenance expenditures: million VND, every years

Source of funding:

Major rehabilitation expenditures: million VND, every years

Source of funding:

6.2. Economic cost

6.2.1. Investment cost

Period and cost of the project implementation					
#	Title of activities and components	Period	Period	Period	Total (mill VND)
		cost	cost	cost	
1.					
1)					
2)					
2.					
1)					
2)					
Total					

6.2.2. Operating cost

Annual operating expenditures: _____ million VND

Periodic maintenance expenditures: _____ million VND, every _____ years

Major rehabilitation expenditures: _____ million VND, every _____ years

7. ENVIRONMENTAL AND SOCIAL IMPACTS

7.1. Environmental impacts

(Provide preliminary analysis of the environmental impacts during construction and operating period of the project.)

7.2. Resettlement (if applicable)

(*Please provide preliminary estimates of number of people that will be moved from the area and required estimates of the compensation).*

7.3. Employment impacts

(Provide approximate estimates on the number of people that will be temporally or permanently employed by the in the project during the investment and operating periods.)

7.4. Poverty reduction

(Provide quantitative estimates on the expected poverty reduction impacts, such as anticipated growth in the households' income. Please state why the same impacts could not be achieved in the absence of the projects.)

8. PROJECT MANAGEMENT SCHEME

(Description of the main stakeholders involved in the project implementation process. This section should include proposed management scheme during the construction stage of the project, including reputation of each stakeholder involved.)

Details of contact person

Full Name: _____

Position: _____

Department / Organization: _____

Address: _____

Phone: _____

Fax: _____

E-mail: _____

Full Name: Head of state body Date Signature

Annex #1 "The basic parameters of financial and economic model of the project"

Table 1. Basic parameters of financial and economic model of the project

#	Title of the parameter	Value	Rationale
1	2	3	4
1.	Total financial investment cost	mill VND	
2.	Investment period	YYYY- YYYY	
3.	Post-investment period	YYYY- YYYY	
4.	Discount rate	%	
5.	Inflation rate	%	
6.	Taxes	%	
7.	Depreciation norms		

Full Name: Head of state body Date Signature

Notes:

Line 4 indicates the social discount rate used for calculation of the financial and economic efficiency. Please use 10%, if better estimate is not available

Line 5 indicates the level of inflation in the medium-term outlook indicators of monetary policy and / or macroeconomic indicators of the Vietnam, used in the calculation of the financial and economic efficiency. Please use accepted level of the inflation for the last year

Line 6 specifies tax rates in accordance with the Tax Code of Vietnam, used in the calculation of the financial and economic efficiency. The tax rates have to be provided for the major inputs and outputs of the PIP during investment and operations of the project.

Line 7 specifies the depreciation rate in accordance with the laws of Vietnam, used in the calculation of the financial and economic efficiency.

Table 2. Calculation of the economic efficiency of the project.

№	Title	Note (justification)	1	2	3	…	n
1.	Economic resource inflow (benefits)						
2.	Economic costs						
2.1	Investment costs						
2.2	Operational expenditures						
2.3	Indirect economic costs						
3.	Net real economic resource flow						
4.	Net discounted economic resource flow						
5.	Economic Net Present Value (ENPV)						
6.	Economic Rate of Return (EIRR)						

Full Name: Head of state body Date Signature

Notes:

Paragraph 1 indicates the total monetary value of estimated economic benefits.

Paragraph 2 provides the total monetary value of estimated direct and indirect investment and operating costs of the project.

Paragraph 2.1 indicates the monetary value of economic investment cost of the project adjusted for the taxes and other distortions.

Paragraph 2.2 shall include monetary value of all other direct economic costs of the project during post-investment period adjusted for the taxes and other distortions.

Paragraph 2.3 shall include monetary value of all other socio-economic costs (externalities) associated with the implementation of the project during the investment and post-investment periods.

Paragraph 3 indicates the difference between the economic benefits and costs.

Paragraph 4 indicates the value obtained by multiplying the net real economic flow on the coefficient, which is calculated by the following formula:

$$k = \frac{1}{(1+r)^i}$$

r – discount rate shown in Table 1 of this Annex;

i – the serial number of the year of the project (1 to n)

Paragraph 5 indicates the value obtained by summing the net discounted economic flows specified in paragraph 4.

