# ADDITIONAL SUBPROJECT SCREENING REPORT

**PREPARED FOR**
**ADB**

**BY**
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**JUNE 2017**

**CONTENTS**

## EXECUTIVE SUMMARY

1. The following report presents the finding of the PPTA subproject eligibility and formulation screening applied to the final long list of projects proposed by the four Provincial Executing Agencies at loan fact finding. The consultants visited each province to review documentation, design or engineering design reports and drawings, wherever available prefeasibility documentation, provincial planning documents and to conduct site visits with the PMU/IA staff and local District and Commune officials along with local consultants.

2. The screening is presented by individual subproject and then summarized by province and finally into the overall BIIG1 evaluation report. The screening is based on a set of 14 criteria for each of output 1 roads subprojects and output 2 water supply subprojects that were grouped within (i) eligibility, (ii) safeguards, (iii) gender, (iv) feasibility and viability themes see tables 1 and 2 below.

**Table 1: Screening Criteria for Roads Subprojects**

| Theme | Criteria |
|---|---|
| **Eligibility** | |
| Provincial Planning Alignment | C1: Included in the provincial medium-term investment plan; |
| Subregion Planning Alignment | C2: Aligned with the FNEP Master Plan outcome theme of improved connectivity |
| | C3: Aligned with the FNEP Master Plan outcome of economic inclusiveness |
| Provincial Inter-sector Investment Synergy | C4: Complementary to other investments |
| Readiness | C5: Clear statement of Subproject scope and works program<br>C6: Preliminary design drawings and supporting technical assessments available |
| **Safeguard Compliance** | |
| REMDF Compliance | C7: Social Safeguards – resettlement category B or C |
| EARF Compliance | C8: Environment safeguards – category B or C |
| **Effective Gender Mainstreaming** | C9: Women receive a proportional share of expected benefits |
| **Feasibility and Viability Indicators** | |
| Technical Feasibility | C10: Technical design standards are consistent with traffic count and network derived demand forecasts and the Provincial planning documents<br>C11: New alignments have PPC approval and are marked on the ground |
| Financial Cost Estimates between $8 and $15 million | C12: Current cost estimate consistent with benchmarks for road categorization |
| Benefits and Beneficiaries defined | C13: Benefits are identified for the economic life of the proposed investment and consistent with traffic forecast |
| **Sustainability** | C14: Road category standard consistent with forecast Passenger Car Unit (PCU) at Project completion |

**Table 2: Screening Criteria for Water Supply Subprojects**

| Theme | Criteria |
|---|---|
| **Eligibility** | |
| Provincial Planning alignment | C1: Included in the provincial medium-term investment plan; |

| | |
|---|---|
| Subregion Planning Alignment | C2: Aligned with the FNEP Master Plan outcome theme of improved connectivity |
| | C3: Aligned with the FNEP Master Plan outcome of economic inclusiveness |
| Provincial Inter-sector Investment Synergy | C4: Complementary to other investments |
| Readiness | C5: Clear statement of subproject scope and works program<br>C6: Preliminary design drawings and social survey to ascertain demand available |
| **Safeguard Compliance** | |
| REMDF Compliance | C7: Social Safeguards – resettlement category B or C |
| EARF Compliance | C8: Environment safeguards – category B or C |
| **Effective Gender Mainstreaming** | C9: Women receive a proportional share of expected benefits |
| Feasibility and viability indicators exist | |
| Technical Feasibility | C10: Technical design standards are consistent with 2030 demand forecasts including expected migration and institutional demand levels<br>C11: Water source quantity assured for the expected demand level and in line with (a) environmental stream flows, and (b) competing or existing uses. |
| Financial Cost Estimates between $1 and $5 million | C12: Current cost estimate consistent with benchmarks for cost of connections at less than $900 per household |
| Benefits and Beneficiaries defined | C13: Benefits are identified for the economic life of the proposed investment and consistent with demand estimate |
| **Sustainability** | C14: Tariff supports operation and maintenance costs whilst being within affordability benchmarks of 5% of household income |

3. The purpose of screening is twofold – first to confirm that the proposed subprojects are eligible for funding through the ADB financing of the Basic Infrastructure for Inclusive Growth program and (ii) an assessment of the viability of the proposed subproject formulation with respect to being able to meet ADB feasibility requirements prior to feasibility costs being incurred. In reality, both screens are interlinked and the consultants spent time with each EA/IA and their PMU staff to discuss issues, options and possible adjustments – most of these are identified in the separate subproject assessments.

4. The report presents the assessment of the subprojects that were presented to the PPTA and asses the formulation as proposed – as such some subprojects are rejected or assessed to be ineligible. However, with changes to alignments, clarifications of safeguards issues relating mostly to forestry and the prerequisite approvals being confirmed, some of these subprojects may become eligible with reformulation. Some however may not be able to achieve this status.

5. The results of the screening are presented below by output.

## A. Output 1: Road Transport Infrastructure Subprojects

6. In total nine additional subprojects are proposed of which 3 are assessed as being ineligible, 3 are assessed as uncertain requiring additional information, and 3 are considered eligible in the form proposed. In terms of their formulation feasibility assessment only two subprojects are considered unlikely to be able to achieve the necessary standards for FS approval. See table 1 for a summary of the output1 long list and assessment results.

7. A more detailed presentation for each subproject is presented in tables 3 and 4 where each of the 14 criteria/ indicators are presented. The alignment of subproject with goals and project outcomes is high, however there is far less alignment with ADB safeguards and viability and sustainability requirements.

## Table 3: Eligibility and Formulation Screening Results

| Subproject Name | Category (before after) | Length (Km) | Indicative Cost ($mill) | Cost per Km ($/km) | Eligible for ADB Yes / No | Eligibility Explanation | Feasibility Yes/No – Further Actions |
|---|---|---|---|---|---|---|---|
| **Bac Kan Province** | | | | | | | |
| 1. Nari District Road Subproject | Rural B - Cat V | 20.47 | 13.6 | 665,000 | No | New alignment approvals have yet to be obtained,<br>Alignment through protection and natural forests so the subproject is category A<br>Alternative alignments are available | Yes if existing alignment retained as preferred by local communes<br>Not all sections will be easy to justify at Cat V |
| 2. Road from Ngan Son District to Nguyen Binh District | Rural B - Cat VI | 10.5 | 9.8 | 933,000 | No | Alignment through protection forests needs confirmation<br>Options discussed with DPI | Unlikely – needs linkage to Cao Bang also otherwise not viable as it is a very high cost road |
| **Cao Bang Province** | | | | | | | |
| 3. Cao Bang Provincial Road 206 | Rural A - Cat V | 27 | 14.3 | 529100 | Yes | Forest classification on new alignment that needs approval | Yes needs clearance on alignments and forest land high use and high value road consider cat VI as an option |
| 4. Tinh Tuc-Phan Thanh-Mai Long Road | Rural B- Cat VI | 29 | 9.28 | 320,000 | ?? | Alignment section through forest land – classification unclear | Links to road 2 for Bac Kan new alignment with forest areas may be Cat A |
| **Ha Giang Province** | | | | | | | |
| 5. Ha Giang City to Binh Vang Industrial Park Road | Rural A - Cat VI | 20.5 | 12.2 | 593,000 | Yes | Requires confirmation of floodplain design and new alignment forest classification as production forest | Yes important network connection requires an addition 3km to gain maximum value – as discussed and agreed with DPI |
| 6. Mau Due – Yen Minh – Meo Vac Road | Cat VI- Cat V | 22.9 | 14.93 | 652,000 | No | Environment Category A – Landscape impact in UNESCO geological park and waste disposal<br>Significant engineering complexity – revised options required | Unlikely due to cost of proposal alternative traffic control model reduced ROW options may be worthwhile |
| **Lang Son Province** | | | | | | | |
| 7. Pac Meo – Vinh Lai Township Road | Rural B - Cat V | 9.73 | 5.2 | 535,000 | Yes | Alignment section through forest land – classification unclear and alignment approvals required | Yes if alignments approved high social dividend road – cost may be difficult to justify a Cat VI road may suffice |
| 8.Tan Van – Binh La – Viet Yen Road | Rural B - Cat V | 21.32 | 6.4 | 599,000 | ?? | Alignment section through forest land – classification unclear and alignment approvals required | Yes if alignments approved high social dividend road – cost may be difficult to justify a Cat VI road may suffice |
| 9. Khau Ban - Con Quan - Na Lua Road | Rural B - Cat V | 19.22 | 10.2 | 531,000 | ?? | Alignment section through forest land – classification unclear and alignment approvals required | Likely if cost effective options are built into the road |

## Table 4: Output 1 Long List Detailed Assessment

| Subproject Name | Eligibility Criteria | | | | | | Safeguards Compliance | | Gender | Feasibility and Viability Indicators | | | | Sustainability |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C1: Included in provincial medium-term investment plan | C2: Aligned to FNEP Master Plan outcome of improved connectivity | C3: aligned with the FNEP Master Plan outcome of economic inclusiveness | C4: Complementary to other investments | C5 Clear statement of scope | C6: Preliminary design drawings and technical assessments | C7: REMDF Compliance Cat B or C | C8 EARF Compliance Cat B or C | C9: Gender Mainstreaming Elements | C10: Technical design standards are consistent with traffic count and network derived demand forecasts | C11: New alignments have PPC approval and are marked on the ground | C12: Cost estimate consistent with benchmarks for road categorization | C 13 Benefits are identified for the economic life of the proposed investment and consistent with traffic forecast | C14: Road category standard consistent with forecast Passenger Car Unit (PCU) at Project completion |
| **Back Kan Province** | | | | | | | | | | | | | | |
| 1. Nari District subproject | ✓ | ✓ | ✓ | ✓ | ? | X | ? | X | ? | ? | X | ? | X | ?? |
| 2. Road from Ngan Son district to Nguyen Binh district | ✓ | ✓ | ✓ | ✓ | ? | X | ? | X | ? | ? | X | ? | X | ?? |
| **Cao Bang Province** | | | | | | | | | | | | | | |
| 1. Cao Bang Provincial Road 206 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ? | ? | X | X | X | X | X |
| 2. Tinh Tuc-phan thanh-mai long road | ✓ | ✓ | ✓ | ✓ | ✓ | X | ✓ | ? | ? | X | X | X | X | X |
| **Ha Giang Province** | | | | | | | | | | | | | | |
| 1. Ha Giang City To Binh Vang Industrial Park Road | ✓ | ✓ | ✓ | ✓ | X | X | ✓ | ? | X | ? | X | ? | ✓ | ✓ |
| 2. Mau Due – Yen Minh – Meo Vac Road | ✓ | ✓ | ✓ | ✓ | ✓ | X | ✓ | X | X | X | ✓ | X | ✓ | ? |

| **Lang Son Province** | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. PAC MEO – Vinh Lai Township ROAD | ✓ | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ? | ? | X | X | X | X |
| 2.Tan Van – Binh La – Viet Yen Road | ✓ | ✓ | ✓ | ✓ | ✓ | X | ✓ | ? | ? | X | X | X | X | X |
| 3. Khau Ban-Con Quan- Na Lua ROAD | ✓ | ✓ | ✓ | ✓ | ✓ | X | ? | ? | ? | X | X | X | X | X |

## B. Output 2: Water Supply Infrastructure Subprojects

8. In total seven additional subprojects are proposed of which two as submitted to the PPTA are assessed as being ineligible mostly due to cost of connections combined with the lack of data on water availability. The remaining five all require significant supporting data that has not been provided and in most cases appears not to exist. The major issues surround the availability of water sources, the high cost of schemes per connection and therefore the likely non-sustainability of the investment proposed. Given the rural water supply sector's track record of failed donor programs for the same reasons there are real risks of scheme failures and inefficient investment. The current proposals are however in their formative stages only and the need for a strong formulation input as opposed to an engineering design input is likely to be the critical factor in these schemes being feasible and sustainable. The Mau Son may fall under Category A environment due to the required reservoir being proposed along-side protected forest and the nature of the reservoir in terms of risks to downstream use.

9. A more detailed presentation for each subproject is presented in table 5 and 6 where each of the ratings on the 14 criteria/ indicators are presented. The alignment of subproject with goals and project outcomes is generally high, however there is far less alignment with ADB safeguards and viability and sustainability requirements. Further, the lack of data or consideration of viability and sustainability is a significant factor.

10. Output 2 subprojects are far less advanced in their planning and readiness, most are little more than proposed concepts, there are major gaps and therefore many assumptions with respect to water sources and water quality. No subproject should be approved without a full dry season flow gauge record on the proposed sources. Water demand is poorly understood other than government guidelines for estimating scheme capacity, all schemes needs a thorough social survey structured to identify existing sources and use of water and the likely benefits from the existing schemes. Finally, there has been little or no consideration into the institutional arrangement for these schemes with all simply being assigned to committees or existing operators with no consideration of tariff requirement, affordability and or rate of connections. No scheme should proceed with these data sets being available and communicated to decision makers.

## Table 5: Output 2: Longlist Subproject Screening Findings

| Subproject Name | Vol per day $m^3$ | 2030 Connection | Indicative Cost ($mil) | Cost per connect ($ per connect) | Subproject as presented eligible for ADB Funding | Findings | |
|---|---|---|---|---|---|---|---|
| | | | | | Yes/ No | Eligibility | Feasibility |
| **Bac Kan Province** | | | | | | | |
| 1. Van Tung water supply subproject | 1,500 | 852 | 1.18 | 870 | Yes Conditional | Requires an evidence based water availability dataset for wet and dry seasons and a water balance impact downstream | Marginally feasible given cost of connections however a social survey on water use and costs is urgently required to support assumptions |
| 2. Cho Moi and Bach Thong water supply | 5,850 | 2,226 | 1.17 | 600 | Yes Conditional | Water resource data required with evidence of security of access year round | Probable if indicative costs are accurate the cost per connection is likely to support a strong outcome based on assumed connections. Social survey required |
| **Cao Bang Province** | | | | | | | |
| 3. Pac Miau water supply | 1,700 | 1,781 | 1.18 | 870 | Yes Conditional | . Water resource data required with evidence of security of access year round | Marginal but likely given cost of existing water collection<br>Lack of water demand information limits the assessment of assumed uptake |
| **Ha Giang Province** | | | | | | | |
| 4.Coc Pai water supply | 2,600 | 2,550 | 3.5 | 1,400 | Possible But most likely NO | Major gap in water source options, versus cost effectiveness, leading to proposed concept having excessively high costs per connection | No. Without significant reduction in costs the development of the proposed water source is simply not affordable.<br>Investing in existing source, including the conflict, may provide a more sustainable option. |
| **Lang Son Province** | | | | | | | |
| 5. Tan Van Binh Gia Water Supply | 1,200 | 3,800 | 1.78 | 700 | Yes Conditional | Requires a clear water balance assessment on the proposed reservoir by season including all existing and planned users | Yes if water supply is available and the number of connections can be confirmed through a social survey |

| Subproject Name | Vol per day $m^3$ | 2030 Connection | Indicative Cost ($mil) | Cost per connect ($ per connect) | Subproject as presented eligible for ADB Funding | Findings | |
|---|---|---|---|---|---|---|---|
| | | | | | Yes/ No | Eligibility | Feasibility |
| 6. Cuong Loi And Thai Binh Water Supply | 1,910 | 920 | 2.25 | 700<br>2,600<br>to 3,700 | NO | Unclear concept, differing systems all with extraordinary cost structures. Needs a major revision | Too costly to be sustainable, limited evidence to support commune based systems |
| 7. Mau Son Water Supply | | n/a tourism provider | 2.46 | n/a | Marginal for BIIG1 outcomes | PPTA yes on inclusive growth although it is unclear if it is within the existing Provincial plans<br>Complex and high cost of securing water requires storage that may make this project **category A environment.** | Requires (i) detailed water availability assessments, (ii) water balance and demand study to define storage needs, (iii) a water purchase agreement to confirm the likely tourism operator demand based on the expected cost per cubic meter. |

## Table 6: Subproject Screening and Vulnerability Ratings

| Subproject Name | Eligibility Criteria | | | | | | Safeguards Compliance | | Gender | Feasibility and Viability Indicators | | | | Sustainability |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C1: Included in provincial medium-term investment plan | C2: Aligned to FNEP Master Plan outcome of improved connectivity | C3: Aligned with the FNEP Master Plan outcome of economic inclusiveness | C4: Complementary to other investments | C5: Clear statement of scope | C6: Preliminary design drawings and technical assessments | C7: REMDF Compliance Cat B or C | C8: EARF Compliance Cat B or C | C9: Women receive a proportional share of expected benefits | C10: Technical design standards are consistent with 2030 demand forecasts | C11: Water source quantity assured for the expected demand level and in line with (a) environmental flows, and (b) competing or existing uses | C12: Current cost estimate consistent with benchmarks for cost of connections at less than $900 | C13: Benefits are identified for the economic life of the proposed investment forecast | C14: Tariff supports operation costs and is less than 5% of HH income |
| **Back Kan Province** | | | | | | | | | | | | | | |
| 1. Van Tung water supply subproject | ✓ | ✓ | ✓ | ✓ | ? | X | ✓ | ? | ? | ? | X | X | ? | ? |
| 2. Cho Moi and Bach Thong water supply | ✓ | ✓ | ✓ | ✓ | ? | X | ✓ | ? | ? | ✓ | X | X | ? | ? |
| **Cao Bang Province** | | | | | | | | | | | | | | |
| 3.Pac Miau water supply | ✓ | ✓ | ✓ | ? | ✓ | X | ✓ | ? | ? | ✓ | X | X | ? | ? |
| **Ha Giang Province** | | | | | | | | | | | | | | |
| 4.. Coc Pai water supply | ✓ | ✓ | ✓ | ? | X | X | ✓ | ? | ✓ | ✓ | X | X | ? | X |
| **Lang Son Province** | | | | | | | | | | | | | | |
| 5.Tan Van Binh Gia Water Supply | ✓ | ✓ | ✓ | ? | X | X | ✓ | ✓ | X | X | X | X | ? | ? |
| 6. Cuong Loi And Thai Binh Water Supply | ✓ | ✓ | ✓ | ? | ✓ | X | ✓ | ✓ | X | X | X | X | X | X |
| 7. Mau Son Water Supply | ? | ? | ✓ | ✓ | X | X | ✓ | X | X | X | X | X | ✓ | ? |

# APPROACH AND METHODOLOGY

## II. OVERVIEW

### A. Introduction

11. The subproject screening was undertaken by the PPTA during May 2017 based on the longlist of subprojects proposed by each PMU. The longlist was modified and confirmed during loan fact finding. The proposed subprojects once screened will form the basis of the Government Investment proposal (IP) report.

12. The screening process is defined below however it was far more than a simple screening and extending into identifying formulation weaknesses and issues that need to be addressed if the resultant feasibility Studies (FS) will achieve the requirement of the ADB as detailed in the Project Administration Manual (PAM). Significant weaknesses in road subproject relate to (i) proposed alignments that are new that have no approval and often little or no rationale, (ii) the risk of category A environment being triggered due to (a) protection or natural forest disruption, (b) water course disruption, and (c) protected landscapes. All roads have no traffic projections to base the design on and many are considered marginal economic investments. Water supply schemes proposals are far less advanced and often little more than concept designs, there is a sparse data set to support water supply availability and quality, design requirements based on demand are universally missing, and cost effective solutions will be required. During debriefing and consultation phases these issues have been discussed in depth with the PMU and their consultants with options identified and agreed for moving forward into their FS.

#### 1. Documents Reviewed

13. The screening involved a review of documentation including sector plans, provincial plan and subproject documentation. Wherever possible local engineering consultants' concept and design documents were reviewed if available. Consultation meetings were held with sector and DPI representatives and the PMU staff as well as field visits made to each subproject site with consultation of District and Commune staff.

#### 2. Field Surveys

14. During the screening, each field site was visited. For output 1, road alignments were inspected from end to end, maps reviewed and visual assessments, with field measurement made for social and environmental safeguard purposes however this is caveated, as the center line has yet to be surveyed and marked. Based on the visual assessment the likelihood of severely affected households were assessed by number of households to identify the likelihood of triggering a category A classification. Each visit involved DPI and local consultant staff and where possible DOT representatives, meetings were held with district and commune officials. For many sites, local PMU staff had not previously visited the site and the inspections provided an improved awareness of proposed subproject scope and issues.

15. For output 2, subproject proposed sites were visited, including the indicative water sources site or sites, location of pumping, storage and treatment facilities and a visit of the proposed demand area to be supplied. The field work involved local consultants and in most cases, local staff of Districts and communes and the PMU representatives. Overall the level of preparedness of the output 2 subproject is far less advanced than for output 1 with as a result there being far higher degrees of uncertainty about these proposals.