Paragraph 6 specifies the value obtained by finding the discount rate at which the economic net present value is zero.

Annex C. Guidelines to Fill Investment Intention Report.

9. INFORMATION ABOUT PUBLIC INVESTMENT PROJECT AND PUBLIC INVESTMENT PROGRAM

9.1. Public investment project:

Project Promoter:	Provide the title of the entity promoting the project. Project promoter defined as an entity that initiated the project and has a direct interest in seeing the project being implemented (ex. Provincial Peoples Committee).
Title of the project:	Provide the title of the project.
Title of the legal entity that is the recipient of investment (if any):	Provide a title of legal entity that will own the project. This involves entering the project to a balance sheet of the legal entity (ex. Department of Transportation, Water Supply Company).
Objective of the project:	This section summarizes what the project intends to do and how it will achieve it.
Final results:	Provide a quantitative estimation of the final results that are expected to be achieved by the project. The final results should be specific enough to understand the scale of the project (ex. installed capacity, length of the road). The final results should correspond to the quantitate objectives of the sector development program associated with the project.

9.2. Implementation period of the project:

Implementation duration:	Provide intended duration of the project construction.
Beginning of implementation:	MM/YYYY
End of implementation:	MM/YYYY
Operational period:	Provide service life of the major project assets as stipulated by the technical norms. Please state the source of information. (Ex. Useful life of steel made water pipes is 50 years/Useful life of the road is 15 years).

9.3. Public investment program/decision/master plan:

Title of the program:	Provide title of the program that includes the proposed project or state the request to include the project to a specific development program.
Date of inclusion of the public investment project to the program:	State the date of the decision to include the project to the development program. If request to include the project to a development program state the anticipated date of the project inclusion.
Objective of the program:	This section summarizes what the program, that the project is associated with, intends to do and how it will achieve it.
Targets:	Provide qualitative and quantitative targets (performance indicators) of the development program. The performance indicators should correspond to the results intended to be achieved by the project.
Period of the program	From YYYY to YYYY

10. PROJECT IDENTIFICATION

This section should identify the problem that the project is expected to solve. A typical description of a problem requires definition of:

(1) The area of influence of the project;

(2) The target population.

The selection of the most efficient solution also requires analysis of different project alternatives.

10.1. Project location:

(Provide information on the geographic location of the project. Consider providing a map of locations clearly highlighting the area that the project is intended to serve).

Consider disaggregating the geographic location into:

a) S**tudy Area** provides a context to the problem being studied. It also delivers the limits for analysis. Examples of study area include the district where the road is proposed to be build/or where water supply project will be located.

b) **Influence Area** corresponds to the area where population will be directly affected by the project. For example, if only the population of the particular settlement are expected to use the road this settlement area should be defined as influence area. Typically, the influence area is a subset of the study area, but there are also situations for which the study area and area of influence are equivalent. When defining it, it is recommended that the following variables be considered:

- Geographical location of the population directly and indirectly affected by the problem;
- Administrative characteristics;
- Type of location (urban/rural/mixed);
- Extent of the area (surface);

- Physical characteristics of the territory: soil type, climate, geographic location, climate (temperature, precipitation, humidity), geomorphology, topography;
- Main economic activities taking place in the areas;
- Characterization of the infrastructure and services available; existing service network;
- Relevant limits: geographical (i.e. lakes, rivers, hills) and administrative or policy (i.e. target population defined services, such as hospitals, police headquarters, etc.);
- Analysis of socio-economic characterization of the population; number and structure of the population (quantification and classification of the population according to age and gender characteristics);
- Institutional sector (administration) and local government (e.g. location of the municipality, neighborhood, police stations, etc.);
- Accessibility conditions: depends on the existence of transport systems in general; specifically, variables such as the existence and condition of roads, the capacity and frequency of public transport with its respective rates, and weather conditions must be analyzed, among other variables.
- Cultural and social aspects.

The definition and sources of information for each geographic segment are as follows:

a) **Reference Population** refers to the relevant population inside the total area of influence, which might or might not be affected by the project. The information can be obtained from the last census, municipal database or other statistical sources.

b) **Unaffected Population** refers to the current population that will not be affected by the project.

c) **Affected Population** refers to the population that will be affected by the project. This population demands goods or services produced by the project.

d) **Postponed Population** refers to the part of the affected population whose problem will not be resolved with the selected project, at least during the assessment period.

It is recommended to focus the efforts on the identification of the affected population. This involves collection of information about the socio-economic, demographic and cultural characteristics of the affected population.

Finally, it will be necessary to make a projection on the targeted population on the horizon for evaluation. An appropriate population growth rate can be obtained from the registered growth in recent years. For example, the rate observed between the last two censuses.

10.2. Background Analysis (if available)

(Provide the major findings of previous studies on the project. Consider contacting various stakeholders such as Line Ministries, Peoples Committees, Department of Statistics and etc.)

10.3. Availability of land set aside for the project

Yes	***(****Date and number of the decision that allocated a plot of land and immovable property located on it);*
No	***(****Provide amount required for land acquisition).*
Explanations:	Provide description of the assumptions used to estimate compensation costs (ex. market prices of land). Provide any additional explanations in this section.

10.4. Availability of supplementary infrastructure (railway lines, roads, pipelines, electricity, water, gas and other infrastructure)

Yes	***(****Please provide a list of required supplementary infrastructure that is available);*
No	*(Please provide a list of required supplementary infrastructure that is not available. For each item in the list please briefly state why infrastructure is required and what is the corresponding cost.)*
Explanations:	Provide any additional explanations in this section.

10.5. Problem identification

Please identify the problem that the project is intended to solve. The problem must be defined as a negative state affecting the population. The problem should not be defined as a "lack of solution". In any situation that is analyzed, several problems can be distinguished, however, it is necessary to focus on the root problem and establishing the causes that originate the problem and the effects that the problem produces.

a) The sources of information that shed light on the problem should be identified through:
   - examples,
   - review of existing studies,
   - questionnaires and/or interviews with the relevant authorities or stakeholders,
   - consultations with experts, etc.

b) Problem identification should conclude with a definition of the problem. It is necessary to identify the variables affecting magnitude of the problem.

c) The analysis of causes and effects should be focused on the single (main) problem to assist in identification of the most effective solution to the project.

d) Do not formulate a problem as a "lack of solution". Formulation of a problem as "a road is missing" or "central water supply is not available" is not the same as stating that "there is a group in the population that is disconnected (during the rainy period) from the closest economic center and therefore cannot access workplace, schools and hospitals due to the absence of the road" or "absence of the reliable access to clean water sources results on high compliance costs to obtain the water as well as high rates of morbidity".

11. MARKETING ANALYSIS OF THE INDUSTRY

(Please describe the existing and future demand for the proposed project's output (goods, works, services) in this region.)

11.1. Current and projected demand

(Provide quantitative indicators of the existing demand for the goods or services supplied by the project. Please include projections of the demand for the operating period of the project. Please state and explain the assumptions used to project the demand).

Demand for goods and services is defined as the consumption requirement of the targeted population per unit time. The demand must be measured in appropriate quantities, for example, number of trips per day for each type of vehicle, or current water consumption per day per household.

The most common method for estimating demand is through individual consumption, that is, per capita or relative. By multiplying the individual consumption by the affected population total demand for the good or service in question is obtained.

Total = Individual consumption demand * affected population

To estimate the individual consumption, the historical information on consumption can be used. Alternatively, a simple survey can be conducted to determine the expected demand.

It is also necessary to estimate projections on the level of total demand for goods and services for the entire evaluation period. The growth in demand over time occurs for two reasons: firstly, the population growth causes an increase in the total demand; second, increase in the income typically also increases the individual consumption (per capita or per family) over the time. Therefore, the demand forecasting involves calculating the total demand for each of the periods "t" during the evaluation horizon:

$$Total\ Demand_t = Individual\ Consumption_t * Population_t$$

11.2. Current and projected competitive supply

(Provide quantitative indicators of existing supply of goods and services. Please include projections of the supply for the operating period of the project. Please state and explain the assumptions used to project the supply.).

The estimation of existing and future supply should start by identification of the existing infrastructure capacity. The next step is to consider existing capacity degradation over the period of evaluation. The projects that are expected to become operational during the evaluation period should also be considered. Therefore, projection of competitive supply should consider the expected evolution of the provision of goods and services from existing suppliers or the entry of new suppliers in the area of influence.