## B. Screening Criteria

### 1. Output One: Road Infrastructure

16. The eligibility criteria for subproject screening are presented in the following table

**Table 7: Assessment Criteria for Output One Road Subprojects**

| Theme | Criteria |
|---|---|
| **Eligibility** | |
| Provincial Planning Alignment | C1: Included in the provincial medium-term investment plan; |
| Subregion Planning Alignment | C2: Aligned with the FNEP Master Plan outcome theme of improved connectivity |
| | C3: Aligned with the FNEP Master Plan outcome of economic inclusiveness |
| Provincial Inter-sector Investment Synergy | C4: Complementary to other investments |
| Readiness | C5: Clear statement of Subproject scope and works program<br>C6: Preliminary design drawings and supporting technical assessments available |
| **Safeguard Compliance** | |
| REMDF Compliance | C7: Social Safeguards – resettlement category B or C |
| EARF Compliance | C8: Environment safeguards – category B or C |
| **Effective Gender Mainstreaming** | C9: Women receive a proportional share of expected benefits |
| **Feasibility and viability indicators exist** | |
| Technical Feasibility | C10: Technical design standards are consistent with traffic count and network derived demand forecasts and the Provincial planning documents<br>C11: New alignments have PPC approval and are marked on the ground |
| Financial Cost Estimates between $8 and $15 million | C12: Current cost estimate consistent with benchmarks for road categorization |
| Benefits and Beneficiaries defined | C13: Benefits are identified for the economic life of the proposed investment and consistent with traffic forecast |
| **Sustainability** | C14: Road category standard consistent with forecast Passenger Car Unit (PCU) at Project completion |

### 2. Output 2: Water Supply Infrastructure

17. The eligibility criteria for subproject screening are presented in the following table

| Theme | Criteria |
|---|---|
| **Eligibility** | |
| Provincial Planning Alignment | C1: Included in the provincial medium-term investment plan; |
| Subregion Planning Alignment | C2: Aligned with the FNEP Master Plan outcome theme of improved connectivity |
| | C3: Aligned with the FNEP Master Plan outcome of economic inclusiveness |
| Provincial Inter-sector Investment Synergy | C4: Complementary to other investments |
| Readiness | C5: Clear statement of subproject scope and works program |

| Theme | Criteria |
|---|---|
| | C6: Preliminary design drawings and social survey to ascertain demand available |
| **Safeguard Compliance** | |
| REMDF Compliance | C7: Social Safeguards – resettlement category B or C |
| EARF Compliance | C8: Environment safeguards – category B or C |
| **Effective Gender Mainstreaming** | **C9: Women receive a proportional share of expected benefits** |
| Feasibility and viability indicators exist | |
| Technical Feasibility | C10: Technical design standards are consistent with 2030 demand forecasts including expected migration and institutional demand levels<br>C11: Water source quantity assured for the expected demand level and in line with (a) environmental stream flows, and (b) competing or existing uses. |
| Financial Cost Estimates between $1 and $5 million | C12: Current cost estimate consistent with benchmarks for cost of connections at less than $900 per household |
| Benefits and beneficiaries defined | C13: Benefits are identified for the economic life of the proposed investment and consistent with demand estimate |
| **Sustainability** | C14: Tariff supports operation and maintenance costs whilst being within affordability benchmarks of 5% of household income |

## BAC KAN PROVINCE

## III. SCREENING RESULTS

### A. Output 1 Road Additional Subproject Screening

#### 1. Summary of Findings

18. Two Additional subproject are included in the long list. Detailed findings of individual subproject screening are presented below.

19. As proposed and presented to the PPTA the **additional road subprojects fail** to meet the required criteria and **would not be eligible for BIIG1 ADB investment**.

20. Major concerns relate to the proposed Na Ri District Subproject where the three section alignments (one if which connects into the Lang Son Representative subproject for Binh Gia district). The screening found (i) major discrepancies between reported starting and ending pints and the situation on the ground, (ii) found new alignments that have significant questions in terms of their rationale, and need within a wider network context, (iii) have a significantly high probability of passing through Protection forest areas that would trigger category A, (iv) have local community members that question the need for the new alignments.

21. The second additional subproject in Nguyen Binh District and will connect to the third priority subproject in Cao Bang Province. Without this connection there is a substantially reduced rationale for the road and the likelihood of different road categorization or a period of lower returns until the connection is completed. The screening is concerned about a possible environment category A assessment due to protection forest areas along the route and these need further clarification. Currently the section as proposed is considered to be **likely category A** or environment without changes to the proposed investment.

22. The two additional subprojects with adjustment could be eligible for ADB financing however both need adjusted alignments confirmed and environmental safeguard requirements especially relating to protection forest to be addressed. The PPTA consultants worked closely with the District and Provincial staff to discuss these issues regarding the use of existing alignments rather than the proposed new alignments, and the need for certainty over start and end points, and the need for better information on the safeguards concerns and all parties are in agreement however these agreements need ratification. The **PPTA concludes that based on making these changes two eligible subprojects are possible** but technical and safeguard reviews are required.

23. A summary of the assessed criteria is presented in the following table. For some criteria there is inadequate data available at the time of screening. Where agreements have been reached these are recorded in the appended subproject reports.

| Key for coding | |
|---|---|
| Criteria confirmed | ✓ |
| Missing data with agreed action | ? |
| No data or Ineligible | X |

24. Further whilst the PPTA and Government representatives have agreement on the eligibility and the proposed design categories of the road subprojects there is too date no traffic count, or traffic forecast for establishing or verifying the design standard. It is a strong recommendation for this data to be prepared as soon as possible as the loan agreement will require traffic forecasts and road categorization are consistent before a detailed design can be approved.

**Table 8: Output One Screening Results**

| Subproject Name | Eligibility | | | | | | Safeguard Compliance | | GAP | Feasibility and Viability Indicators | | | | Sustainability | issues to be resolved | Eligibility |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Criterion** | **C1** | **C2** | **C3** | **C4** | **C5** | **C6** | **C7** | **C8** | **C9** | **C 10** | **C 11** | **C 12** | **C 13** | **C 14** | | |
| 1. Nari District subproject | ✓ | ✓ | ✓ | ✓ | ? | X | ? | X | | ? | X | ? | X | ?? | Yes | Not Yet |
| 2. Road from Ngan Son district to Nguyen Binh district | ✓ | ✓ | ✓ | ✓ | ? | X | ? | X | | ? | X | ? | X | ?? | Yes | Not Yet |

## B. Output 2 Water Supply Scheme Findings

### 1. Summary of Subproject Screening

25. Two additional swear supply subprojects are included in the long list. Detailed screening findings are presented in Annex 3 and 4 below.

26. The screening highlights a significant gap in terms of the preparation of these two subprojects, the gaps relate to data on adequacy and safety of proposed water sources, clarity on the real demand for water services and the nature of services to be demanded.

27. Currently the PPTA **cannot confirm the eligibility** in terms of water resource availability to support the technical design standards, and the likely viability of the schemes due to the lack of research into (i) the nature of demand for water, (ii) the likely uptake of water services and (iii) the willingness and ability to pay for water.

28. Within these caveats, the subprojects meet the eligibility with respect to the outcome expectation of BIIG1 investment, the rationale and planning alignment is clear. Social safeguards and environmental safeguards category b or c are highly probable within the caveat of water supply and quality confirmation. Without clear data on water quality, the treatment options cannot be confirmed, and without clear demand forecasts based on consumer needs the overall design capacity and layout remains open to change.

29. The affordability of water supply schemes needs to be clearly addressed either through clear tariff planning or via PPC committing additional funding to finance the rural water supplies. Clear asset ownership, operational and maintenance responsibilities need to be included in the proposals before the subproject can be considered eligible.

30. The PPTA conclusion is that the PMU and its District counterparts need to address, ***with urgency***, the issues of:

(i) Water supply and quality and to conduct some initial consultation with proposed consumers. Water supply gauging needs to start immediately, wider catchment modelling would be beneficial, and
(ii) Water testing needs to be conducted across a range of flow regimes and seasons.
(iii) Clear documentation from DONRE is required regarding in stream flows and acceptability of the water offtakes
(iv) Scheme viability and affordability strategies need to be committed to as per para 11 above.

31. The screening criteria summary is presented below with the detailed subproject screening reports provide in Appendix 2 that includes the required actions and where agreements have been reached these are recorded in the appended subproject reports.

**Table 9: Bac Kan Water Supply Subproject Screening Findings**

| Subproject Name | **Eligibility** | | | | | | **Safeguard Compliance** | | **GAP** | **Feasibility and Viability Indicators** | | | | **Sustainability** | **issues to be resolved** | **Eligibility** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Criterion** | **C 1** | **C 2** | **C 3** | **C 4** | **C 5** | **C 6** | **C 7** | **C 8** | **C 9** | **C 10** | **C 11** | **C 12** | **C 13** | **C 14** | | |
| 1.Water Supply Network for Van Tung commune, Ngan Son district, Bac Kan province | ✓ | ✓ | ✓ | ✓ | ? | X | ✓ | ?? | ? | ?? | X | X | ? | ? | Yes | Not Yet |
| 2. Widening Water Supply Network of Cho Moi district and Phu Thong township, Bach Thong district, Bac Kan province | ✓ | ✓ | ✓ | ✓ | ? | X | ✓ | ?? | ? | ✓ | X | X | ? | ? | Yes | Not Yet |

# IV. NA RI ROAD SUBPROJECT SCREENING REPORT

## A. Subproject Description

32. Rehabilitation and upgrade of the road connecting from the center of Na Ri district, Bac Kan province with Binh Gia and Trang Dinh district of Lang Son province.

(i) Section 1: (Yen Lac - Kim Lu Town road connecting with Hoa Tham - Quy Hoa - Vinh Yen road, Binh Gia district, Lang Son province) has a starting point of Km0+0.00 with National Highway 3B at Km58+900, the end point of Hoa Tham - Quy Hoa - Vinh Yen in Lang Son province (Khuoi Man village, Vinh Yen commune, Binh Gia district - Bac Kan and Lang Son province): Total length of the road is 6.835km.

(ii) Section 2 (Quang Phong – Dong Xa - Xuan Duong road connecting with Thien Long commune, Binh Gia district, Lang Son province) has a starting point of Km0+0.00 with Quang Phong - Dong Xa road at Km13+350, 00 (in the center of Dong Xa commune), the end point of Km13+636m at the border point between Xuan Duong commune (Na Ri district, Bac Kan province) and Thien Long commune (Binh Gia district, Lang Son province). Total length of 13.636km.

33. Length (km+m): 20.471km with an existing alignment (km+m): in Section 1 of 2.5km and Section 2 of 9.636km. New alignment in section 1 of 4.335km, and section 2 of 4km neither of which are approved yet.

34. Current Road Categorization: is a rural road B with gravel mixed with earth and earth road. The proposed categorization is Category V with Asphalt road. The subproject will construct pavements, road surface, drainage works (4 small and 1 medium bridges, culverts, spillways & causeways), protection works, traffic systems.

35. The proposed investment totals $13,621,694 or $665,414/km

## B. Rationale

### 1. Current use

(i) These roads are located in Na Ri District, where 51.34% of households are classified as poor, and 87.97% being poor or near-poor.

(ii) Access to Na Ri is difficult, NH3B the main district access way remains in poor condition with a difficult mountainous alignment. The district is extremely inaccessible in the rainy seasons due to the large potholes and earth roads.

(iii) The economy of Na Ri is predominated by agriculture (Cannaceae, cigarette, rice, corn, cassava and vegetables) and forestry (acacia, star anise and pines…). The areas served by these roads are also dependent upon agriculture livestock breeding. There is potential for forestry development and expanding production of fruit trees and livestock.

(iv) However, poor road conditions have hindered the development of these sectors, where EM farmers face the danger of both low prices and in some instances unsold products.

(v) Other problems faced in the area include poor access to education (interviews with the local EM people showed that poor educational attainment of residents), and the current state of the roads also impede access to healthcare and employment opportunities.
(vi) This subproject therefore has a significant social need.

### 2. Future use

(i) In addition to the social (poverty alleviation) and agricultural development rationales, this subproject also contributes to the overall development of the road network in Bac Kan and the FNEP region alike.
(ii) These roads will not only improve accessibility within Na Ri, but moreover will also provide additional linkages to Binh Gia District of Lang Son Province through to the PRC border. These will provide economic development opportunities within the nearby areas.

## C. Findings

### 1. Section 1

36. Section 1: (Yen Lac - Kim Lu Town road connecting with Hoa Tham - Quy Hoa - Vinh Yen road, Binh Gia district, Lang Son province) has a starting point of Km0+0.00 with National Highway 3B at Km58+900, the end point of Hoa Tham - Quy Hoa - Vinh Yen in Lang Son province (Khuoi Man village, Vinh Yen commune, Binh Gia district - Bac Kan and Lang Son province): Total length of the road is 6.835km.

37. The first 3 km road section is cement concrete of 3m wide and 800m long) and then a 2km gravel and earth rural road with 4m wide). 4 remaining km section is a new alignment through the forest (mostly covered by (acacia, bamboo, and other trees) and along the Na Ri river.

| Subproject road name | Proposed by DPI | PPTA comments | Conclusion |
|---|---|---|---|
| Start point<br>End point | Yen Lac - Kim Lu Bac Kan–<br>(Khuoi Man village, Vinh Yen commune, Binh Gia district | Confirmed | Confirmed |
| Length | 6.85km long:<br>1.8 km cement concrete Bm=3m;<br>1 km gravel road; 4m pavement; 4km of new alignment through the forest and along Nari river to connect with the end point of Hoa Thám - Quy Hoa - Vinh Yen in Lang Son province | Requested confirmation:<br>(i) the new alignment is approved with a clear mark of the starting and end points<br>(ii) that the new alignment passes through protection or production forest areas. | DPI confirmed and will reply to the consultant with the official approval of the new alignment and protection or production forest areas. |
| Road category | Category V | Cat V will cause a substantial risk of resettlement and land acquisition of AHHs<br>Proposed Cat VI to avoid resettlement and land acquisition of AHHs | Agreed VI |
| Proposed works | 4 structures | (1 medium bridge over the stream, culverts, spillways & causeways, and several small bridges or spillways over the | will confirm in their FS |

| | | | |
|---|---|---|---|
| | | river), protection works, traffic systems. | |

### 2. Section 2

38. Section 2 (Quang Phong – Dong Xa - Xuan Duong road connecting with Thien Long commune, Binh Gia district, Lang Son province) has a starting point of Km0+0.00 with Quang Phong - Dong Xa road at Km13+350.00 (in the center of Dong Xa commune), the end point of Km13+636m at the border point between Xuan Duong commune (Na Ri district, Bac Kan province) and Thien Long commune (Binh Gia district, Lang Son province). Total length of 13.636km.

39. The starting point of Dong Xa road is of 1km cement concrete road with 6m roadbed and 4m pavement, and then 1.5km earth road. At Km2+500 proposed a new bridge (L=12m and W=9m) to be constructed over the Na Vang stream leading to the footpath up hill and continue to forest areas (1.5km to two Nung EM households) and then go to the forest area where the new alignment is proposed 4km through the forest to reach Xuan Duong commune (about 1km) connecting the suspension bridge of L=24m and w= 9m) on the other side of the forest.

(i) Total length of the proposed new alignment: 9km
(ii) 4km from Dong Xa commune to the Nung EM HHs in the middle of the forest
(iii) 4km from behind the Hung EM HHS about hundreds meters (From the mid-forest) through the forest
(iv) 500 from the forest area to the suspension bridge
(v) 500m from the suspension bridge Bac Sen over Nari River to the end point connecting with PR 256 at Km52+863.

40. The new alignment of 9km will involve high levels of agricultural and forest land acquisition, require relocating of 2 Nung EM households. The PPTA sought confirmation of the forest area classification.

41. To avoid substantial risks of resettlement and environment, the PPTA proposed that DPI upgrade and expand the existing road alignment connecting between Dong Xa and Xuan Duong communes to PR256 of total length of 12km. About 95% of the population living along this road are EM households. The existing road is in very poor condition and difficult mountainous road. It is extremely difficult for the local EM people to travel on the road and children go to school in the rainy season. It will bring more benefits to the EM people living along the road rather than creating a new road alignment through the forest.

42. The proposed works of this section are to replace 3 suspension bridges and a causeway by constructing 4 medium bridges over Nari River and some culverts.

**Table 10: Section Two Findings**

| Subproject road name | Proposed by DPI | PPTA Comments | Conclusion |
|---|---|---|---|
| Start and end points | Dong Xa- Xuan Duong new alignment | Dong Xa – Xuan Duong existing road section | Dong Xa – Xuan Duong existing road section |

| | | | |
|---|---|---|---|
| Length | 9km:<br>3km existing road;<br>4km new alignment through the forest;<br>2 km earth road | Proposed to upgrade and expand the existing road connecting between Dong Xa and Xuan Duong commune with a total length of 12km earth road with 4-5m roadbed | DPI agreed with the PPTA consultant's proposed existing road upgrading and expanding instead of creating a new alignment of 9km through the forest |
| Road cat | V | VI recommended | Agreed VI |
| Proposed works | 4 | Proposed 4 medium bridges, 1 causeway and culverts | To be identified in the FS |

### 3. Section 3

43. The starting point of Xuan Duong commune road connecting with PR256 and an end point of Thien Long commune (Binh Gia district, Lang Son province). This road section is 4.6km long of 1.5 km cement concrete road with W=3m and 4m pavement, and then 3.5km gravel earth road. The 2.5km gravel earth road goes through the residential area where the majority of Tay and Nung EM groups live along. Currently the route is seriously degraded, with many cracks, outcrops and potholes on the pavement, subsidence at various points of roadbed, obstructing the movement of people and vehicles. Crops along the road grow rice, corn, banana, tobacco, and acacia forest.

| Subproject road name | Proposed by DPI | PPTA comments | Conclusion |
|---|---|---|---|
| Start and end points | Xuan Duong – Thien Long | Xuan Duong – Thien Long | Xuan Duong – Thien Long |
| Length | 4.6km: 2 km cement concrete Bm=3m; 2,6 km gravel earth road with lots of large potholes | Confirmed | FS to be prepared for updated road works and technical specifications |
| Road cat | V | Proposed cat VI to avoid resettlement and land acquisition | Agreed cat VI |
| Proposed works | 4 | Confirmed | To be identified in the FS |

## D. Eligibility

| Criteria | Status | | Risk of Non-compliance and Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| 1: Include in SEDP – if yes state page and section number | ✓ | | When the project is completed and put into operation, it will create a favorable infrastructure to promote sustainable socio-economic development for the people in 06 communes of Yen Lac, Kim Lu, Cuong Loi, Quang Phong, Dong Xa, Xuan Duong, Na Ri district, Bac Kan province and adjacent areas.<br>It contributes significantly to the development of economic, cultural and inter-regional tourism between Bac Kan and Lang Son provinces in general and between neighboring districts in particular (Ngan Son, Bach Thong and Cho Moi districts of Bac Kan province and Trang Dinh district, Binh Giang province. |

| Criteria | Status | | Risk of Non-compliance and Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| | | | To build a smooth traffic system from NH279 (Na Ri district, Bac Kan province) to national Highway 3, linking with Cao Bang border gate economic zone through Ta Lung border gate, Tra Linh border gate and NH279 to Tan Thanh border gate, Huu Nghi International border gate.<br>At the same time, it will create important conditions to promote the development of agriculture and rural areas, exploit the land potential of Na Ri district, especially in the fields of afforestation, forest product production and processing. |
| 2: Included in DoT Master Plan – if yes state page and section | ✓ | | Section VI.4 page 9 |
| 3: Proposed design concept exists - if yes state date of proposal | ✓ | | Document No. 472/QD-UBND dated 4 April 2016 of the provincial People's Committee approving the list of subprojects proposed investment under the project "Basic Infrastructure for Inclusive Growth in the Northeastern Provinces Sector Project: Ha Giang, Cao Bang, Bac Kan, Lang Son" funded by ADB |
| 4: Proposed design standard identified - if yes what standard, what is the projected economic life of the subproject | ✓ | | The road subproject will be constructed according to the scale of grade VI mountainous roads according to TCVN 4054-2005 |
| 5: Proposed design standard derived from (i) plan, (ii) traffic forecast, (iii) traffic forecast plus network efficiency (iv) what is the current road standard on each end point or network connection now and planned | | x | The proposed designed standard is derived from the provincial transport masterplan for districts.<br><br>The current road standard on each end point is rural road A and the network connection now and planned is Cat VI towards 2030. |
| 6: is the date of traffic forecast or base traffic forecast after 2015 | | x | Not yet |
| 7: Is traffic forecast consistent with Road Categorization – if yes – at project start, at the economic life of the subproject | | x | Not yet |
| 8: Is there a preliminary design document with supporting engineering field surveys and drawings – if yes what is the date of these, what design standard is used. | ✓ | | There is a preliminary design document prepared by the local consultant in 2009, but it is a draft without supporting engineering field surveys and drawings.<br><br>The proposed design standard is Cat V. |
| 9: Is the Preliminary design already approved by DoT | | x | Not yet |
| 10: Is the preliminary design already approved by PPC | | x | Not yet |
| 11: Is there a bill of quantities with the preliminary design | | x | Not yet |
| 12: Is there a cost estimate – if yes is there a supporting bill of quantity and what is the date for the costing | | x | Not yet |

| Criteria | Status | | Risk of Non-compliance and Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| 13: Are there significant structures required – if yes please identify | | x | Not yet |
| 14: Are there significant cut and fill requirements – if yes please provide an estimate of the extent | | x | Not yet |
| 15: is the current Right of Way sufficient for the proposed or required road design | | x | Not yet |

## E. Safeguard Compliance

| Safeguard | Screening Issue | Yes | No | Explanation and Assessed Risks |
|---|---|---|---|---|
| A: Resettlement | Land Acquisition | | | Extent – minor, substantial |
| A.1 Land Acquisition | Agriculture Land | | ? | substantial |
| | Urban Public Land | ✓ | | minor |
| | Urban Private Land | ✓ | | minor |
| A.2 Structures | Private houses | ✓ | | minor |
| | Private other | ✓ | | minor |
| | Public Structures | ✓ | | minor |
| A.3 | Other Assets | ✓ | | minor |
| A.4 | Resettlement – if yes number of households identified | ✓ | | Based on the PPTA consultant's field visit there will be from 5 to 10 households who will be severely affected by the subproject (either loss of their residential and agricultural land or to be relocated |
| A.5 | Is there a Land Acquisition and compensation budget – if yes how much | | x | Not yet |
| B: Environmental Screening | | | | |
| B.1 Forests - are there any of the following along the alignment of within close proximity – if yes is the risk significant | Production forest land | | ? | Extent |
| | Protection forest land | | ? | Requested to recheck and confirmed by DPI |
| | Protected areas | | ? | Requested to recheck and confirmed by DPI |
| B.2 Water, rivers lakes and flood plain | Are there any areas affected by the existing or proposed alignments? If yes how significant are they | ✓ | | Yes, the new alignments will go along or over rivers, streams and flood plain streams. |
| B.3 Does the proposal include | | | x | The proposed road subproject doesn't include any IEE screening |

| Safeguard any IEE screening | Screening Issue | Yes | No | Explanation and Assessed Risks |
|---|---|---|---|---|
| B.4 Did the field visit identify issues form EARF that need to be addressed | | ✓ | | Request to recheck the protection forest areas where the new alignments are proposed to go through and resettlement issues. |
| B.5 New Alignments | Risk of land slips | ✓ | | The new alignments of Sections 1, 2 and 3 are proposed to go along or over the river, stream |
| | Risk of Large cuts | ✓ | | As presented above |
| | Water course disruption | ✓ | | As presented above |
| | Flood Plain Disruption | ✓ | | As presented above |

## F. Social Considerations

| Criteria | Yes/No | Explanation and Assessed Risk |
|---|---|---|
| Are communes identified and named | Yes | If yes please list communes<br>Yên Lạc town, and 4 communes:<br>▪ Kim Lu,<br>▪ Quang Phong,<br>▪ Dong Xa and<br>▪ Xuan Duong |
| Is the population data available | Na Ri district total population as of 2016 is 41,840 and the subproject will directly benefit totally 13,037 local people in Yen Lac town and 4 communes | Very high percentage of the rural population (36,788) and EM population (37,486 equivalent to 89,59%) and high poverty rate |
| Is the number of Poor households available | Not yet | DPI and local consultants will coordinate with district and commune authorities and offices (social, financial and economic infrastructure) to provide updated data.<br>Minor risk |
| Is the number of near poor households available | Not yet | As presented above |
| Are Ethnic minorities identified and specified | Not yet | As presented above |
| Is land use specified | Not yet | As presented above |
| Are the number of female headed households specified | Not yet | As presented above |
| Is the GAP adequately reflected | Not yet | As presented above |

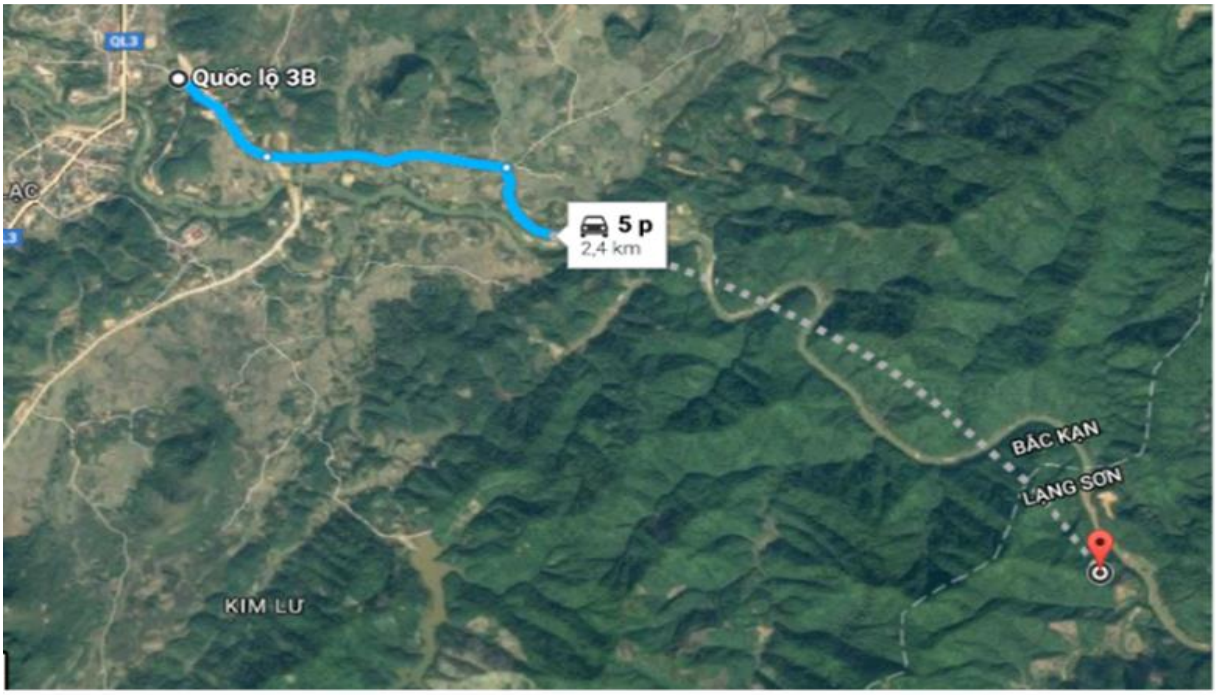
## G. Economic Assessment

| Criteria | Yes | No | Explanation and Assessed Risk |
|---|---|---|---|
| Is there an economic assessment – if yes what is EIRR | | x | A required FS to be prepared by the local consultant to assess the EIRR of the subproject. |
| Is there a detailed worksheet for the EIRR | | x | As presented above |
| Is it linked to the traffic forecast | | x | As presented above |

## H. Summary

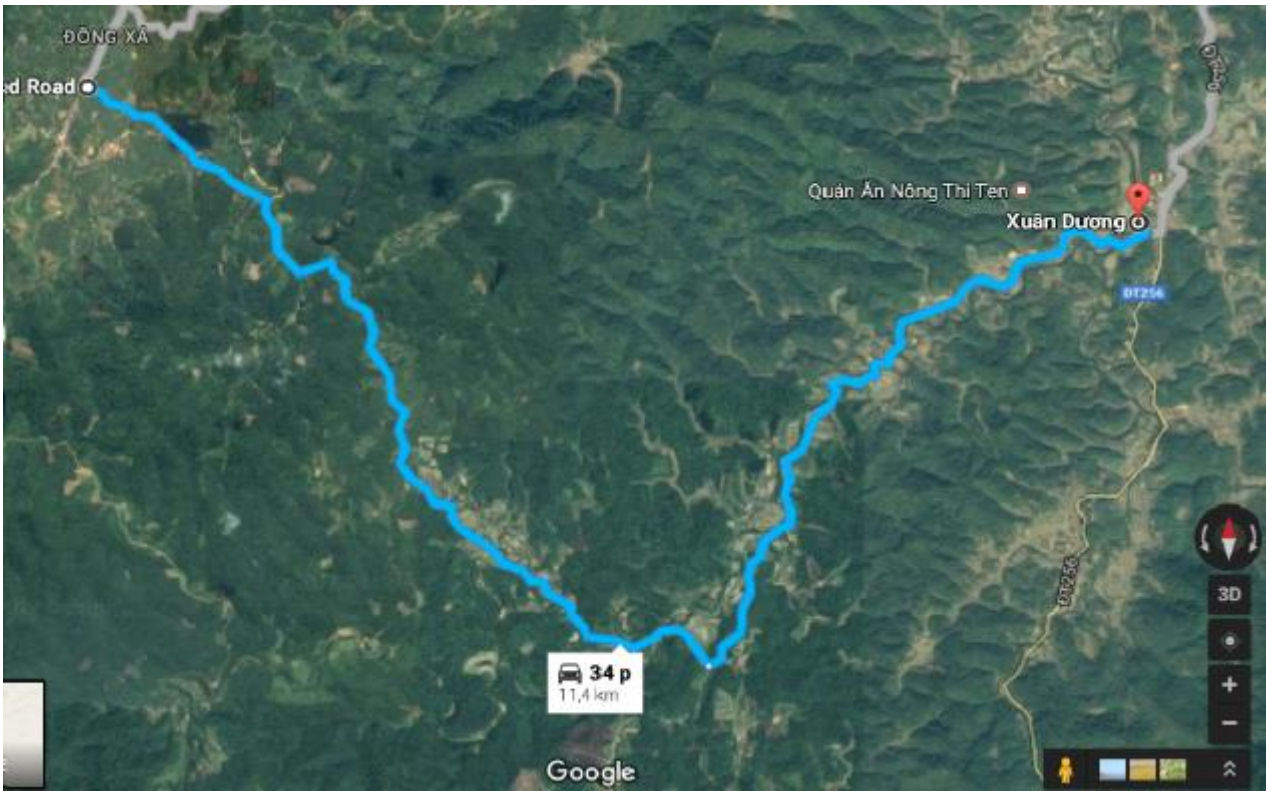
| Recommendation | Yes | No | Explanation or Outstanding Gaps |
|---|---|---|---|
| Is the subproject eligible by being part of Provincial plans | ✓ | | The subproject is considered eligible by being part of the SEDP and Transport Masterplan as well as FNEP Master Plan. This subproject is included in the MOU of Bac Kan & Lang Son DOT for inter-provincial connectivity dated 20 February 2017 |
| Is there a clear design standard that is justified | | x | Not yet, the FS will present the proposed design standard. |
| Are there outstanding approvals required | ✓ | | Requested<br>(i) confirmation of the protection or production forest areas for the new alignments of sections 2 and 3;<br>(ii) approval of the new alignments of sections 2 and 3;<br>(iii) change the new alignment of Dong Xa to Xuan Duong section by proposing the existing road section from Dong Xa to Xuan Duong communes. |
| Is there a preliminary design | | x | Not yet |
| Is there a Feasibility study | | x | Not yet |
| Is the Subproject category A for resettlement and affected persons | | x | As per the PPTA consultant's field visit to the subproject sites, the Subproject is classified under category B or C for minor resettlement and affected persons |
| Is the Subproject category A for environment | ?? | ?? | **Unknown requires DPI clarification**<br>As per the PPTA consultant's field visit to the subproject sites, the Subproject is classified under category B or C for environment |
| Does the Subproject have clear economic inclusiveness outcomes | ✓ | | As per the PPTA consultant's subproject field visit assessment, the Subproject has clear economic inclusiveness outcomes |
| Does the subproject have clear network connectivity benefits | ✓ | | As per the PPTA consultant's subproject field visit assessment, the Subproject has clear network connectivity benefits.<br>The subproject will provide additional linkages to Binh Gia and Trang Dinh Districts of Lang Son Province. These will provide economic development opportunities within the nearby areas. |
| Is the project expected to achieve a 9% EIRR | | x | Not yet |

## I. Road Maps and Photos




44. Section 1: (Yen Lac - Kim Lu Town road connecting with Hoa Tham - Quy Hoa - Vinh Yen road, Binh Gia district, Lang Son province):

45. Road Map Section 2: This existing road map is proposed by the PPTA consultant and was agreed by DPI. This upgrading and expanding of the existing road section Dong Xa – Xuan Duong commune will be included in the IP.




46. Section 3: Road Map Xuan Dương commune Na Ri district– Thien Long commune, Binh Gia district


LẠNG SƠN
BẮC KẠN
Unnamed Roa
ĐT256
Đường tỉnh 256
12 p
4,4 km
BẮC KẠN
BẮC KẠN
3D
Bản đồ
Google

## J. Road Chainage Photos

### 1. Section 1:

**47.** Yen Lac - Kim Lu Town road connecting with Hoa Tham - Quy Hoa - Vinh Yen road, Binh Gia district, Lang Son province):

Starting point Connection with NR3B

Go to Na Ri River

Hang bridge

Km 2+500

### 2. Section 2:

**48.** Dong Xa – Xuan Duong

Starting point of Dong Xa commune road

Quang Phong bridge L=58m, and Wdt=4m

Gravel earth road wdt =6,5m

Earth road with lots of potholes and rice field along the road

Residential house along the road

New alignment to the footpath to the hill forest with a bridge to be constructed over the Na Vang stream

Footpath through the forest

Proposed 4km new alignment through the forest to connect Xuan Duong commune on the other side of the forest

Nung EM household will be reallocated if the new alignment is approved to contract the road

Star anise near Nung EM HH

End point of Xuan Duong commune gravel road connecting with the proposed new alignment through the forest

Causeway under Bac Son suspension bridge over Na Ri river

New alignment through the forest to connect with the other side of the road

Bac Son suspension bridge over Na Ri river

### 3. Section 3:

49. Road Map Xuan Dương commune Na Ri district – Thien Long commune, Binh Gia district

Starting point Km51+700 PR 256 Xuan Duong - Thien Long

Km0+300

Km1+500

Km2+300

The Ending Point Km4+600 between Xuan Duong - Thien Long

Border Mark between Na Ri - Bac Kan and Binh Gia - Lang Son

# V. NGAN SON ROAD SUBPROJECT SCREENING REPORT TEMPLATE - ROADS

## A. Subproject Description

50. Rehabilitation and upgrade of the road connecting from the center of Thuong An commune, Ngan Son district of Bac Kan province with Hoa Tham commune, Nguyen Binh district of Cao Bang province.

(i) Starting Point: connecting with provincial road 251 at Km6+700 (in Na Pai village, Thuong An commune, Ngan Son district)

(ii) End Point: connecting with the inter-village road of Hoa Tham commune, Nguyen Binh district, Cao Bang province (in Phieng Chau village, Thuong An commune, Ngan Son district – border mark point between Cao Bang and Bac Kan).

(iii) Length (km+m): 10,5km

(iv) Existing alignment (km+m): Km0+0,00 to Km7+500, New alignment (km +m): from Km7+500 to Km10+500 but not approved yet

51. Current Road Categorization: gravel and earth mountainous road to be upgraded to Category VI with asphalt. The subproject comprises the following works: construct pavements, road surface, drainage works (bridges, culverts, spillways & causeways), protection works, traffic systems.

52. Proposed investment US$9.800.000 or $933,000/km – the PPTA view is that this is a high cost road that will be hard to justify

## B. Rationale

### 1. Current use

(i) The Road 251 - Hang Slau - Phieng Chao runs through 4 villages (Ban Slanh, Na Pai, Hang Slau and Phieng Chao hamlet - Hoa Tham commune), with a length of about 13-15km. The earth road section is 4m wide; the remaining section is the trail with 4km long. The rest has no trail. Beneficiaries include the people of the four above villages and the hamlets in the central area of Thuong An Commune, about 220 households.

(ii) This road is located in Thuong An commune, where there are two EM groups Tay and Dao with 450 households and more than 2,092 people. 100% of households are classified as poor. Access to Ngan Son district is extremely difficult, as while NH3 accesses the District the road remains in very poor condition and in difficult mountainous alignments. It is extremely inaccessible to these roads in the rainy seasons due to the very large vertical slopes and narrow road with abrupt cliff along the narrow gravel and mountainous road.

(iii) The economy of Thuong An is predominated by agriculture (cigarette, rice, corn, cassava and vegetables) and forestry (acacia, and pines…). The areas served by these roads are currently largely dependent upon agriculture livestock breeding.

There is potential for forestry development and expanding production of fruit trees and livestock. However, poor road conditions have hindered the development of these sectors, where EM farmers face the danger of low prices or even unsold products.

(iv) The road passes through three communes, whose population includes a number of ethnic minorities. The economy of the road's vicinity is mainly based on agriculture and forestry. Many of the population are subsistence farmers. Over 50% of households are poor.

(v) The area served by the road has potential for expanding forestry development, planting fruit trees and breeding livestock. However, at present farm production is constrained by poor road conditions. Poor road conditions have substantially increased transport costs. As a consequence, farmers often have to accept low prices for their produce, so there is no incentive at present to increase production.

(vi) Poor road conditions have also hindered access to schools (educational attainment levels are low), healthcare, outside employment and other opportunities.

(vii) This subproject road will therefore help alleviate poverty of residents in the area and help boost agricultural and forestry outputs.

**2. Future use**

(i) In addition to the social (poverty alleviation) and agricultural development rationales, this subproject also contributes to the overall development of the road network in Bac Kan and the FNEP region alike.

(ii) These roads will not only improve accessibility within Ngan Son district, Bac Kan province, but moreover will also provide additional linkages to Nguyen Binh District of Cao Bang Province. These will provide economic development opportunities within the nearby areas.

(iii) This subproject therefore has a significant social need.

## C. Findings

53. Rehabilitation and upgrade of the road connecting from the center of Thuong An commune, Ngan Son district of Bac Kan province with Hoa Tham commune, Nguyen Binh district of Cao Bang province. Starting Point: connecting with provincial road 251 at Km6+700 (in Na Pai village, Thuong An commune, Ngan Son district) and End Point: connecting with the inter-village road of Hoa Tham commune, Nguyen Binh district, Cao Bang province (in Phieng Chau village, Thuong An commune, Ngan Son district – border mark point between Cao Bang and Bac Kan). Total length of the proposed road is 10,5km.

54. The local consultant's proposed road length is 10.5km. However, according to Ngan Son district's new Rural Development Plan, the proposed road length is 14km in which from the starting point Km0 (Intersection with provincial road 251 At Km6+700) belongs to Na Pai village, Thuong An Village to Hang Slau suspension bridge is 8km.

55. The current road is gravel and earth with width of 4-5m. The road surface is in very poor condition, convexo-concave; many steep and continuous slope with 11%. The road goes over

two causeways at Km0+200 and Km2+100. One side is the cliff and the other is stream. The slope of 26-30 degrees is divided by the stream system.

56. In the Hang Slau area, there are a total of 34 households of which 26 poor households make up 76%. There is a school satellite for primary students. Total of 203 people. There is no electricity grid connected to the area.

57. This new alignment of 10,5km will involve high levels of agricultural and forest land acquisition, require 10 Tay and Dao EM households. The new alignment of 9km will involve high levels of agricultural and forest land acquisition, require relocating of 2 Nung EM households. The PPTA sought confirmation of the forest area classification.