For example, the estimation of projected water supply in the area should be at minimum based on the expected population growth and per capita water consumption. Ideally it should also reflect commencement of new water supply plants that were already approved for implementation, as well as degradation of the existing infrastructure.

11.3. Current and projected deficit

(*Provide quantitative indicators of existing and projected deficit of goods and services supplied by the project.)*

The deficit is defined as a difference between the total supply and total demand and reflects the shortage/surplus of goods and services for the affected population. The projected deficit/surplus is calculated for each period "t" of the evaluation horizon as the difference between demand and supply:

$$Total\ Deficit_t = Total\ Demand_t - Total\ Supply_t$$

12. IDENTIFICATION AND DESCRIPTION OF ALTERNATIVE SOLUTIONS

(Discuss main alternative options that will allow to solve the main problem that is intended to be solved by the project. Provide brief analysis of main advantages and disadvantages of each option considered.)

Please provide preliminary discussion of most feasible alternative solutions to the identified problem. The section should conclude by stating the reasons of why the proposed project is the only solution to the problem or describing what makes the selected solution the most effective option among others. Please note that this section should analyze different scale of the project or alternative technological solutions. For example, why proposed capacity of the water treatment plant is the optimal capacity or why construction of the new plant is perceived to be more efficient as compared to the leakages plugging program. In the road sector examples typically include selection of appropriate route of the road (the shortest route taking various aspects into consideration) or selection of the type of the road.

13. FINANCIAL AND SOCIO-ECONOMIC BENEFITS

13.1. Financial revenues (if any)

(Provide projection of the expected annual financial revenues generated by the project. Please list and explain main assumptions that drive the financial revenues' projections. Such assumptions may include tariff rates, capacity utilization, working capital requirements and etc.)

Financial revenues are calculated as a product of the quantity of goods and services demanded by the affected population and the financial price of the project output. It is important to note that the quantity demanded is a function of the financial price, which should be reflected in the analysis. For example increase of the tariff above average income growth and inflation in the previous period will result reduction in the quantity of water consumed.

$$Revenues_t = Quantity\ sold_t * Price_t$$

13.2. Economic benefits

(Provide projection of the expected annual economic benefits generated by the project. Please list and explain main assumptions that drive the economic benefits' projections. Such assumptions generally include assumptions underlying estimation of the coping cost to deal with the problem that is intended to be solved by the project. (Ex. time spend to carry water, value of beneficiaries' time, and etc.)

Estimation of economic benefits of the project is based on the demand supply gap discussed in the Section 3 and the direct financial and compliance costs that are implied on the targeted population due to this shortage. The benefits generated by a project depend on the nature thereof; these may be:

a) Increased consumption of a good or service: this benefit occurs when the project increases the available supply and therefore causes a decrease in the cost to the consumer, causing an increase in the amount consumed.
b) Cost Savings: it occurs when the project allows a reduction in costs (either operating, maintenance, user costs, etc.) with respect to the situation without project.
c) Increasing the value of an asset: occurs when the project allows increasing on the value of any asset, either by direct intervention or by the effects caused in the immediate environment.
d) Risk reduction: it occurs when the project increases security levels of a particular service.
e) Improvements in the environment: interventions that can recover spaces and natural resources.
f) National security: when the project is aimed at safeguarding the sovereignty, territorial boundaries, etc.

13.3. Social and other benefits

(Please state all additional benefits that the project is expected to generate. Please include explanation of why these benefits will not be realized if the project is not implemented).

Public investment projects are frequently attached with multiple objectives and therefore are perceived to have multiple sources of socio-economic benefits. Such benefits typically include poverty reduction objectives or regional development objectives. The information in this section should provide a qualitative and quantitative (if available) evidence of why the identified additional benefits could not be achieved in the absence of the project.