58. To avoid substantial risks of resettlement and environment, the PPTA proposed that DPI select another new alignment, of which the slope / elevation of the new road goes along the river/stream/forest area is acceptable to according to the scale of grade VI mountainous roads according to TCVN 4054-2005.

| Subproject Road Name | Proposed by DPI | PPTA comments | DPI Conclusion |
|---|---|---|---|
| Start point<br>End point | Thuong An – Hoa Tham | Thuong An – Hoa Tham | Thuong An – Hoa Tham |
| Length | 10,5km: 7,5km Bn=3-4m; gravel and earth road; 3km new alignment goes through the forest to connect with Hoa Tham road | 8km from Km6+700 PR 251 to Hang Slau suspension bridge;<br>6km new alignment through the forest; extremely steep slope along the road (mountainous trail); lots of agricultural, public and forest land acquisition through forest areas<br><br>Requested to change the proposed new alignment as it involves much agricultural, public and forest land acquisition and the steep slope is extremely dangerous to build the road cat VI.<br><br>Confirmed whether the new alignment goes through the protection or production forest areas. | Agreed with the PPTA consultant's proposal and will coordinate with the district and commune authorities and local consultant to propose a new alignment where the slope/elevation of the new road goes along the river/stream/forest area is acceptable to according to the scale of grade VI mountainous roads according to TCVN 4054-2005 |
| Road cat | VI | Proposed cat VI to avoid resettlement and land acquisition | Agreed cat VI |
| Proposed works | 4 | One suspension bridge, 2 causeways | To be identified in the FS |

## D. Eligibility

| Criteria | Status | | Risk of Non-compliance and Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| 1: Include in SEDP – if yes state page and section number | ✓ | | The subproject is included in provincial SEDP and Ngan Son district SEDP.<br>Ngan Son DPC's medium term investment plan (2016-2020) including the road subproject. |

| Criteria | Status | | Risk of Non-compliance and Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| | | | The subproject will upgrade and improve the road connecting from the center of Thuong An Commune, Ngan Son district of Bac Kan province to Hoa Tham commune, Nguyen Binh district of Cao Bang province will contribute to poverty alleviation and increase EM people's incomes, providing good conditions to accelerate the program of building new rural areas, promoting sustainable socio-economic development of the province and especially the communes where the project passes through Ngan Son district and Nguyen Binh district, Cao Bang province. |
| 2: Included in DoT Master Plan – if yes state page and section | ✓ | | - Ensure the local and EM people's travel and movement throughout the four seasons and transport of goods in the project area and adjacent areas to the district center and provincial capital. Especially, the traffic connection develops tourism and enhances the ability of traffic when Highway No.3 is blocked by traffic at Tai Ho Sin pass and Cao Bac pass due to natural disasters. |
| 3: Proposed design concept exists – if yes state date of proposal | ✓ | | Document No. 2092/QD-UBND dated 20 December 2016 of the provincial People's Committee approving the list of subprojects proposed investment under the project "Basic Infrastructure for Inclusive Growth in the Northeastern Provinces Sector Project: Ha Giang, Cao Bang, Bac Kan, Lang Son" funded by ADB |
| 4: Proposed design standard identified – if yes what standard, what is the projected economic life of the subproject | ✓ | | The road subproject will be constructed according to the scale of grade VI mountainous roads according to TCVN 4054-2005 |
| 5: Proposed design standard derived from (i) plan, (ii) traffic forecast, (iii) traffic forecast plus network efficiency (iv) what is the current road standard on each end point or network connection now and planned | | x | The proposed designed standard is derived from the provincial and district transport masterplan for districts.<br><br>The current road standard on each end point is rural road A and the network connection now and planned is Cat VI towards 2030. |
| 6: Is the date of traffic forecast or base traffic forecast after 2015 | | x | Not yet |
| 7: Is traffic forecast consistent with Road Categorization – if yes – at project start, at the economic life of the subproject | | x | Not yet |
| 8: Is there a preliminary design document with supporting engineering field surveys and drawings – if yes what is the date of these, what design standard is used. | ✓ | | Not yet |
| 9: Is the Preliminary design already approved by DoT | | x | Not yet |
| 10: Is the preliminary design already approved by PPC | | x | Not yet |
| 11: Is there a bill of quantities with the preliminary design | | x | Not yet |
| 12: Is there a cost estimate – if yes is there a supporting bill of quantity and what is the date for the costing | | x | Not yet |
| 13: Are there significant structures required – if yes please identify | | x | Not yet |

| Criteria | Status | | Risk of Non-compliance and Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| 14: Are there significant cut and fill requirements – if yes please provide an estimate of the extent | | x | Not yet |
| 15: is the current Right of Way sufficient for the proposed or required road design | | x | Not yet |

## E. Safeguard Compliance

| Safeguard | Screening Issue | Yes | No | Explanation and Assessed Risks |
|---|---|---|---|---|
| A: Resettlement | Land Acquisition | | | Extent – minor, substantial |
| A.1 Land Acquisition | Agriculture Land | ✓ | | substantial |
| | Urban Public Land | | x | No |
| | Urban Private Land | | x | No |
| A.2 Structures | Private houses | ✓ | | minor |
| | Private other | ✓ | | minor |
| | Public Structures | ✓ | | extent |
| A.3 | Other Assets | ✓ | | minor |
| A.4 | Resettlement – if yes number of households identified | ✓ | | Based on the PPTA consultant's field visit there will be from 3 to 5 households who will be severely affected by the subproject (either loss of their residential and agricultural land or to be relocated |
| A.5 | Is there a Land Acquisition and compensation budget – if yes how much | ✓ | | Ngan Son district proposed 2 billion VND counterpart fund for resettlement if required. |
| B: Environmental Screening | | | | |
| B.1 Forests - are there any of the following along the alignment of within close proximity – if yes is the risk significant | Production forest land | ✓ | | Extent |
| | Protection forest land | | ? | Requested to recheck and confirmed by DPI |
| | Protected areas | ✓ | | Requested to recheck and confirmed by DPI |
| B.2 Water, rivers lakes and flood plain | Are there any areas affected by the existing or proposed alignments? If yes how significant are they | ✓ | | Yes, the new alignments will go along or over rivers, streams and flood plain streams. |
| B.3 Does the proposal include any IEE screening | | | x | The proposed road subproject doesn't have any IEE screening |

| Safeguard | Screening Issue | Yes | No | Explanation and Assessed Risks |
|---|---|---|---|---|
| B.4 Did the field visit identify issues form EARF that need to be addressed | | ✓ | | Request to recheck the protection forest areas where the new alignments are proposed to go through and resettlement issues. |
| B.5 New Alignments | Risk of land slips | ✓ | | The new alignment is proposed to go along or over the river, stream... |
| | Risk of Large cuts | ✓ | | As presented above |
| | Water course disruption | ✓ | | As presented above |
| | Flood Plain Disruption | ✓ | | As presented above |

## F. Social Considerations

| Criteria | Yes /No | Explanation and Assessed Risk |
|---|---|---|
| Are communes identified and named | Yes | If yes please list communes<br>3 communes: Thuong An, Coc Dan, Bang Van |
| Is the population data available | Ngan Son district total population as of 2016 is 30,355 and the subproject will directly benefit Coc Dan commune (2,065 people), Bang Van commune (2,827 people) and Thuong An commune (2,560 people) | Very high percentage of the rural population (23,817) and EM population (28,888 equivalent to 95,17%) and high poverty rate |
| Is the number of Poor households available | Not yet | DPI and local consultants will coordinate with district and commune authorities and offices (social, financial and economic infrastructure) to provide updated data.<br>Minor risk |
| Is the number of near poor households available | Not yet | As presented above |
| Are Ethnic minorities identified and specified | Not yet | As presented above |
| Is land use specified | Not yet | As presented above |
| Are the number of female headed households specified | Not yet | As presented above |
| Is the GAP adequately reflected | Not yet | As presented above |

## G. Economic Assessment

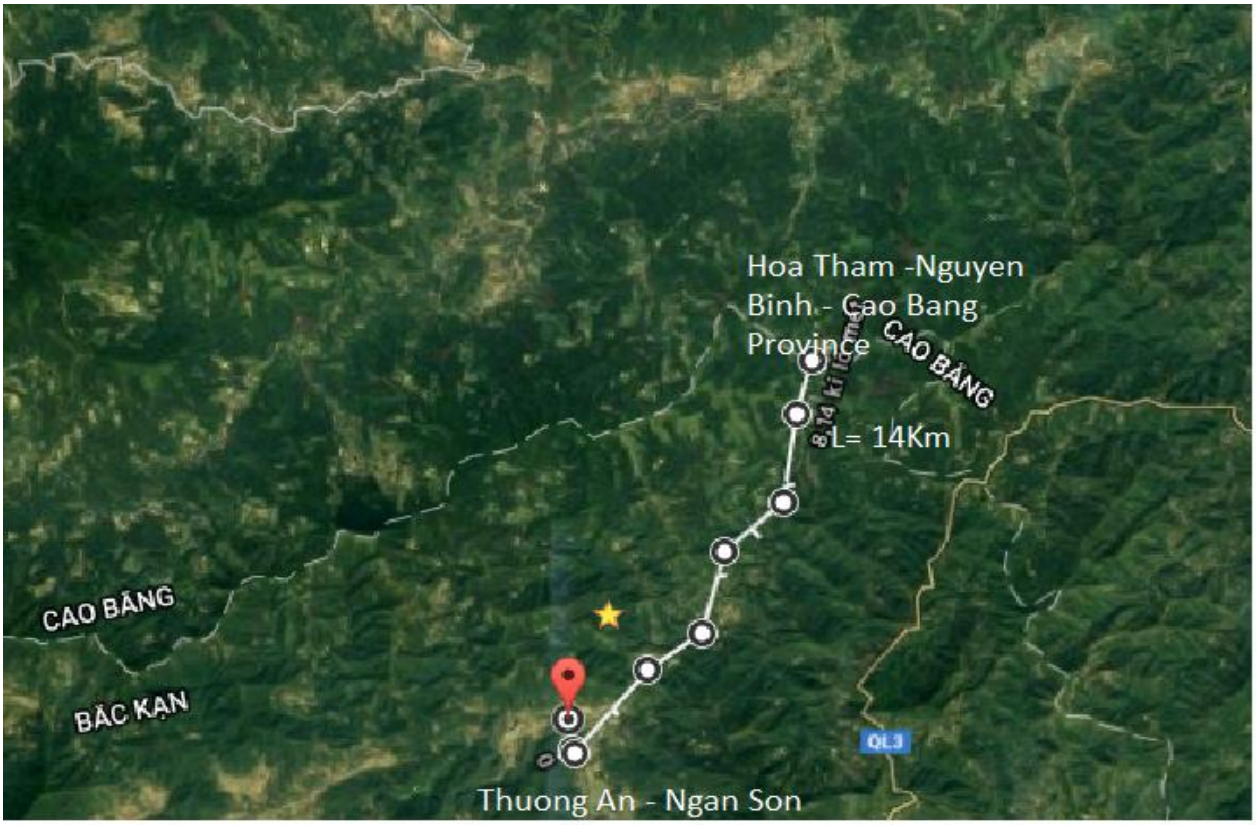
| Criteria | Yes | No | Explanation and Assessed Risk |
|---|---|---|---|
| Is there an economic assessment – if yes what is EIRR | | x | A required FS to be prepared by the local consultant to assess the EIRR of the subproject. |
| Is there a detailed worksheet for the EIRR | | x | As presented above |
| Is it linked to the traffic forecast | | x | As presented above |

## H. Summary

| Recommendation | Yes | No | Explanation or Outstanding Gaps |
|---|---|---|---|
| Is the subproject eligible by being part of Provincial plans | ✓ | | The subproject is considered eligible by being part of the SEDP and Transport Materplan as well as FNEP Master Plan. |
| Is there a clear design standard that is justified | | x | Not yet, the FS will present the proposed design standard. |
| Are there outstanding approvals required | ✓ | | Requested (i) confirmation of the protection or production forest areas for the new alignment; (ii) change the new alignment from Hang Slau suspension bridge to go along Ta Cay River to connect with Hoa Tham commune, Nguyen Binh district, Cao Bang province due to the extreme elevation points and slope and footpath along the cliff up mountain |
| Is there a preliminary design | | x | Not yet |
| Is there a Feasibility study | | x | Not yet |
| Is the Subproject category A for resettlement and affected persons | | x | As per the PPTA consultant's field visit to the subproject sites, the Subproject is classified under category B or C for minor resettlement and affected persons |
| Is the Subproject category A for environment | ?? | ?? | **Unknown requires DPI clarification**<br>As per the PPTA consultant's field visit to the subproject sites, the Subproject is classified under category B or C for environment |
| Does the Subproject have clear economic inclusiveness outcomes | ✓ | | As per the PPTA consultant's subproject field visit assessment, the Subproject has clear economic inclusiveness outcomes |
| Does the subproject have clear network connectivity benefits | ✓ | | As per the PPTA consultant's subproject field visit assessment, the Subproject has clear network connectivity benefits.<br>The subproject will provide additional linkages to Nguyen Binh District of Cao Bang Province. These will provide economic development opportunities within the nearby areas. |
| Is the project expected to achieve a 9% EIRR | | x | Not yet |

## I. Road Maps and Photos

59. Thuong An – Hoa Tham Road Map:


Hoa Tham -Nguyen Binh - Cao Bang Province
CAO BẰNG
L= 14Km
CAO BẰNG
BẮC KẠN
QL3
Thuong An - Ngan Son

## J. Road Chainage Photos

### 1. Section 1: Thuong An – Ngan Son district– Hoa Tham – Quy Hoa – Nguyen Binh district:

Starting point Km0

Electric Staion at Km0

Hang SLau bridge Km8+00

Km8+500

Km10+00: Tay/Dao EM HHs along the road

Km12+00

Km9+00

View to End ding Point (Hoa Tham)

## VI. VAN TUNG WATER SUPPLY SUBPROJECT

### A. Name

60. Water Supply Network for Van Tung commune, Ngan Son district, Bac Kan province

### B. Description

#### 1. Scale of proposed scheme

(i) Number of networks or schemes if bundled: 01 (Water Supply Network for Van Tung commune, Ngan Son district, Bac Kan province)
(ii) Number of communes/rural towns: 01, Van Tung commune
(iii) Total Population per commune or town and for each scheme: 3,393 people
(iv) Total Number of Households per commune. Town and scheme: 810 households in 2015 and 852 household in 2020.
(v) Forecast number of household connections – at scheme capacity and project completion date: 80% at scheme capacity and 100% in completion date
(vi) Proportion of HH in each commune that will be connected: 100%
(vii) Volume of water to be supplied per day ($m^3$/day): 1,000$m^3$/day in 2015 - 2020 and 1,500$m^3$/day in 2030.

#### 2. Proposed works

(i) Water source infrastructure:
  (a) Surface stream water weir
  (b) Main pipeline HDPE and/or steel pipe
(ii) Water treatment infrastructure:
  (a) 01 Chemical-based water treatment plant
(iii) Water Conveyance infrastructure
  (a) Elevated tank capacity:
  (b) Network – for each network state the length of pipe and number of connections:
  (c) Raw water pipe: total length is 1,092m
  (d) Distribution water pipe: total length is 3,620m

(e) Service supply water pipe: total length is 1,8726m

61. Proposed investment $ total: $1.18 million (approximate. 26 Billion VND) or $870 per connection

## C. Rationale

### 1. Stated need

(i) Current water sources: Surface water from Hat stream
(ii) Future water sources: Surface water from Mo Lang stream combination with Hat stream
(iii) Reliability of water sources – annual and seasonal reliability confirmed
(iv) Quality of current water sources: in dry season water quality is acceptable but in rainy season, TSS ingredient and total suspended solids in water is high
(v) Level of water services – hours per day: 24
(vi) Current cost of existing water sources/access as share of household income:
(vii) Time to access water – currently by gender: 5 hours
(viii) Health – water related data: Minor,
(ix) Social Benefits ethnic minorities, female headed households, elderly and females can use clean hygiene water.

## D. Findings

### 1. Existing water supply scheme:

(i) Capacity:
- Design capacity: 1,100$m^3$/day (Ngan Son water supply plant)
- At present, there is only 300$m^3$/day can be provided from existing water system (about 32% of water demand);

(ii) Water storage: There is deficit of water supply because of small volume of water treatment storage tank. Discontinuing of water pump from natural stream in 1 or 2 day caused losing of water in whole system.
(iii) Water loss in system is accounting for 50% because of equipment and facilities are degraded (main pipe for raw water, water treatment facilities, distribution pipeline etc.). Upgrade the existing water supply network is highly required
(iv) Surface water source in Hat stream:
- Water quality: TSS ingredient and total solid particle in water is high, especially in flood flow; Contamination of water appeared because of waste water discharge in upstream.
- Water quantity: Deficit of water flow in dry season. Therefore, water supply is being affected. In some case, water system cannot operate because of minimum water flow in stream is too small.
- Impact of climate change on hydrological drought flow in stream: minimum water flow in dry season is decreasing and peak flow in rainy season is increasing. Detail of climate change impact to hydrological flow has to be analyzed and estimated.

**2. Proposed water supply scheme:**

(i) Proposed surface water source in Mo Lang stream: New water source is being proposed in Mo Lang stream. Expanding of current weir is necessity. However, a weir is located in forest area that may be affected by environmental requirement, then determination of forest type (protected, protection forest, production forest) is required for classification. Weir dimension in concept design: height 3 -5m, length 8 -10m

(ii) Water supply: for household and office at Van Tung commune (future will become Van Tung town)

(iii) Water demand: Water demand in Van Tung commune is increasing. Population in the commune was increasing from 3,325 in 2010 to 3,048 people in 2015. Conforming to Master Plan, population in Van Tung commune will be 5,156 in 2020 and 8,520 people in 2030. Water consuming is increasing from 80 to 100 litter per day-head.

| Subproject Water Supply Name | Proposed by DPI | PPTA comments | Conclusion |
|---|---|---|---|
| Water source | Proposing new surface water source from Mo Lang stream | Confirmed | Will be presented in FS |
| Water quantity | Not be mentioned | Water quantity has to be analyzed, especially in case of climate change impact | Will be presented in FS |
| Water quality | Water quality test for new water sources is not available | Water quality test will be conducted with 29 indicator, following standard QCVN 01: 2009/BYT | Will be presented in FS |
| Location of weir in Mo Lang stream | Not be mentioned | Location of Mo Lang stream is located in forest. DPI should determine the type of forest and provide map relating to location of weir which will be planned to construct | Map of forest planning will be presented in FS |
| Review the previous technical design of water source structure | Not be mentioned | Review the previous technical design of water source structure will be done in order to determine hydrological flow in dry and rain seasons, dimension of upstream weir and main water pipe | Will be presented in FS |
| Combination of Water supply systems | Not be mentioned | Combination of existing water supply and new planning water supply should be done | Will be mentioned in FS |

## E. Eligibility

| Criteria | Status | | Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| 1: Include in SEDP – if yes state page and section number | ✓ | | When the project is completed and put into operation, it will create a favorable infrastructure to promote sustainable socio-economic development |
| 2: Included in Sector Plan – if yes state page and section | ✓ | | |
| 3: Proposed design concept exists – if yes state date of proposal | ✓ | | December 2016 |
| 4: Proposed design standard identified – if yes what standard, what is the projected economic life of the subproject | ✓ | | National Vietnamese Standard: QCVN 01: 2009/BYT |
| 5: Proposed design standard derived from (i) plan, (ii) demographic forecast, (iii) demographic forecast plus migration, (iv) includes institutional demand, (v) demand set for 2030 or beyond, (vi) daily demand standards | ✓ | | Plan |
| 6: is the date of demand set for at least 2030 | ✓ | | |
| 7: Is demand forecast consistent with the scheme design supply volumes at the economic life of the subproject – minimum of 2030 | ✓ | | 1,000$m^3$/day in 2020 and 1,500$m^3$/day in 2030 |

| Criteria | Status | | Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| 8: Is there an established demand for a water supply scheme through a social survey | | X | |
| 9: Is a concept or preliminary engineering design available | ✓ | | Concept design is available, consisting of design of weir, water pipe, water treatment plant and distribution system |
| 10: Is the preliminary design already approved by commune, district or PPC | | X | |
| 11: Is there a bill of quantities with the preliminary design | ✓ | | Bill of quantities was mentioning with construction of weir, main raw water pipe, water treatment plant, water pipe distribution |
| 12: Is there a cost estimate – if yes is there a supporting bill of quantity and what is the date for the costing | ✓ | | Cost estimate is based on BOQ. Date for costing was in the end of 2016 |
| 13: Are there significant structures required – if yes please identify | ✓ | | Collected water weir, main pipe network, elevated storage pond, water treatment plant, distribution water pipe |
| 14: is the water source confirmed in terms of annual availability, monthly availability | ✓ | | Detail of annual availability, monthly availability was not mentioned in detail. FS will describe in detail in term of hydrological analyzing. |
| 15: is there approval to use the water source | | X | Approval of surface water use was not be issued |
| 16: Are there water quality tests for the proposed water source | | X | Water quality tests are unavailable. Those tests will be undertaken as requirement |

## F. Safeguard Compliance

| Safeguard | Screening Issue | Yes | No | Explanation and Assessed Risks |
|---|---|---|---|---|
| A: Resettlement | Land Acquisition | ✓ | | |
| A.1 Land Acquisition | Agriculture Land | | X | |
| | Urban Public Land | ✓ | | Land for construction of new elevated tanks capacity 1,500$m^3$ |
| | Urban Private Land | | X | |
| A.2 Structures | Private houses | | X | |
| | Private other | | X | |
| | Public Structures | | X | |
| A.3 | Other Assets | | X | |
| A.4 | Resettlement – if yes number of households identified | | X | |
| A.5 | Is there a Land Acquisition and compensation budget – if yes how much | | X | |
| B: Environmental Screening | | | | |

| Safeguard | Screening Issue | Yes | No | Explanation and Assessed Risks |
|---|---|---|---|---|
| B.1 water source and network effect on forests<br>- are there any of the following along the alignment of within close proximity – if yes is the risk significant | Production forest land | ✓ | | DPI is to provide in detail sector-Plan relating to forest land planning to conform with Environmental requirement |
| | Protection forest land | ✓ | | DPI is to provide in detail sector-Plan relating to forest land planning to conform with Environmental requirement |
| | Protected areas | | X | |
| B.2 Water, rivers lakes and flood plain | Are in-stream value affected, will minimum in stream flows be adhered to how significant are they | | X | |
| B.3 Does the proposal include any IEE screening | | | X | |
| B.4 Did the field visit identify issues form EARF that need to be addressed | | ✓ | | |
| B.5 Water source catchment protection issues | Is the catchment of the water source at risk from climate change | ✓ | | Deficit water flow in dry season has to be analyzed |
| | Risk from contamination from human settlement or livestock | | X | |
| | Risk of deforestation | | X | |

## G. Social Considerations

| Criteria | Yes /No | Explanation and Assessed Risk |
|---|---|---|
| Are communes identified and named | Yes | Van Tung commune in Ngan Son district |
| Is the population data available for each commune, township | Yes | |
| Is the number of Poor households available | Yes | |
| Is the number of near poor households available | Yes | |
| Are Ethnic minorities identified and specified | Yes | |
| Is land use specified | Not Yet | |
| Are the number of female headed households specified | Not Yet | |
| Is the GAP adequately reflected | Not Yet | |

## H. Economic Assessment

| Criteria | Yes | No | Explanation and Assessed Risk |
|---|---|---|---|
| What is the cost per connection at 100% of design capacity and at project completion | ✓ | | $870 – High maybe marginal in affordability |
| Does the cost per connection exceed $900 | | X | |
| Is the scheme owner and operator identified | ✓ | X | |
| Is a tariff reported | ✓ | X | |
| Does the tariff based cost of water exceed 5% of household income for the median income of the communes, and for the lowest quartile of household incomes | | X | |
| Will the tariff exclude poor and near poor households on affordability criteria of 5% of household income | ✓ | | |
| Is there a financial assessment of the water supply scheme | | X | |
| Are scheme benefits clearly identified by category of benefit | | X | |
| Is each benefit quantified | | X | |
| Is there an economic assessment – if yes what is EIRR | | X | |
| Is there a detailed worksheet for the EIRR | | X | |

## I. Summary

| Recommendation | Yes | No | Explanation or Outstanding Gaps |
|---|---|---|---|
| Is the subproject eligible by being part of Provincial plans | ✓ | | Conforming to Bac Kan Master Plan and Ngan Son Development Master Plan (No. 81a/KH-UBND dated 31 October 2011) |
| Is there a clear design standard that is justified | ✓ | | QCVN 01: 2009/BYT |
| Are there outstanding approvals required | ✓ | | |
| Is there a preliminary design | ✓ | | |
| Is there a Feasibility study | | X | |
| Is sufficient data on the availability of water provided | | X | Water quantities assessment is required by a FS to be prepared by the local consultant for the subproject. |
| Is there sufficient data on water quality | | X | Water quality test is to be required with 29 indicators, following standard QCVN 10: 2009/BYT |
| Is the Subproject category A for resettlement and affected persons | | X | |
| Is the Subproject category A for environment | | X | |
| Does the Subproject have clear economic inclusiveness outcomes | ✓ | | |

| | | | |
|---|---|---|---|
| Does the subproject have clear network connectivity benefits | ✓ | | |
| Is the project expected to achieve a 9% EIRR | | X | |
| Who will manage the scheme and are they linked to a municipal or rural town operator | ✓ | | Cooperative of clean water supply and hygienic environment<br>- Concerns about technical capacity and viability |
| Is the scheme an expansion of an existing municipal and or rural town supply – if yes, are they required to on lend from the PPC? | | X | |

## J. Water Supply Photo and Location

Current main water source for Van Tung commune from natural stream Hat

Water treatment plant in Van Tung

Current 03 infiltration water treatment tanks in Van Tung water treatment plant

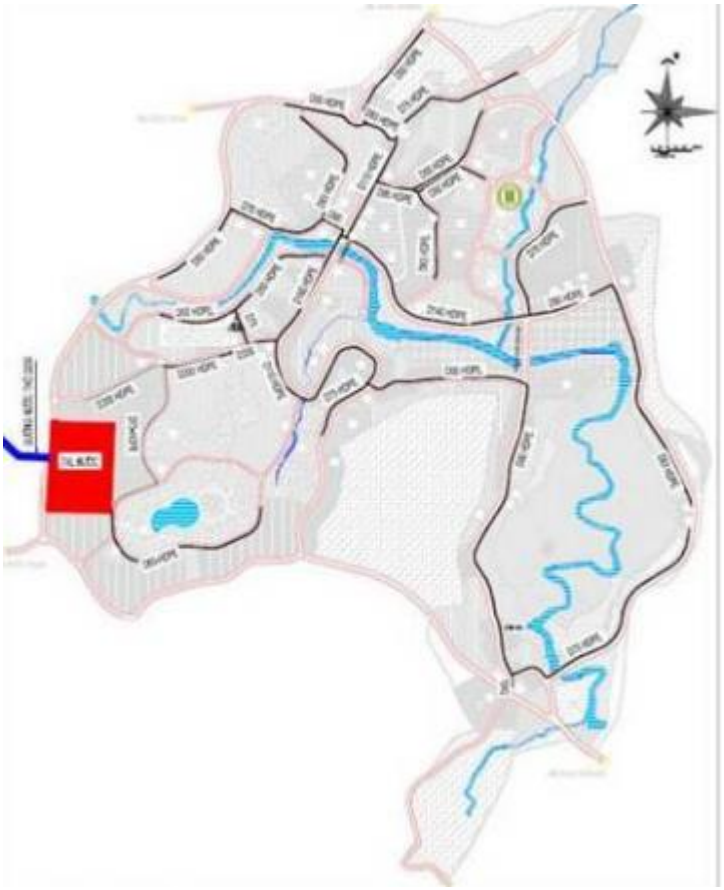

High pressure infiltration tank with capacity 4,500 litter, installed in 2004

Water treatment equipment is downgraded

Proposed location for construction of elevated water storage

Local people are using natural water without treatment


Basic design of water network including weir, main pipeline, water treatment plant



Basic design of water network for Van Tung water supply distribution

Mo Lang surface water stream source in Van Tung commune

# VII. CHO MOI AND BACH THONG WATER SUPPLY SUBPROJECT

## A. Name

62. Widening Water Supply Network of Cho Moi district and Phu Thong township, Bach Thong district, Bac Kan province.

## B. Description

### 1. Scale of proposed scheme

(i) Number of networks or schemes if bundled: 02

- Network 1: Widen water supply network of Cho Moi district
- Network 2: Widen water supply network of Phu Thong township, Bach Thong district

(ii) Network 1: Widen water supply network of Cho Moi district

- Number of communes/rural towns: 03, including Cho Moi township, Yen Dinh and Thanh Binh communes
- Total Population per commune or town and for each scheme: 8,694 people including 3,414 people in Cho Moi township, 2,981 people in Yen Dinh commune and 2,299 people in Thanh Binh communes
- Total Number of Households per commune. Town and scheme: 1,738 households
- Forecast number of household connections – at scheme capacity and project completion date: 80% at scheme capacity and 95% in completion date
- Proportion of HH in each commune that will be connected: 100% in Cho Moi township, 95% in Yen Dinh commune and 60% in Thanh Binh commune
- Volume of water to be supplied per day ($m^3$/day): 4,550

(iii) Network 2: Widen water supply network of Phu Thong township, Bach Thong district

- Number of communes/rural towns: 03, including Phu Thong township, one village of Phuong Linh commune and one village of Tu Chi commune.
- Total Population per commune or town and for each scheme: 2,000 people
- Total Number of Households per commune. Town and scheme: 488 households
- Forecast number of household connections – at scheme capacity and project completion date: 95%
- Proportion of HH in each commune that will be connected: 95%
- Volume of water to be supplied per day ($m^3$/day): 1,300

### 2. Proposed works

(i) Water source infrastructure:

- In Cho Moi district: Surface river water collection pond and pumping station near Cho Chu river
- In Phu Thong township: Surface river water collection pond and pumping station near Khuoi Tau reservoir

(ii) Water treatment infrastructure:
- 01 Chemical-based water treatment plant in Cho Moi district
- 01 Chemical-based water treatment plant in Phu Thong township

(iii) Water Conveyance infrastructure
- Pumping/gravity: Electrical pump capacity: 1,000$m^3$/day in Cho Moi and 1,000$m^3$/day in Phu Thong township
- Network – for each network state the length of pipe and number of connections

63. Proposed investment $ total: $1.17 million (approx. 26 Billion VND): $450 to $600/connection

## C. Rationale

### 1. Stated need network 1

(i) Existing water supply with water source from ground water capacity 3,650$m^3$/day is providing for 80% local people in town area and 50% for rural area. In some villages, local people is using other water source (natural, swallow well…) because of pipeline is not available

(ii) There are 7 villages in Thanh Binh commune is not use water from water supply network because of pipeline is not available

(iii) In the future while Thanh Binh Industry zone with more than million workers is in operation, water demand will be increased double but current water source cannot fulfill. This is required to find other water source such as raw surface water from Cau river as well as water treatment plant/water pipeline distribution

(iv) Current water sources: Ground water

(v) Future water sources: surface water from Cho Chu river and ground water
- Reliability of water sources – annual and seasonal reliability: Yes
- Quality of current water sources: satisfy
- Level of water services – hours per day: 18
- Current cost of existing water sources/access as share of household income
- Time to access water – currently by gender: 5 hours
- Health – water related data

(vi) Network benefits
- Social Benefits – who will benefit most, how will poor or marginalized benefit, benefit to ethnic minorities, female headed households, young, elderly and females: ethnic minorities, female headed households, elderly and females can use clean hygiene water

### 2. Stated need network 2

(i) Existing water supply with water source from ground water capacity 500m$^3$/day is providing for 50% local people in town area and 30% for rural area. In some villages, local people is using other water source (natural, swallow well…) because of pipeline is not available

(ii) Water quality in one drilled well which located nearby Phu Thong Hospital is downgraded. The local authority has to close this well in order to maintain water quality in whole water network pipeline n

(iii) Pump and pipeline from surface water source in Khuoi-Tau reservoir is damaged that cannot be used.

(iv) Treated water quality is affected due to downgraded of equipment in water treatment plant.

(v) There are requirements of upgrade and raising supply capacity of water source and water pipeline network.

- Current water sources: Ground water
- Future water sources: surface water from Khuoi Tau reservoir and existing ground water from 02 wells
- Reliability of water sources – annual and seasonal reliability: Yes
- Quality of current water sources: satisfy
- Level of water services – hours per day: 12
- Current cost of existing water sources/access as share of household income
- Time to access water – currently by gender: 5 hours
- Health – water related data

(vi) Network benefits

- Social Benefits – who will benefit most, how will poor or marginalized benefit, benefit to ethnic minorities, female headed households, young, elderly and females: ethnic minorities, female headed households, elderly and females can use clean hygiene water

## D. Findings

### 1. Network 1: Widen water supply network of Cho Moi district

| Subproject Water Supply Name | Proposed by DPI | PPTA Comments | Conclusion |
|---|---|---|---|
| Using surface water | New construction of water collection pond near Cho Chu river | - Confirmed<br>- Water quality tests of raw surface water have to be made<br>- Low flow of Cho Chu river in dry season have to be analysed, considering with climate change condition | Confirmed<br>Will confirm in their FS |

| Subproject Water Supply Name | Proposed by DPI | PPTA Comments | Conclusion |
|---|---|---|---|
| New construction of pumping station | New construction of pumping station near Cho Chu river, main pipe, water treatment plant for raw surface water and elevated pond | Confirmed<br>Design elevation of pump base should be considered with peak flooding flow of Cho Chu river, considering with climate change condition | Confirmed<br>Will confirm in their FS |
| Pipeline | Widen pipeline network | Pipeline from exiting elevated pond and new surface water elevated pond to 7 villages in Thanh-Binh commune should be mentioned in FS and basic design | Will confirm in their FS |
| Water distribution for rural villages | | Villages located far from elevated clean water pond should be provided with pipeline network and auxiliary pumps | Will confirm in their FS and basic design |

## 2. Network 2: Widen water supply network of Phu Thong Township, Bach Thong district

| Subproject Water Supply Name | Proposed by DPI | PPTA Comments | Conclusion |
|---|---|---|---|
| Using surface water | New construction of pumping station, main pipe from Khuoi Tau reservoir to water treatment plant in Phu Thong town | Confirmed<br>Water quality test for surface water extract from reservoir should be undertaken | Confirmed<br>Will confirm in their FS |
| Using ground water | Using existing 02 drilled wells | Confirmed<br>PPC to control ground water extract by individual household | Confirmed |
| Water quality with fluctuation of Chlorine component | | Water treatment plant should be upgraded to control Chlorine component in water treated distribution | Will confirm in their FS |
| Water use by local people | | Introduction of use clean hygiene water from water supply system should be done to local people to raise number of HH using clean water from 20% at present to 95% in completion date | Will confirm in their FS |

## E. Eligibility

| Criteria | Status | | Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| 1: Include in SEDP – if yes state page and section number | ✓ | | When the project is completed and put into operation, it will create a favorable infrastructure to promote sustainable socio-economic development for the people in 07 communes of Coc Po, Cho Moi, Yen Dinh, Thanh Binh, in Cho Moi district and Phu Thong, Phuong Linh and Tu Chi communes in Bach Thong district, Bac Kan province and adjacent areas. |
| 2: Included in Sector Plan – if yes state page and section | ✓ | | Decision No. |
| 3: Proposed design concept exists – if yes state date of proposal | ✓ | | Document No. 472/QD-UBND dated 4/4/2016 of the provincial People's Committee approving the list of subprojects proposed investment under the project "Basic Infrastructure for Inclusive Growth in the Northeastern Provinces Sector Project: Ha Giang, Cao Bang, Bac Kan, Lang Son" funded by ADB |
| 4: Proposed design standard identified – if yes what standard, what is the projected economic life of the subproject | ✓ | | National Vietnamese Standard: QCVN 01: 2009/BYT |
| 5: Proposed design standard derived from (i) plan, (ii) demographic forecast, (iii) demographic forecast plus migration, (iv) includes institutional demand, (v) demand set for 2030 or beyond, (vi) daily demand standards | ✓ | | |
| 6: is the date of demand set for at least 2030 | ✓ | | |
| 7: Is demand forecast consistent with the scheme design supply volumes at the economic life of the subproject – minimum of 2030 | ✓ | | 4,550$m^3$/day for Cho Moi scheme<br>1,300$m^3$/day for Phu Thong scheme |
| 8: Is there an established demand for a water supply scheme through a social survey | | X | Not yet |
| 9: Is a concept or preliminary engineering design available | ✓ | | |
| 10: Is the preliminary design already approved by commune, district or PPC | | X | Not yet |
| 11: Is there a bill of quantities with the preliminary design | | X | Not yet |
| 12: Is there a cost estimate – if yes is there a supporting bill of | ✓ | | |

| Criteria | Status | | Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| quantity and what is the date for the costing | | | |
| 13: Are there significant structures required – if yes please identify | ✓ | | Collected water pond, pumping station, pipe network, elevated pond, water treatment plants |
| 14: is the water source confirmed in terms of annual availability, monthly availability | ✓ | | |
| 15: is there approval to use the water source | | X | Not yet |
| 16: Are there water quality tests for the proposed water source | | X | Not yet |

## F. Safeguard Compliance

| Safeguard | Screening Issue | Yes | No | Explanation and Assessed Risks |
|---|---|---|---|---|
| A: Resettlement | Land Acquisition | | X | Minor in Cho Moi scheme |
| A.1 Land Acquisition | Agriculture Land | | X | |
| | Urban Public Land | | X | |
| | Urban Private Land | | X | |
| A.2 Structures | Private houses | | X | |
| | Private other | | X | |
| | Public Structures | | X | |
| A.3 | Other Assets | | | |
| A.4 | Resettlement – if yes number of households identified | | X | |
| A.5 | Is there a Land Acquisition and compensation budget – if yes how much | ✓ | | One billion VND |
| B: Environmental Screening | | | | |
| B.1 water source and network effect on forests<br>- are there any of the following along the alignment of within close proximity – if yes is the risk significant | Production forest land | | X | |
| | Protection forest land | | X | |
| | Protected areas | | X | |

| Safeguard | Screening Issue | Yes | No | Explanation and Assessed Risks |
|---|---|---|---|---|
| B.2 Water, rivers lakes and flood plain | Are in-stream value affected, will minimum in stream flows be adhered to how significant are they | | X | |
| B.3 Does the proposal include any IEE screening | | | X | |
| B.4 Did the field visit identify issues form EARF that need to be addressed | | ✓ | | |
| B.5 Water source catchment protection issues | Is the catchment of the water source at risk from climate change | ✓ | | Flow in dry season may be affected by discharge and sedimentation in flood season may be increased |
| | Risk from contamination from human settlement or livestock | | X | |
| | Risk of deforestation | | X | |

## G. Social Considerations

| Criteria | Yes/No | Explanation and Assessed Risk |
|---|---|---|
| Are communes identified and named | Yes | + Coc Po, Cho Moi township, Yen Dinh and Thanh Binh commune<br>+ Phu Thong township and one village in Phuong Linh commune, one village in Tu Chi commune |
| Is the population data available for each commune, township | Yes | |
| Is the number of Poor households available | Not Yet | DPI and local consultants will coordinate with district and commune authorities and offices (social, financial and economic infrastructure) to provide updated data.<br>Minor risk |
| Is the number of near poor households available | Not Yet | As presented above |
| Are Ethnic minorities identified and specified | Not Yet | As presented above |

| | | |
|---|---|---|
| Is land use specified | Not Yet | As presented above |
| Are the number of female headed households specified | Not Yet | As presented above |
| Is the GAP adequately reflected | Not Yet | As presented above |

## H. Economic Assessment

| Criteria | Yes | No | Explanation and Assessed Risk |
|---|---|---|---|
| What is the cost per connection at 100% of design capacity and at project completion | ✓ | | $450 and $600 |
| Does the cost per connection exceed $900 | | X | |
| Is the scheme owner and operator identified | ✓ | | Bac Kan Water Supply and Sewerage Company Ltd |
| Is a tariff reported | | X | |
| Does the tariff based cost of water exceed 5% of household income for the median income of the communes, and for the lowest quartile of household incomes | | X | |
| Will the tariff exclude poor and near poor households on affordability criteria of 5% of household income | ✓ | | |
| Is there a financial assessment of the water supply scheme | | X | Not yet |
| Are scheme benefits clearly identified by category of benefit | | X | Not yet |
| Is each benefit quantified | | X | |
| Is there an economic assessment – if yes what is EIRR | | X | Not yet |
| Is there a detailed worksheet for the EIRR | | X | Not yet |

## I. Summary

| Recommendation | Yes | No | Explanation or Outstanding Gaps |
|---|---|---|---|
| Is the subproject eligible by being part of Provincial plans | ✓ | | |
| Is there a clear design standard that is justified | ✓ | | QCVN 01: 2009/BYT |
| Are there outstanding approvals required | ✓ | | |
| Is there a preliminary design | ✓ | | |

| Recommendation | Yes | No | Explanation or Outstanding Gaps |
|---|---|---|---|
| Is there a Feasibility study | ✓ | | |
| Is sufficient data on the availability of water provided | | X | Water quantities assessment is required by a FS to be prepared by the local consultant for the subproject. |
| Is there sufficient data on water quality | | X | Water quality assessment is required by a FS to be prepared by the local consultant for the subproject. |
| Is the Subproject category A for resettlement and affected persons | | X | |
| Is the Subproject category A for environment | | X | |
| Does the Subproject have clear economic inclusiveness outcomes | ✓ | | |
| Does the subproject have clear network connectivity benefits | ✓ | | |
| Is the project expected to achieve a 9% EIRR | | X | A required FS to be prepared by the local consultant to assess the EIRR of the subproject. |
| Who will manage the scheme and are they linked to a municipal or rural town operator | ✓ | | State-based service company |
| Is the scheme an expansion of an existing municipal and or rural town supply – if yes, are they required to on lend from the PPC? | | X | |

## CAO BANG PROVINCE

## VIII. ADDITIONAL SUBPROJECT SCREENING REPORT

### A. Output 1 Road Subproject Findings

64. Two output 1 subprojects were included in the long list. As proposed, the additional road subproject is eligible but requires clarification over the forest classifications and approvals for the new alignment.