14. FINANCIAL AND ECONOMIC COSTS

14.1. Financial costs

14.1.1. Investment cost

Period and cost of the project implementation						
#	Title of activities and components	Period	Period	Period	Total (mill VND)	Source of Funding
		cost	cost	cost		
1.						
1)						
2)						
2.						
1)						
2)						
Total						

14.1.2. Operating cost

Annual operating expenditures:		million VND
Source if funding:		
Periodic maintenance expenditures:	million VND, every	years
Source of funding:		
Major rehabilitation expenditures:	million VND, every	years
Source of funding:		

14.2. Economic cost

Similarly, to the benefits, all the costs should be recognized, considering the direct costs plus the costs imposed on the rest of society (secondary and indirect costs and negative externalities). Tax collections on the project inputs are the transfer of resources from the project to the budget. Therefore, to estimate the economic cost of resources used by the project, it is required to adjust the financial cost items by deducting anticipated tax collections. For example, if cement used to construct concrete road is subject to 15 percent value added tax, the financial cost of cement should be reduced by 15 percent to derive the corresponding economic value.

Project costs are all those resources used to obtain expected project benefits, in the stages of design, implementation and operation. Among other, the investment costs are related to:

a) Studies and project design
b) Purchase of materials and supplies
c) Payment of wages (workers in the implementation phase)
d) Acquisition of machinery and equipment
e) Supervision and advice to the investment stage
f) Land

It should be noted that the land should be considered as project cost, even if it is owned by the implementing agency; there is an opportunity cost to the land, which could be converted to other uses.

The project also must use resources for its operation, during the operation phase. These resources are the costs of operation and maintenance; among other the following:

g) Wages and salaries of the hired personnel
h) Basic services (electricity, water, telephone, etc.)
i) Materials and supplies
j) Parts

15. ENVIRONMENTAL AND SOCIAL IMPACTS

15.1. Environmental impacts

(Provide preliminary analysis of the environmental impacts during construction and operating period of the project.)

15.2. Resettlement (if applicable)

(Please provide preliminary estimates of number of people that will be moved from the area and required estimates of the compensation).

15.3. Employment impacts

(Provide approximate estimates on the number of people that will be temporally or permanently employed by the in the project during the investment and operating periods.)

15.4. Poverty reduction

(Provide quantitative estimates on the expected poverty reduction impacts, such as anticipated growth in the households' income. Please state why the same impacts could not be achieved in the absence of the projects.)

16. PROJECT MANAGEMENT SCHEME

(Description of the main stakeholders involved in the project implementation process. This section should include proposed management scheme during the construction stage of the project, including reputation of each stakeholder involved.)

Annex D. Parameters to Estimate Monetary Value of Road Services.

Figure 7: Vehicles Operating Costs (VND in 2014 Prices).

Terrain	Rough-ness (IRI)	Motor-bike	Car Medium	Bus Mini	Bus Medium	Cong Nong	Truck Light	Truck Medium	Bicycle	Animal Cart
North West										
Mountainous	19	2,058	12,768	13,444	16,605	5,865	11,584	16,634	1,638	7,858
	3	1,065	6,617	7,169	8,234	4,624	5,792	8,478	281	5,181
North East										
Mountainous	19	2,031	12,222	13,075	16,273	5,758	11,180	16,361	1,579	27,659
	3	1,050	6,336	6,972	8,070	4,542	5,592	8,339	273	4,964
Flat	17	1,959	11,739	12,537	15,561	5,561	10,687	15,605	1,029	21,055
	3	1,050	6,317	6,955	8,049	4,538	5,573	8,312	273	4,964
Red River Delta										
Mountainous	19	2,069	12,968	13,581	16,727	5,903	11,731	16,735	1,659	29,299
	3	1,069	6,722	7,243	8,295	4,656	5,867	8,528	286	5,258
Flat	17	1,317	9,076	8,902	10,084	4,337	7,405	10,599	332	8,253
	3	1,058	6,573	7,121	8,003	4,607	5,737	8,390	267	4,925