65. Without formal clarification of these approvals and classifications, it is probable that the roads would fall into an ineligible status with ADB. The PPTA concludes that based on these the subprojects are eligible and should proceed to feasibility at which stage a more detailed safeguard reviews is required.

66. Findings of the individual subproject screening are presented in section VIII below.

67. A summary of findings is presented in the following table by each criterion. For many criteria, there is inadequate data available at the time of screening. The detailed actions and where agreements have been reached these are recorded in the appended subproject reports.

68. Further whilst the PPTA and Government representatives have agreement on the eligibility and the proposed design categories of the road subprojects there is to date no traffic count, or traffic forecast for establishing or verifying the design standard. It is a strong recommendation for this data to be prepared as soon as possible as the loan agreement will require traffic forecasts and road categorization are consistent before a detailed design can be approved.

| **Subproject Name** | **Eligibility** | | | | | | **Safeguard Compliance** | | **GAP** | **Feasibility and Viability Indicators** | | | | **Sustainability** | **Issues to be Resolved** | **Eligibility** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Criterion** | **C 1** | **C 2** | **C 3** | **C 4** | **C 5** | **C 6** | **C 7** | **C 8** | **C 9** | **C 10** | **C 11** | **C 12** | **C 13** | **C 14** | | |
| 1. Cao Bang Provincial Road 206 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ? | ? | X | X | X | X | X | Yes | Yes priority 1 |
| 2. Tinh Tuc - Phan Thanh - Mai Long road | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | X | ? | ? | X | X | X | X | X | Yes | Conditional on new alignments |

## B. Output 2: Water Supply Scheme Findings

### 1. Summary of Subproject Screening

69. One subproject is included in the long list. Findings of the individual subproject screening are presented below. A summary of findings is presented in the following table by each criterion.

70. The screening highlights a significant gap in terms of the preparation of the subproject, the gaps relate to data on adequacy and safety of proposed water sources especially given the recent pollution of the Gam river from lead and zinc, clarity on the real demand for water services and the nature of services to be demanded. Currently the PPTA **cannot confirm the eligibility in terms of water resource availability** to support the technical design standards, and the likely viability of the schemes due to the lack of research into the nature of demand for water, the likely uptake of water services and the willingness and ability to pay for water.

71. Within these caveats, the subprojects meet the eligibility with respect to the outcome expectation of BIIG1 investment, the rationale and planning alignment is clear. Social safeguards and environmental safeguards category b or c are highly probable within the caveat of water supply and quality aspects. Without clear data on water quality the treatment options cannot be confirmed, and without clear demand forecasts based on consumer needs the overall design capacity and layout remains somewhat vulnerable to change.

72. The affordability of water supply is limited with the capital cost considered excessive. Clear asset ownership, operational and maintenance responsibilities need to be included in the proposals before the subproject can be considered eligible.

73. The PPTA conclusion is that the PMU and its District counterparts need to address, ***with urgency***, the issues of:

(i) water supply and quality and to conduct some initial consultation with proposed consumers. Water supply gauging needs to start immediately, wider catchment modelling would be beneficial, and
(ii) water testing needs to be conducted across a range of flow regimes and seasons.
(iii) Scheme viability and affordability strategies need to be defined

74. The screening criteria summary is presented below with the detailed subproject screening reports provide in Appendix 2 that includes the required actions and where agreements have been reached these are recorded in the appended subproject reports.

**Table 11: Cao Bang Summary of Water Supply Subproject Screening Findings**

| Subproject Name | Eligibility | | | | | | Safeguard Compliance | | GAP | Feasibility and Viability Indicators | | | | Sustainability | Issues to be Resolved | Eligibility |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Criterion** | **C 1** | **C 2** | **C 3** | **C 4** | **C 5** | **C 6** | **C 7** | **C 8** | **C 9** | **C 10** | **C 11** | **C 12** | **C 13** | **C 14** | | |
| Pac Miau water supply | ✓ | ✓ | ✓ | ? | ✓ | X | ✓ | ✓ | ? | ✓ | X | X | ? | ? | Yes | Not Yet |

# IX. OUTPUT 1: SUBPROJECT CAO BANG PROVINCIAL ROAD 206

## A. Subproject Description

75. Upgrading and improving provincial road 206 (Dam Thuy commune, Trung Khanh district) - Ly Van border gates (Ly Quoc commune, Ha Lang district). Total length of 27km.

(i) Starting point: Km0+00 connecting with PR206 at km20+200m in Dam Thuy commune, Trung Khanh district.
(ii) End point: Km27+00 connecting with Ly Van Border Gate area, Ly Quoc commune, Ha Lang district coinciding with PR206.
(iii) Existing alignment (km+m): Section from km15+00 to km19+00 follows PR206; and section from km19+00 to km27+00 follows PR207
(iv) New alignment (km+m): Section Km0+00 to Km15+000 is proposed to follow a new alignment to avoid Ban Gioc Tourist Resort and Truc Lam Pagoda: length =15km not yet approved.

76. Current Road Categorization: Rural Class A - cement concrete, gravel and earth road that is to be upgraded to Category V with Asphalt road. The proposed works include upgrading and improving provincial road 206 (Dam Thuy commune, Trung Khanh district) - Ly Van border gates (Ly Quoc commune, Ha Lang district) subproject will construct pavements, road surface, drainage works, protection works, and traffic systems.

77. The proposed investment $14,285,000 - $529,074/km

## B. Rationale

### 1. Current use

(i) This road goes through two districts Ha Lang and Trung Khanh, Cao Bang province.
(ii) The road area has a relatively flat terrain that is relatively favorable for the construction process.
(iii) Upgrading of PR206 from Dam Thuy to Ly Quoc that comprises three sections as follows:
- 15.1km of wholly new road, bypassing Ban Gioc Waterfall Tourism Area and Truc Lam Pagoda
- 2.9km coinciding with the current alignment of PR206, which is currently Rural Class A standard
- 9.1km coinciding with the current alignment of PR207, which is currently Rural Class A standard

(iv) Some of the existing sections of the road have suffered significant degradation to the road surface and base. Some sections are either lacking drainage gutters or have degraded drains. The envisaged standard of the new/upgraded road is Class V. This road section is included in the RNMP's plans for completion by 2020 as well as forming part of the vision for 2030.

### 2. Future use

(i) Within the area of this Dam Thuy – Ly Quoc subproject are a number of tourist attractions, such as Ban Gioc Waterfall as well as karst scenery which will be included in the proposed UNESCO Geological Park for Cao Bang that is current under development. However, this road will bypass the section of PR206 serving Ban Gioc Waterfall enabling the Government of Viet Nam to meet its commitments to the PRC with whom they agreed to divert trucks away from PR206 for the safety of local and foreign tourists.

(ii) There are a number of border gates in the area. The most notable of these is Ly Van, which is already designated a National Border Gate by Vietnam, but where the Chinese side recognition is expected in 2020 – which is likely to lead to substantial growth in cross-border traffic.[1] The key role of this subproject will be to provide improved connectivity to Ly Van from the west, which would also have the benefit of diverting heavy truck traffic away from PR206, thus enabling PR206 to function better as a tourist road, given its connectivity to Ban Gioc Waterfall and scenic positioning along the banks of the Quay Son River. This sub-project will also serve to increase capacity and reliability for traffic within the east of Cao Bang.

(iii) In addition to the social (poverty alleviation) and agricultural development rationales, this road subproject also contributes to the overall development of the road network in Cao Bang and creating a tourist circuit in the FNEP region alike.

(iv) Beyond the rehabilitation of the road, upgrading to Class V would promote travel between Ha Lang, Trung Khanh and Tra Linh districts, Cao Bang and China. As such, this would meet the objectives of promoting trade and connectivity between the provinces in the north east of Vietnam and China.

## C. Findings

### 1. Status of the existing road:

(i) Section from Km0 – Km0+150: a new alignment (starting point) goes through the land of general health clinic (which has been degraded and deserted of Dam Thuy commune).[2] This new alignment section goes through the left side of the general clinic land and will demolish two degraded and deserted houses (cement concrete). The PPTA consultant proposed that DPI/District issue an official approval of the new alignment.

(ii) Section from Km1 – Km1+300: proposed a new alignment to avoid reallocation of 2 HHs and power substation. The PPTA consultant proposed that DPI/District issue an official approval of the new alignment.

[1] The PPTA consultant's visit (19 May 2017) to Ly Van Border Gate and saw China Border Gate authority demolishing the border cross custom head office to build a new and bigger one so as to improve and expand cross border trade and goods and tourists.

[2] The PPTA consultant discussed with the vice president of Trung Khanh district about the general clinic land issue. This used to be a Border guard station, but they assigned this land to Trung Khanh district to manage a few years ago and the district then gave this land and facilities to the district health clinic to us this. However, this general clinic and facilities hardly uses this as few patients come. The district authority confirmed that this is a public land under DPC's management and are willing to offer to the subproject to make the starting Chainage straight and avoid reallocation of the HHs.

(iii) Section from Km1+300 – Km3: the local consultant proposed a new alignment with a small bridge over the stream and leading up the mountain. However, Trung Khanh district preferred following the newly opened road which the district already cleared the land and resettlement. On this new road section, a medium bridge is proposed to construct over the stream to transport and connect the local people, cantle and goods to the central district during the flooding event. The proposed alignment is not accepted by local communities and district staff who have the stated preference of retaining the existing alignment. The subproject as proposed is not supported by the PPTA.

(iv) Section from Km3 – Km9: a new alignment is proposed to go through the forest (3,4km of Trung Khanh forest area to connect with Ha Lang district (2,6km forest area) to link to Ban Cua Suoi of Minh Long commune, Ha Lang district. The PPTA Consultant sought confirmation of forest classification for this section and official approval of this new alignment.

(v) Section from Km9 – Km15: follow the rural road from Minh Long commune to PR206. This road is being repaired with gravel and clay and positive talus is being cleared for flood and storm prevention.

(vi) Section from Km19 – Km21: the local consultant proposed a new alignment of 2km, which cuts through PR207 avoiding Ha Lang town and traffic bottleneck of PR206 connecting with Ha Lang town residential area and connect with Ly Van Board Guard station point at PR206 to Ly Van border gate. This new alignment will acquire agricultural land and reallocate one EM HH and a power substation. The PPTA consultant and the local consultant consulted the district and commune new rural master development plan (2020 to 2030) with the same confirmation of the existing PR206 to Ly Van border gate and now change of Ha Lang town transport planning. The PPTA consultant proposed that DPI keep the existing PR206 to Ly Van border gate in accordance with the district and commune new rural master development plan (2020 to 2030).

(vii) Section from Km21-Km27: upgrading the surface of PR206 to Ly Van Border gate with Bn= 7-7,5m.

| Subproject Road Name | Proposed by DPI | PPTA Findings and Recommendations | Cao Bang DPI Conclusion |
|---|---|---|---|
| | | | DPI agreed with the PPTA consultant's recommendations and confirmed and will reply to the consultant with the official approval of the new alignment and protection or production forest areas. |
| Starting point | At Km0+00 connecting to PR206 (in Dam Thuy commune, Trung Khanh district) | At Km0+00 connecting to PR206 (in Dam Thuy commune, Trung Khanh district) | At Km0+00 connecting to PR206 (in Dam Thuy commune, Trung Khanh district) |
| End point | At Km27+00 Ly Van Border Gate (in Ly | At Km27+00 Ly Van Border Gate (in Ly Quoc commune, Ha Lang district) | At Km27+00 Ly Van Border Gate (in Ly Quoc commune, Ha Lang district) |

| Subproject Road Name | Proposed by DPI | PPTA Findings and Recommendations | Cao Bang DPI Conclusion |
|---|---|---|---|
| | Quoc commune, Ha Lang district) | | |
| Length | 27km:<br>Section from km0+00 to Km15+00 new alignment and section from km15+00 to Km27+00 is proposed to upgrade the road to Class V | Approximately 27km.<br>Section from Km0–Km0+150: new alignment cutting through the general clinic of Dam Thuy commune go through public land and acquiring two degraded and deserted houses (cement concrete)<br>Km0+120-Km1 follow the existing road.<br>Km1–Km1+300: a new alignment is proposed to avoid reallocate 2 HHs and a power substation<br>Km1+300–Km3: a new alignment proposed by the local consultant, but districts preferred following the newly opened road section of 1,3km.<br>Km3–Km9: a new alignment goes through the forest (3,4km of Trung Khanh district forest land; 2,6km Ha Lang forest land) linking to Cua Suoi village of Minh Long district, Ha Lang district.<br>Km9–Km15: follows the existing road connecting from Minh Long commune to PR206. This road section is being repaired with the surface gravel and clearance of positive talus before the flood and storm season arrival; Bn=4m; Bm=3m<br>Km15–Km19 (Bang Ca town) following the existing PR206; upgrading road surface Bn=7-7,5m<br>Km19–Km21 (Ly Van Border Guard Station) proposed a new alignment with resettlement of one EM HH and a power substation and lots of agricultural and forest land<br>Km21-Km27 follows the existing PR206; upgrading road surface; Bn=7-7,5m | Approximately 27km.<br>Section Km0–Km0+150: new alignment cutting through the general clinic of Dam Thuy commune. Proposed DPI and district have official approval for this new alignment<br>Km0+120-Km1 follow the existing road.<br>Km1 – Km1+300: new alignment proposed to avoid reallocation of 2 HHs, power substation. Sought approval for this new alignment<br>Km1+300 – Km3: follows the new opened road section of 1,3km.<br>Km3–Km9: new alignment cuts through the forest (3,4km of Trung Khanh forest land; 2,6km of Ha Lang forest land to link to Cua Suoi village. Sought approval for the new alignment and confirmation of forest classification<br>Km9–Km15: follow the road section connecting from Ming Long commune Ha Lang district to PR206. This road section is being repaired with the surface gravel and clearance of positive talus before the flood and storm season arrival; Bn=4m; Bm=3m<br>Km15–Km19 (Bang Ca town) following the existing PR206; upgrading road surface Bn=7-7,5m<br>Km19–Km21 (Ly Van Border Guard Station) follows the existing PR206 to avoid resettlement and compensation.<br>Km21-Km27 follows the existing PR206; Bn=7-7,5m, road surface to be upgraded |
| Road Cat | Proposed Cat V mountainous road according to TCVN 4054-05:<br>Road pavement=7,5m, ROW=5,5m. shoulders: 2x1,0m, reinforced pavement: 2x0,5m, road structure: Asphalted | Agreed Cat V mountainous road according to TCVN 4054-05:<br>Road pavement=7,5m, ROW=5,5m. shoulders: 2x1,0m, reinforced pavement: 2x0,5m, road structure: Asphalted | Agreed Cat V mountainous road according to TCVN 4054-05:<br>Road pavement=7,5m, ROW=5,5m. shoulders: 2x1,0m, reinforced pavement: 2x0,5m, road structure: Asphalted |

| Subproject Road Name | Proposed by DPI | PPTA Findings and Recommendations | Cao Bang DPI Conclusion |
|---|---|---|---|
| | | | |
| Proposed works | To be determined | Not yet determined | will confirm in their FS |
| Status of FS | Field survey marks but not FS prepared yet | | |

## D. Eligibility

| Criteria | Status | | Risk of Non-compliance and Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| 1: Include in SEDP – if yes state page and section number | ✓ | | The road subproject has been included in province and district's SEDP and in the establishment of Cao Bang Border Gate Economic Zone in the Prime Minister's Decision No. 20/2014/QD-TTg dated 11 February 2014 with the total natural area of over 30,130 ha, including 37 communes and 03 townships of which there are two districts, Ha Lang and Trung Khanh, therefore the investment in upgrading the road is an urgent task in the current situation of the province, thus expanding cooperation and foreign relations, promoting trade, tourism, import and export of goods with China |
| 2: Included in DoT Master Plan – if yes state page and section | | X | Also included in the transport master plan to 2020 with a vision to 2030 – new alignments proposed |
| 3: Proposed design concept exists – if yes state date of proposal | ✓ | | |
| 4: Proposed design standard identified – if yes what standard, what is the projected economic life of the subproject | ✓ | | The road subproject will be upgraded to Category V mountainous roads according to TCVN 4054-2005 |
| 5: Proposed design standard derived from (i) plan, (ii) traffic forecast, (iii) traffic forecast plus network efficiency (iv) what is the current road standard on each end point or network connection now and planned | | x | The proposed designed standard is derived from the provincial transport masterplan for districts.<br><br>The current road standard on each end point is rural road A and B and the network connection now and planned is Cat V towards 2030. |
| 6: is the date of traffic forecast or base traffic forecast after 2015 | | x | Not yet |
| 7: Is traffic forecast consistent with Road Categorization – if yes – at project start, at the economic life of the subproject | | x | Not yet |
| 8: Is there a preliminary design document with supporting engineering field surveys and drawings – if yes what is the date of these, what design standard is used. | ✓ | | There is a preliminary design document prepared by the local consultant in 2012, but it is a draft without supporting engineering field surveys and drawings.<br><br>The proposed design standard is Cat V. |

| Criteria | Status | | Risk of Non-compliance and Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| 9: Is the Preliminary design already approved by DoT | | x | Not yet |
| 10: Is the preliminary design already approved by PPC | | x | Not yet |
| 11: Is there a bill of quantities with the preliminary design | | x | Not yet |
| 12: Is there a cost estimate – if yes is there a supporting bill of quantity and what is the date for the costing | | x | Not yet |
| 13: Are there significant structures required – if yes please identify | | x | Not yet |
| 14: Are there significant cut and fill requirements – if yes please provide an estimate of the extent | | x | Not yet |
| 15: is the current Right of Way sufficient for the proposed or required road design | | x | Not yet |

## E. Safeguard Compliance

| Safeguard | Screening Issue | Yes | No | Explanation and Assessed Risks |
|---|---|---|---|---|
| A: Resettlement | Land Acquisition | | | Extent – minor, substantial |
| A.1 Land Acquisition | Agriculture Land | ✓ | | Substantial |
| | Urban Public Land | ✓ | | Minor |
| | Urban Private Land | ✓ | | Minor |
| A.2 Structures | Private houses | ✓ | | Extent |
| | Private other | ✓ | | Minor |
| | Public Structures | ✓ | | Minor |
| A.3 | Other Assets | ✓ | | Extent |
| A.4 | Resettlement – if yes number of households identified | ✓ | | Based on the PPTA consultant's field visit there will be at least from 15 to 20 households who will be severely affected by the subproject (either loss of their residential and agricultural land or to be relocated |
| A.5 | Is there a Land Acquisition and compensation budget – if yes how much | | x | Not yet |
| B: Environmental Screening | | | | |
| B.1 Forests | Production forest land | ✓ | | Extent |
| | Protection forest land | ✓ | | Requested to recheck and confirmed by DPI |

| Safeguard | Screening Issue | Yes | No | Explanation and Assessed Risks |
|---|---|---|---|---|
| - are there any of the following along the alignment of within close proximity – if yes is the risk significant | Protected areas | ✓ | | Requested to recheck and confirmed by DPI |
| B.2 Water, rivers lakes and flood plain | Are there any areas affected by the existing or proposed alignments? If yes how significant are they | ✓ | | Yes, the new alignments will go along or over rivers, streams and flood plain streams. |
| B.3 Does the proposal include any IEE screening | | | x | The proposed road subproject doesn't include any IEE screening |
| B.4 Did the field visit identify issues form EARF that need to be addressed | | ✓ | | Request to recheck the protection forest areas where the new alignments are proposed to go through and resettlement issues. |
| B.5 New Alignments | Risk of land slips | ✓ | | i) Km1+300 – Km3: the newly opened road section of 1,3km.<br>ii) Km3–Km9: a new alignment goes through the forest (3,4km of Trung Khanh district forest land; 2,6km Ha Lang forest land) linking to Cua Suoi village of Minh Long district, Ha Lang district.<br>iii) Km19–Km21 (Ly Van Border Guard Station) proposed a new alignment with resettlement of one EM HH and a power substation and lots of agricultural and forest land... |
| | Risk of Large cuts | ✓ | | As presented above |
| | Water course disruption | ✓ | | As presented above |
| | Flood Plain Disruption | ✓ | | As presented above |

## F. Social Considerations

| Criteria | Yes /No | Explanation and Assessed Risk |
|---|---|---|
| Are communes identified and named | Yes | If yes please list communes<br>2 communes:<br>▪ Dam Thuy,<br>▪ Minh Long |
| Is the population data available | (based on the PPTA consultant's interview with Trung Khanh district, and Ha Lang authorities (vice) presidents) and Trung Khanh district total population as of 2016 is 51,556, of which 46,700 rural people and Ha Lang | Very high percentage of the rural population in two districts (68,790) and EM population (75,959 equivalent to 98%) and high poverty rate of 51%). |

| Criteria | Yes /No | Explanation and Assessed Risk |
|---|---|---|
| | district total population is 25,662 of which 22,090 rural people, 5,199 people of Dam Thuy commune, and 2,164 people of Mai Long commune.<br>The subproject will directly benefit totally 7,363 local people in 2 communes Dam Thuy and Minh Long Trung Khanh and Ha Lang districts. | |
| Is the number of Poor households available | Not yet | DPI and local consultants will coordinate with district and commune authorities and offices (social, financial and economic infrastructure) to provide updated data.<br>Minor risk |
| Is the number of near poor households available | Not yet | As presented above |
| Are Ethnic minorities identified and specified | Not yet | As presented above |
| Is land use specified | Not yet | As presented above |
| Are the number of female headed households specified | Not yet | As presented above |
| Is the GAP adequately reflected | Not yet | As presented above |

## G. Economic Assessment

| Criteria | Yes | No | Explanation and Assessed Risk |
|---|---|---|---|
| Is there an economic assessment – if yes what is EIRR | | x | A required FS to be prepared by the local consultant to assess the EIRR of the subproject. |
| Is there a detailed worksheet for the EIRR | | x | As presented above |
| Is it linked to the traffic forecast | | x | As presented above |

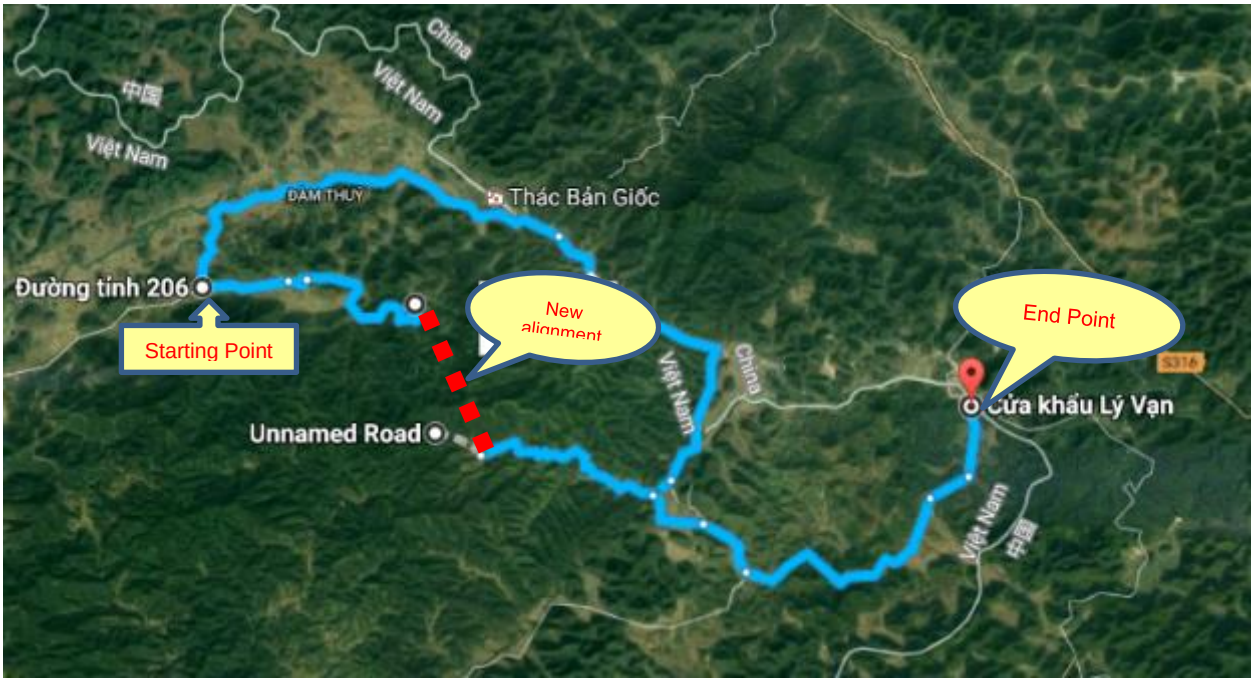
## H. Summary

| Recommendation | Yes | No | Explanation or Outstanding Gaps |
|---|---|---|---|
| Is the subproject eligible by being part of Provincial plans | ✓ | | The subproject is considered eligible by being part of the SEDP and Transport Masterplan as well as FNEP Master Plan. |
| Is there a clear design standard that is justified | | X | Not yet, the FS will present the proposed design standard. |
| Are there outstanding approvals required | ✓ | | Requested<br>(i) confirmation of the protection or production forest areas for the new alignment section from km3+00 to km 9+00 passes through protection or production forest areas of Trung Khanh and Ha Lang districts;<br>(ii) approval of the new alignments sections; |

| | | | |
|---|---|---|---|
| | | | (iii) the new alignment sections of km0 – km0+150; km 1+00 to km1+300; km3+00 to km9+00 are approved with a clear mark of the starting and end points |
| Is there a preliminary design | | X | Not yet |
| Is there a Feasibility study | | X | Not yet |
| Is the Subproject category A for resettlement and affected persons | | X | As per the PPTA consultant's field visit to the subproject sites, the Subproject is classified under category B or C for minor resettlement and affected persons |
| Is the Subproject category A for environment | ? | ? | **Unknown requires DPI clarification**<br>As per the PPTA consultant's field visit to the subproject sites, the Subproject is classified under category B or C for environment |
| Does the Subproject have clear economic inclusiveness outcomes | ✓ | | As per the PPTA consultant's subproject field visit assessment, the Subproject has clear economic inclusiveness outcomes |
| Does the subproject have clear network connectivity benefits | ✓ | | As per the PPTA consultant's subproject field visit assessment, the Subproject has clear network connectivity benefits.<br>The subproject will provide additional linkages to Trung Khanh and Ha Lang districts to Ly Van border and China. These will provide economic development opportunities within the nearby areas. |
| Is the project expected to achieve a 9% EIRR | | X | Not yet |

## I. Road Maps and Photos

78. Transport Road of Dam Thuy commune, Trung Khanh district) - Ly Van border gates (Ly Quoc commune, Ha Lang district)




## J. Road Chainage Photos

**Starting point: PR206 & Dam Thuy**

**Km0+120**

**Km0+300**

**Km1+400**

**Km1+700**

**Km1+900**

**Km2+200**

**Km2+600**

**Km3**

**Km3-Km5**

**Km8**

**Km8+200**

**Km12**

**Km15 (PR206)**

**Km15+800**

**Km16**

**Bang Ca town (Km20)**

**Km21 (Ly Van military office)**

**End point (Km27) Ly Van border gate**

**End Point (Km27) – survey mark**

# X. OUTPUT 1: SUBPROJECT ROAD TINH TUC-PHAN THANH-MAI LONG

## A. Subproject Description

79. Transport Road of Tinh Tuc - Phan Thanh - Mai Long (Nguyen Binh district, Cao Bang province) – Pac Nam (Bac Kan province).

(i) Starting point: Km0+00 connecting with NH34 at Km186+450 (in Tinh Tuc town, Nguyen Binh district).
(ii) End point: Km29+00 connecting with Ba Be - Bang Thanh road (Bang Thanh commune, Pac Nam district, Bac Kan province).

80. Total length (km+m): 29km

(i) Existing alignment (km+m): Section Km0+00 to Km3+400 connecting with NH34: length=3.4km; section Km3+400 to Km18+00 (at Mai Long Commune People's Committee); length=18km; section from Km18+00 to Km29+00 (earth rural road in very poor condition goes through many hamlets (villages of EM Mail Long commune)

(ii) New alignment (km+m): section Km18+00 to Km29+00; length=11km - not yet approved.

81. Current Road Categorization: Rural B gravel and earth road to be upgraded to Category VI with Asphalt road by constructing pavements, road surface, drainage works, protection works, and traffic systems.

82. Proposed investment $ total: $9,283,000 or $320,103/km – the cost per km is considered to be under the likely cost by the PPTA.

## B. Rationale

### 1. Current use

(i) This road is located in Nguyen Binh District and part of Pac Nam district, Bac Kan province.
(ii) The road area has a complex terrain; divided by many valleys and mountains. Based on the PPTA consultant's view, the terrain is difficult for road construction.
(iii) Upgrading of the mountain road (Tinh Tuc – Phanh Thanh – Mai Long – Pac Nam) is a 29km mountain road in Nguyen Binh District. The road starts in the east at Tinh Tuc at a junction with National Highway 34, running through Phan Thanh and Mai Long communes to the border with Bang Thanh commune in the Pac Nam district of Bac Kan Province. Its alignment is shown in Annex 1.
(iv) This road has undergone substantial degradation with the loss of much of the road surface and the road suffers from frequent subsidence of backfilled slopes and excavated slopes. Based on the PPTA consultant's field findings there appear many spots of landslides along the road. In addition, many curves are beneath a 10m radius and a number of slopes have a 16% gradient.

(v) The road subproject will follow its existing broad alignment and is proposed to upgrade the road to Class VI from its existing Rural B Class designation.

(vi) Access to Nguyen Binh is difficult, Road of Tinh Tuc - Phan Thanh - Mai Long (Nguyen Binh district, Cao Bang province) the main district access way remains in poor condition with a difficult mountainous alignment. The district is extremely inaccessible in the rainy seasons due to the large potholes and earth road.

(vii) The economy of Nguyen Binh is predominated by agriculture (rice, corn, bamboo trees, cassava and vegetables) and forestry (acacia, and pines…). The areas served by these roads are also dependent upon agriculture livestock breeding. There is potential for forestry development and expanding production of fruit trees and livestock. However, poor road conditions have hindered the development of these sectors, where EM farmers face the danger of both low prices and in some instances unsold products.

(viii) Other problems faced in the area include poor access to education (interviews with the local EM people showed that poor educational attainment of residents), and the current state of the roads also impede access to healthcare and employment opportunities.

### 2. Future use

(i) Rehabilitation of this road is urgently required to provide basic and reliable accessibility to villages along its road and for them to access services and travel options to major centers in Cao Bang and Bac Kan provincial capitals as well as the Red River Delta and Hanoi. Rehabilitation would provide vastly improved accessibility to markets (for selling produce), education and healthcare. It would also make it feasible for residents to seek employment opportunities both along the road and further afield, which many are currently prevented from doing, due to the state of the road. As such, rehabilitation would help enable poverty alleviation in the area, especially amongst ethnic minorities.

(ii) In addition to the social (poverty alleviation) and agricultural development rationales, this road subproject also contributes to the overall development of the road network in Cao Bang and northern part of Bac Kan and the FNEP region alike.

(iii) This road will not only improve accessibility within Nguyen Binh, but moreover will also provide additional linkages to Pac Nam District of Bac Kan Province through to NH3 down to Hanoi. These will provide economic development opportunities within the nearby areas.

(iv) Beyond the rehabilitation of the road, upgrading to Class VI would promote travel between Nguyen Binh district, Cao Bang and northern Bac Kan. As such, this would meet the objectives of promoting trade and connectivity between the provinces in the north east of Vietnam.

(v) Furthermore, this road subproject is located very close to the Representative Road Subproject for Bac Kan and will connect to this subproject at the provincial border.

## C. Findings

### 1. Status of the existing road:

83. Most of the existing sections of the road have suffered significant degradation to the road surface and base. All the sections are either lacking drainage gutters or have degraded drains.

84. The proposed road will follow the existing road alignment, some sections need adjusting to minimize the resettlement impacts.

(i) Section Km0 + 00 to Km3 + 400 connecting with NH34, which was invested by EU fund in 2003 (the road goes through Phan Thanh commune). This is a rural asphalt road B with Bn=4m; Bm=3m.

(ii) This road has undergone substantial degradation with the loss of much of the road surface and the road suffers from frequent subsidence of backfilled slopes and excavated slopes, specifically sections Km2+150 to Km3+100 was funded by EU, the road was designed with the slope of 16%; Km7+020 - Km7+280; Km9+00 - Km9+820; Km10+800 - Km12+300; Km16-Km17 was designed with slope of 14% due to constraint budget; Many curves R<10m, slower than L<10m; Km4 - Km5; Km5 - Km6; Km6 - Km7 and Km8 - Km10 due to the unstable terrain/topographical base, the landslide of positive and negative talus/slope very often occurs along the road;

(iii) Section Km3+400 to Km18+00 (in Mai Long commune People's Committee) was constructed according to A standard of 5.0m; Bn=5m; Bm=4m with natural gravel surface;

(iv) Slope: Km0-Km3+400 to km18+00: there appear many curves R<10m along the road. The road surface is broken with outcrops and big potholes. Along the road on the Talus, the local EM people grow many hectares of bamboo tries and corn fields.

(v) Section Km18+00 to Km29+00 through many villages of Mai Long. This rural road B was constructed by local people many years ago to open for travel through many villages with Bn=1,0m to 2,0m. Its slopes are large; hence they are difficult and dangerous for people to travel.

(vi) Km19+350 to Km 19+850, the existing dry stream used by the local people as the only road to travel to work in field and to the central commune Mai Long and to Pack Nam. To avoid reallocate the HHs and villages, a new alignment of 0,5km is proposed to go through the rice and corn fields behind the village.

(vii) 5 remaining km section is a new alignment through the forest (based on the PPTA's view, this is a natural forest/protection forest) along Pac Nam river. The PPTA consultant requested that Cao Bang DPI discuss with DONRE and MARD to confirm the forest area classification. <u>If confirmed the subproject will be category A and therefore ineligible for ADB Finance</u>

85. To make the road subproject a complete connectivity between Bang Thanh to Pac Nam, an additional section from the end point at km 29+00 (Nguyen Binh district border mark with Pac Nam Bac Kan), to km29+500 in Pac Nam district, an additional new alignment section of 0,5km through the forest in the territory of Pac Nam, Bac Kan province to link into Pac Nam commune road. This is a footpath with Bm = 80cm to 1,0m with many natural slopes=16-18%.

86. The PPTA proposed that Cao Bang DPI should discuss with Bac Kan DPI to construct this additional new alignment section so as to fully connect with Nguyen Binh road subproject. At the debriefing meeting with Vice president of Nguyen Binh district people's committee, they fully

agreed with the PPTA consultant's recommendation and will soon meet with Pac Nam district people's committee to discuss about this additional section.

| Subproject Road Name | Proposed by DPI | PPTA Comments | Cao Bang DPI Conclusion |
|---|---|---|---|
| Start point | at Km0+00 connecting with NH34 at Km185+450 in Tinh Tuc town, Nguyen Binh district | Confirmed | Confirmed |
| End point | at Km29+00 (end of Mai Long commune territory) connecting with Bang Thanh commune, Pac Nam district, Bac Kan province | At Km29+500 (end of Mai Long commune territory) connecting with Bang Thanh commune, Pac Nam district, Bac Kan province, an additional new alignment section of 0,5km through the forest in the territory of Pac Nam, Bac Kan province to link into Pac Nam commune road. This is a footpath with Bm=80cm to 1,0m with many natural slopes =16-18%. | Confirmed |
| Length | 29km:<br>The section from Km0+00 to Km22+00 is upgraded to grade VI mountainous road; currently rural road B. The road surface is very bad; damaged with many big potholes and many steep slope section =16-18%.<br>i) Km0-Km3+400 (Phan Thanh commune) was invested with EU funds in 2003, Bn=4m; Bm=3m;<br>ii) Km3+400-Km18 (Mai Long commune), rural road A; Bn=5m; Bm=4m;<br>iii) Km18-Km24: gravel earth road; at Km24 there is a new 12m long bridge, that has been recently constructed under 135 program; B= 6m.<br><br>iv) Km24-Km29: follow the existing footpath B=1-2m; | About 29,5km.<br><br>i) Km 0-Km3+400 invested with EU fund in 2003 Bn=4m; Bm=3m; proposed to upgrade to grade VI mountainous road with Bn=6m.<br><br>ii) Km3+400-Km18 (Mai Long commune), rural road A; Bn=5m; Bm=4m; proposed to extend to sufficient pavement width and lower slopes.<br><br>iii) Km19+350 to Km19+850, existing dry stream used by the local people as the only road to travel to work in field and to the central commune Mai Long and to Pack Nam. To avoid reallocate the HHs and villages, a new alignment of 0,5km is proposed to go through the rice and corn fields behind the village.<br><br>iv) Km19+850 to Km24: gravel earth road; at km24 there is a new 12m long bridge, that has been recently constructed under 135 program; B= 6m.<br><br>iv) Km24-Km29: goes through the forest. At the end point of the road subproject to connect with Bang Thanh commune road, and additional section of 0,5km to fully complete the road connectivity between Nguyen Binh and Pac Nam districts.<br><br>Requested confirmation:<br>(i) the new alignment sections of 0,5km from Km19+350 to Km19+850, and 5km from Km24+00 to Km29+00 are approved | DPI agreed with the PPTA consultant's recommendations and confirmed and will reply to the consultant with the official approval of the new alignment and protection or production forest areas. |

| Subproject Road Name | Proposed by DPI | PPTA Comments | Cao Bang DPI Conclusion |
|---|---|---|---|
| | | with a clear mark of the starting and end points<br>(ii) that the new alignment section from Km24+00 to Km29+00 passes through protection or production forest areas. | |
| Road category | VI | Agreed | Agreed |
| Proposed works | To be confirmed | (2 small bridges over the streams, 14 culverts to be replaced along the road), drainages, protection works, traffic systems. | will confirm in their FS |

87. Based on the PPTA consultant's field survey findings, the proposed works of the road are to replace 2 small bridges and 14 culverts, drainage works, protection works and traffic signs.