Terrain	Rough-ness (IRI)	Motor-bike	Car Medium	Bus Mini	Bus Medium	Cong Nong	Truck Light	Truck Medium	Bicycle	Animal Cart
North Central										
Mountainous	17	1,995	12,457	13,024	15,687	5,704	11,218	15,971	1,079	22,302
	3	1,069	6,722	7,243	8,133	4,656	5,867	8,528	286	5,258
Rolling	19	2,031	12,220	13,073	15,943	5,756	11,176	16,355	1,579	27,659
	3	1,050	6,321	6,962	7,896	4,540	5,580	8,320	273	4,964
Flat	19	2,066	12,968	13,577	16,397	5,899	11,726	16,727	1,659	29,299
	3	1,069	6,703	7,224	8,112	4,652	5,849	8,501	286	5,258
South Central										
Mountainous	18	2,035	12,722	13,316	16,065	5,804	11,485	16,363	1,302	25,301
	3	1,069	6,722	7,243	8,133	4,656	5,867	8,528	286	5,258
Rolling	19	2,031	12,220	13,073	16,269	5,756	11,176	16,355	1,579	27,659
	3	1,050	6,321	6,962	8,056	4,540	5,580	8,320	273	4,964
Flat	19	2,066	12,968	13,577	16,720	5,899	11,726	16,727	1,659	29,299
	3	1,069	6,703	7,224	8,274	4,652	5,849	8,501	286	5,258

Source: Third Rural Transport Project, World Bank

Figure 8: Value of Passengers Time (VND in 2014 Prices).

	Year 2014		
Type of Vehicle	Work Trip Income	Value of Goods in Transit	Non-Work Trip Income
Motorcycle	16,800		4,200
Car Medium	23,100		5,775
Bus Small	11,550		2,898
Bus Medium	11,550		2,898
Cong Nong	11,550	567	
Truck Light	11,550	1,575	
Truck Medium	11,550	2,310	
Bicycle	11,550		2,898
Animal Cart	11,550	-567	

Source: Third Rural Transport Project, World Bank

Figure 9: Traffic Growth Rates (% per annum).

Type of vehicle	**Average 2008-2014**	**2015 to 2020**	**2020 to 2025**	**Beyond 2025**
Motorcycle	9.2	6.5-7.5	6.5-7.5	5.5-6.5
Car Medium	8.7	5.5-6.5	5.0-5.75	5.0-5.75
Bus Small	1.6	2.5-3.5	2.5-3.5	3.5-4.5
Bus Medium	0.7	1.5-2.5	2.5-3.5	3.5-4.5
Cong Nong	0.8	1.0	1.0	-0.5
Truck Light	6.8	4.5-5.5	4.5-5.5	3.5-4.5
Truck Medium	5.6	4.5-5.5	4.5-5.5	3.5-4.5
Bicycle	5.6	4.5-5.5	2.5-3.5	1.5-2.5
Animal Cart	-0.2	1.0	1.0	1.0

Source: Third Rural Transport Project, World Bank

Figure 10: Roads' Construction and Maintenance Costs Norms.

	Type of Activity	Frequency	Cost per km (Dong, million)	
			2014	2015
Tarred Road	Construction	-	13,164	13,822
	Routine	annual	230	242
	Intermediate	every 5 years	263	276
	Periodic	every 10 years	7,325	7,692
Gravel Road	Construction	-	3,870	4,064
	Blading	annual	283	297
	Wearing Course	every 2 years	1,547	1,624
	Heavy Re-gravel	every 5 years	2,712	2,847

Source: Cost Norms, Vietnam.

Figure 11: Historical Traffic Composition.

Type of vehicle	2006	2008	2014
Motorcycle	36%	51.5%	54.9%
Car Medium	1%	4.4%	4.4%
Bus Small	0%	0.4%	0.5%
Bus Medium	0%	0.2%	0.2%
Cong Nong	4%	1.8%	2.0%
Truck Light	1%	0.7%	0.8%
Truck Medium	1%	0.4%	0.4%
Bicycle	55%	36.8%	33.5%
Animal Cart	2%	3.7%	3.4%
NMT	56%	40.5%	37.0%
MT	44%	59.5%	63.0%
All vehicle	100%	100%	100%

Source: Third Rural Transport Project, World Bank

Figure 12: Average Number of Vehicles per 100 Households.

Year	Whole Country		Rural Area	
	Car	**Motorbike**	**Car**	**Motorbike**
2004	0.1	55.3	0.0	41.4
m2006	0.2	68.6	0.0	53.2
2008	0.4	89.4	0.1	73.9
2010	1.3	96.1	0.5	84.1
2012	1.8	115.3	1.0	102.2

Source: VHLSS 2012

Annex E. Samples of Investment Intention Reports from Quang Linh.