## D. Eligibility

| Criteria | Status | | Risk of Non-compliance and Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| 1: Include in SEDP – if yes state page and section number | ✓ | | The road subproject has been included in province and district's SEDP |
| 2: Included in DoT Master Plan – if yes state page and section | ✓ | | Also included in the transport master plan to 2020 with a vision to 2030 |
| 3: Proposed design concept exists – if yes state date of proposal | ✓ | | Document No.549/QD-UBND dated 29/4/2016 of Cao Bang Provincial People's Committee approving the list of subprojects proposed investment under the project "Basic Infrastructure for Inclusive Growth in the Northeastern Provinces Sector Project: Ha Giang, Cao Bang, Bac Kan, Lang Son" funded by ADB |
| 4: Proposed design standard identified – if yes what standard, what is the projected economic life of the subproject | ✓ | | The road subproject will be upgraded to grade VI mountainous roads according to TCVN 4054-2005 |
| 5: Proposed design standard derived from (i) plan, (ii) traffic forecast, (iii) traffic forecast plus network efficiency (iv) what is the current road standard on each end point or network connection now and planned | | x | The proposed designed standard is derived from the provincial transport masterplan for districts.<br><br>The current road standard on each end point is rural road A and B and the network connection now and planned is Cat VI towards 2030. |
| 6: is the date of traffic forecast or base traffic forecast after 2015 | | x | Not yet |
| 7: Is traffic forecast consistent with Road Categorization – if yes – at project start, at the economic life of the subproject | | x | Not yet |
| 8: Is there a preliminary design document with supporting engineering field surveys and drawings – if yes what is the date of these, what design standard is used. | ✓ | | There is a preliminary design document prepared by the local consultant in 2009, but it is a draft without supporting engineering field surveys and drawings.<br><br>The proposed design standard is Cat VI. |

| Criteria | Status | | Risk of Non-compliance and Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| 9: Is the Preliminary design already approved by DoT | | x | Not yet |
| 10: Is the preliminary design already approved by PPC | | x | Not yet |
| 11: Is there a bill of quantities with the preliminary design | | x | Not yet |
| 12: Is there a cost estimate – if yes is there a supporting bill of quantity and what is the date for the costing | | x | Not yet |
| 13: Are there significant structures required – if yes please identify | | x | Not yet |
| 14: Are there significant cut and fill requirements – if yes please provide an estimate of the extent | | x | Not yet |
| 15: is the current Right of Way sufficient for the proposed or required road design | | x | Not yet |

## E. Safeguard Compliance

| Safeguard | Screening Issue | Yes | No | Explanation and Assessed Risks |
|---|---|---|---|---|
| A: Resettlement | Land Acquisition | | | Extent – minor, substantial |
| A.1 Land Acquisition | Agriculture Land | ✓ | | substantial |
| | Urban Public Land | | x | To be confirmed |
| | Urban Private Land | | x | To be confirmed |
| A.2 Structures | Private houses | ✓ | | extent |
| | Private other | ✓ | | extent |
| | Public Structures | ✓ | | minor |
| A.3 | Other Assets | ✓ | | extent |
| A.4 | Resettlement – if yes number of households identified | ✓ | | Based on the PPTA consultant's field visit there will be at least from 10 to 15 households who will be severely affected by the subproject (either loss of their residential and agricultural land or to be relocated |
| A.5 | Is there a Land Acquisition and compensation budget – if yes how much | | x | Not yet |
| B: Environmental Screening | | | | |
| B.1 Forests | Production forest land | ✓ | | Extent |
| - are there any of the following along the alignment of within close proximity – if yes is the risk significant | Protection forest land | ✓ | | Requested to recheck and confirmed by DPI |
| | Protected areas | ✓ | | Requested to recheck and confirmed by DPI |
| B.2 Water, rivers lakes and flood plain | Are there any areas affected by the existing or proposed alignments? If yes how significant are they | ✓ | | Yes, the new alignments will go along or over rivers, streams and flood plain streams. |

| Safeguard | Screening Issue | Yes | No | Explanation and Assessed Risks |
|---|---|---|---|---|
| B.3 Does the proposal include any IEE screening | | | x | The proposed road subproject doesn't include any IEE screening |
| B.4 Did the field visit identify issues form EARF that need to be addressed | | ✓ | | Request to recheck the protection forest areas where the new alignments are proposed to go through and resettlement issues. |
| B.5 New Alignments | Risk of land slips | ✓ | | The new alignment section from km 19+00 to km 19+500 and km24+00 to km29+00 are proposed to go along or over the river, stream… |
| | Risk of Large cuts | ✓ | | As presented above |
| | Water course disruption | ✓ | | As presented above |
| | Flood Plain Disruption | ✓ | | As presented above |

## F. Social Considerations

| Criteria | Yes/No | Explanation and Assessed Risk |
|---|---|---|
| Are communes identified and named | Yes | If yes please list communes<br>Tinh Tuc town, and 2 communes:<br>Phan Thanh,<br>Mai Long |
| Is the population data available | (based on the PPTA consultant's interview with Nguyen Binh district, and Phan Thanh and Mai Long authorities (vice presidents) and Nguyen Binh district total population as of 2016 is 40,738, of which 2,726 local people of Tinh Tuc town, 3,057 people of Phan Thanh commune, and 3,048 people of Mai Long communes.<br>The subproject will directly benefit totally 8,331 local people in Tinh Tuc town and 2 communes Phan Thanh and Mai Long, Nguyen Binh district. | Very high percentage of the rural population (34,161) and EM population (39,623 equivalent to 97,26%) and high poverty rate of 53, 96%). |
| Is the number of Poor households available | Not yet | DPI and local consultants will coordinate with district and commune authorities and offices (social, financial and economic infrastructure) to provide updated data.<br>Minor risk |
| Is the number of near poor households available | Not yet | As presented above |
| Are Ethnic minorities identified and specified | Not yet | As presented above |
| Is land use specified | Not yet | As presented above |
| Are the number of female headed households specified | Not yet | As presented above |
| Is the GAP adequately reflected | Not yet | As presented above |

## G. Economic Assessment

| Criteria | Yes | No | Explanation and Assessed Risk |
|---|---|---|---|
| Is there an economic assessment – if yes what is EIRR | | x | A required FS to be prepared by the local consultant to assess the EIRR of the subproject. |
| Is there a detailed worksheet for the EIRR | | x | As presented above |
| Is it linked to the traffic forecast | | x | As presented above |

## H. Summary

| Recommendation | Yes | No | Explanation or Outstanding Gaps |
|---|---|---|---|
| Is the subproject eligible by being part of Provincial plans | ✓ | | The subproject is considered eligible by being part of the SEDP and Transport Masterplan as well as FNEP Master Plan. |
| Is there a clear design standard that is justified | | x | Not yet, the FS will present the proposed design standard. |
| Are there outstanding approvals required | ✓ | | Requested<br>(i) confirmation of the protection or production forest areas for the new alignment section from Km24+00 to Km29+00 passes through protection or production forest areas;<br>(ii) approval of the new alignments sections;<br>(iii) the new alignment sections of 0,5km from Km19+350 to Km19+850, and 5km from Km24+00 to Km29+00 are approved with a clear mark of the starting and end points |
| Is there a preliminary design | | x | Not yet |
| Is there a Feasibility study | | x | Not yet |
| Is the Subproject category A for resettlement and affected persons | | x | As per the PPTA consultant's field visit to the subproject sites, the Subproject is classified under category B or C for minor resettlement and affected persons |
| Is the Subproject category A for environment | ✓ | | Unknown requires DPI clarification<br>As per the PPTA consultant's field visit to the subproject sites, the Subproject is classified under category B or C for environment |
| Does the Subproject have clear economic inclusiveness outcomes | ✓ | | As per the PPTA consultant's subproject field visit assessment, the Subproject has clear economic inclusiveness outcomes |
| Does the subproject have clear network connectivity benefits | ✓ | | As per the PPTA consultant's subproject field visit assessment, the Subproject has clear network connectivity benefits.<br>The subproject will provide additional linkages to Nguyen Binh district of Cao Bang province and Pac Nam District of Bac Kan Province. These will provide economic development opportunities within the nearby areas. |
| Is the project expected to achieve a 9% EIRR | | x | Not yet |

## I. Road Maps and Photos

88. Transport Road of Tinh Tuc - Phan Thanh - Mai Long (Nguyen Binh district, Cao Bang province) – Pac Nam (Bac Kan province).


## J. Road Chainage Photos

Starting point (Km0) connect to NH34

Km0+00 (EU fund mark 2003)

Km0+200

Km1+200 (rock and landslides)

**Km3+400 (Phan Thanh commune)**

**Km6+200**

**Km12+600**

**Km15 ( Mai Long commune people's committee)**

**Km17**

**Km18+500**

Km19+350 (starting point of the proposed new alignment)

Km19+850 (end point of the proposed new alignment)

**Km20**

**Km24**

**Km25**

**Km27**

**Km28+500**

**End point (Km29)**

**Bang Thanh road – Pac Nam district**

**Pac Nam river**

# XI. OUTPUT 2: SUBPROJECT PAC MIAU WATER SUPPLY

## A. Subproject Description

89. Water Supply Network of Pac Miau town Bao Lam district, Cao Bang province

90. Scale of proposed scheme

(i) Water Supply Network of Pac Miau town, Bao Lam district, Cao Bang province
(ii) Number of communes/rural towns: 01, Pac Miau town
(iii) Total Population per commune or town and for each scheme: 5,826 people
(iv) Total Number of Households per commune. Town and scheme: 961 households in 2015 and 1,781 household in 2020
(v) Forecast number of household connections – at scheme capacity and project completion date: 80% at scheme capacity and 100% in completion date
(vi) Proportion of HH in each commune that will be connected: 100%
(vii) Volume of water to be supplied per day ($m^3$/day): 1,700

91. Proposed works

(i) Water source infrastructure:
- Surface stream water collection pond
- Pumping station from stream water collection pond to filtration pond
- Pumping station from treated water pond to elevated tank

(ii) Water treatment infrastructure:
- 01 Chemical-based water treatment plant

(iii) Water Conveyance infrastructure
- Elevated tank capacity: 300$m^3$ and extra 100$m^3$ for
- Network – for each network state the length of pipe and number of connections

92. Proposed investment $1.18 million (approximate. 26 Billion VND) or $870 per connection at project completion – the PPTA flags this as difficult to achieve an EIRR of 9%.

## B. Rationale

### 1. Stated need

(i) Surface water from Gam river is affected by low flow condition and pollution in dry season, especially after hazard of lead (Pb) leakage in 5 January 2016 in Gam river, water quality is being affected by contamination.
(ii) Existing water supply with water source from Gam river: constructed in 2002 funded by UNICEF being damaged. At present this network is not in use.
(iii) Ground water source is limited because of geologic condition in this area and is not considered a reliable option for domestic water source
(iv) Previous water treatment and pipeline network funded by other ODA source cannot utilize because of following condition:
- Unavailable of electricity: Transformer and cable were not being installed
- Designed head pressure of main pumps does not meet technical requirement;

- Elevation of elevated stored tank does not meet technical requirement. Thus water cannot gravity flow to water tap

(v) + Almost local people are using directly water extract from stream without treatment often using individual electric pumps. There is a deficit of water supply when no access to electricity is available. The is adequate demand for clean water with enough capacity for distribution

93. Pac Miau town is developing and expanding. Population in this area is approximate 5,834 in 2020. In addition, water demand is forecast to increase.

(i) Current water sources: Surface water
(ii) Future water sources: Surface water from the tributary Pac Mieu stream of the Gam River near Na Trang – Na Mo Villages
(iii) Reliability of water sources – annual and seasonal reliability: Yes
(iv) Quality of current water sources: Quality test required especially given the recent mining pollution of the Gam River about 1 to 2km from proposed water source
(v) Level of water services – hours per day: Proposal is for 18 hours per day
(vi) Current cost of existing water sources/access as share of household income:
(vii) Time to access water – currently by gender: 5 hours
(viii) Health – water related data: Minor,

## C. Findings

| Subproject Water Supply Name | Proposed by DPI | PPTA Comments | Conclusion |
|---|---|---|---|
| Water source from Gam river | Not be mentioned | + Surface water from Gam river cannot be extracted because of quality affecting especially sediment and pollution in rain season, hazard from lead and zinc leakage. | Will confirm in their FS |
| Water sources from stream | Using surface water from stream in Na Po and Na Tang communes | + Confirmed<br>+ Available water quantity in stream in dry season should be analyzed and estimated | Will confirm in their FS |
| Water quality in stream | Not be mentioned | Water quality test with 29 indicators will be provided in FS | Will confirm in their FS |
| Water quantity in dry season | Not be mentioned | Water quantity in dry season should be determined to confirm design capacity | Will confirm in their FS |
| Water demand | 1700 m3/day | Estimated water demand proposed in Pre-FS do not conform to Sector Plan requirement issued by Cao Bang PPC (1,083$m^3$/day)<br>Water demand in 2017 and estimation in 2030 should be clarified. | Will confirm in their FS |
| New construction of collected water pond | New construction of water collection pond near natural stream and PVC pipe | - Confirmed | Confirmed<br>Will confirm in their FS |

| Subproject Water Supply Name | Proposed by DPI | PPTA Comments | Conclusion |
|---|---|---|---|
| | | - Volume of collection pond should be calculated to meet pump capacity<br>- Diameter of PVC pipe should be calculated to meet discharge requirement into collected water pond | |
| New construction of pumping station | New construction of pumping station near stream, main pipe, | + Confirmed<br>+ Design elevation of pump base should be considered with peak flooding flow of stream to avoid flooding | Confirmed<br>Will confirm in their FS |
| Pipeline | Widen pipeline network<br>Specification of pipe was not be mentioned | Confirmed<br>Diameter of main pipe, convey pipe, distribution pipe will be calculated | Will confirm in their FS |
| Water distribution for rural villages | | Villages located far from elevated clean water pond should be provided with pipeline network and auxiliary pumps | Will confirm in their FS and basic design |
| Water treatment process | Proposed in concept design | + Confirmed<br>+ Process will followed to requirement in Sector Plan (refer to Decision No. 486/QD-UBND, dated April 2016 ) | Will confirm in their FS |
| Completion of electric network | Not be mentioned | - Confirmed<br>- Transformer and electric cable have to be installed<br>- Capacity of transformer will be determined | Will confirm in their FS |
| Design of elevation of storage tank 350m3 | Not be mentioned | Design of elevation of storage tank will ensure appropriate pressure head of taps and faucets | Will confirm in their FS |
| Review of previous water supply scheme | Not be mentioned | Review should be undertaken in order to determine economically technical proposal in basic design, especially in capacity of transformer, dimension and length of water pipe, quantity and capacity of main and auxiliary pumps, designed elevation of water storage tanks | Will confirm in their FS |
| Existing water pumps and facility | Not be mentioned | When new water supply system is put in operation. Operation and management plan of existing facilities will be considered | Will confirm in their FS |
| Bill of quantity. Cost estimation | Not be mentioned | Bill of quantity will be provided | Will confirm in their FS |
| Detail of EIRR | Not be mentioned | Detail of EIRR will be analyzed | Will confirm in their FS |

## D. Eligibility

| Criteria | Status | | Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| 1: Include in SEDP – if yes state page and section number | X | | When the project is completed and put into operation, it will create a favorable infrastructure to promote sustainable socio-economic development |
| 2: Included in Sector Plan – if yes state page and section | X | | Following Decision No. 1156/QD-UBND dated 23 July 2015 issued by Cao Bang PPC |
| 3: Proposed design concept exists – if yes state date of proposal | X | | Master Plan and Infrastructure plan, updated and approved in 2016 following Decision No. 486/QD-UBND dated 21 April 2016 by PPC Cao Bang |
| 4: Proposed design standard identified – if yes what standard, what is the projected economic life of the subproject | X | | National Vietnamese Standard: QCVN 01:2009/BYT |
| 5: Proposed design standard derived from (i) plan, (ii) demographic forecast, (iii) demographic forecast plus migration, (iv) includes institutional demand, (v) demand set for 2030 or beyond, (vi) daily demand standards | X | | |
| 6: is the date of demand set for at least 2030 | X | | |
| 7: Is demand forecast consistent with the scheme design supply volumes at the economic life of the subproject – minimum of 2030 | X | | 1,700$m^3$/day |
| 8: Is there an established demand for a water supply scheme through a social survey | | No | |
| 9: Is a concept or preliminary engineering design available | X | | |
| 10: Is the preliminary design already approved by commune, district or PPC | | No | |
| 11: Is there a bill of quantities with the preliminary design | | No | |
| 12: Is there a cost estimate – if yes is there a supporting bill of quantity and what is the date for the costing | | No | |
| 13: Are there significant structures required – if yes please identify | X | | Collected water pond, pumping station, pipe network, elevated pond, water treatment plants |
| 14: is the water source confirmed in terms of annual availability, monthly availability | X | | |
| 15: is there approval to use the water source | | X | |
| 16: Are there water quality tests for the proposed water source | | X | |

## E. Safeguard compliance

| Safeguard | Screening Issue | Yes | No | Explanation and Assessed Risks |
|---|---|---|---|---|
| A: Resettlement | Land Acquisition | | X | |
| A.1 Land Acquisition | Agriculture Land | | X | |
| | Urban Public Land | X | | Land for construction of new elevated tanks capacity 300$m^3$ |
| | Urban Private Land | | X | |
| A.2 Structures | Private houses | | X | |
| | Private other | | X | |
| | Public Structures | | X | |
| A.3 | Other Assets | | | |
| A.4 | Resettlement – if yes number of households identified | | X | |
| A.5 | Is there a Land Acquisition and compensation budget – if yes how much | | X | |
| B: Environmental Screening | | | | |
| B.1 water source and network effect on forests<br>- are there any of the following along the alignment of within close proximity – if yes is the risk significant | Production forest land | | X | |
| | Protection forest land | | X | |
| | Protected areas | | X | |
| B.2 Water, rivers lakes and flood plain | Are in-stream value affected, will minimum in stream flows be adhered to how significant are they | | X | |
| B.3 Does the proposal include any IEE screening | | | X | |
| B.4 Did the field visit identify issues form EARF that need to be addressed | | X | | |
| B.5 Water source catchment protection issues | Is the catchment of the water source at risk from climate change | | X | |
| | Risk from contamination from human settlement or livestock | | X | |
| | Risk of deforestation | | X | |

## F. Social Considerations

| Criteria | Yes/No | Explanation and Assessed Risk |
|---|---|---|
| Are communes identified and named | Yes | Pac Miau town |
| Is the population data available for each commune, township | Yes | 5037 in 2015 and 5836 in 2020 |
| Is the number of Poor households available | Yes | 435 in 2016 (45.79%) |
| Is the number of near poor households available | Yes | 46 in 2016 (4.84%) |
| Are Ethnic minorities identified and specified | Yes | 9: including Kinh, Tay, Nung, Mong, Dao, San Chi, Lo, Quy Chau and Hoa (Chinese) |
| Is land use specified | Not Yet | DPI and PPC coordinate to provide data |
| Are the number of female headed households specified | Not Yet | As mentioned above |
| Is the GAP adequately reflected | Not Yet | As mentioned above |

## G. Economic Assessment

| Criteria | Yes | No | Explanation and Assessed Risk |
|---|---|---|---|
| What is the cost per connection at 100% of design capacity and at project completion | Yes | | $870 |
| Does the cost per connection exceed $900 | | No | |
| Is the scheme owner and operator identified | Yes | | |
| Is a tariff reported | | No | |
| Does the tariff based cost of water exceed 5% of household income for the median income of the communes, and for the lowest quartile of household incomes | | No | |
| Will the tariff exclude poor and near poor households on affordability criteria of 5% of household income | Yes | | |
| Is there a financial assessment of the water supply scheme | | No | |
| Are scheme benefits clearly identified by category of benefit | | No | |
| Is each benefit quantified | | No | |
| Is there an economic assessment – if yes what is EIRR | | No | |
| Is there a detailed worksheet for the EIRR | | No | |

## H. Summary

| Recommendation | Yes | No | Explanation or Outstanding Gaps |
|---|---|---|---|
| Is the subproject eligible by being part of Provincial plans | Yes | | |
| Is there a clear design standard that is justified | Yes | | QCVN 01/2009: BYT |
| Are there outstanding approvals required | Yes | | |
| Is there a preliminary design | Yes | | |
| Is there a Feasibility study | Yes | | |
| Is sufficient data on the availability of water provided | | No | Water quantities assessment is required by a FS to be prepared by the local consultant for the subproject.<br>Gauging is needed urgently on the proposed tributary to be used as water source for dry and wet season |
| Is there sufficient data on water quality | | No | Water quality assessment is required by a FS to be prepared by the local consultant for the subproject. Specific testing for Lead and Zinc and other mining pollution, suggested that testing covers both the tributary and the main stream at the junction with the GAM river |
| Is the Subproject category A for resettlement and affected persons | | No | |
| Is the Subproject category A for environment | | No | |
| Does the Subproject have clear economic inclusiveness outcomes | Yes | | |
| Does the subproject have clear network connectivity benefits | Yes | | |
| Is the project expected to achieve a 9% EIRR | | No | A required FS to be prepared by the local consultant to assess the EIRR of the subproject. |
| Who will manage the scheme and are they linked to a municipal or rural town operator | Yes | | State-based service company: Cao Bang Water Supply and Sewerage Co, Ltd |
| Is the scheme an expansion of an existing municipal and or rural town supply – if yes, are they required to on lend from the PPC? | | No | |

## I. Water Supply Photo and Location

Current main water source for Pac Miau town from natural stream

Water treatment equipment constructed but not used

Submerged pumps have been installed but cannot operate because of without electric

Control box inside pump station does not connect to main electric cable because of transformer was not being installed

Individual small water pumping station for Pac Miau Hospital

Water pumping station is damaged heavily

Individual small water pumping station for PPC Bao Lam office

Various extract pipe to collect water from natural water source for Pac Miau School, Police Station, Military office and local people

Local young people to collect water for home use by using water pot

Natural water source from stream with fair quality

Existing elevated stored pond without water

Water tap, counter have been installed without water usage

Proposed location for construction of new elevated tank 350m$^3$. This tank can supply for almost water users and office in Pac Miau town


Mud with lead and zinc in Gam river after leakage from waste water pond in CKC company premises, located in Lang Ca village, Pac Miau town, Bao Lam district (5 January 2016)

## HA GIANG PROVINCE

## XII. ADDITIONAL SUBPROJECT SCREENING REPORT

### A. Output 1 Road Subproject Findings

94. Two additional subprojects are included in the long list. As proposed the **additional road subprojects need further design work** to meet the required eligibility criteria.

95. Major concerns relate to the

(i) Binh Vang Road
  (a) there are concerns about the need for new alignments to be confirmed and approved,
  (b) the status of the new alignment through the current mountain footpath and the surrounding forest land classification needs to be confirmed as production forest,
  (c) the design for crossing the flood plain which if it is a solid causeway will result in an ADB environment safeguard classification of A which would make the section ineligible

(ii) Meo Vac Dong Van Road
  (a) The approval to widen the roads and within the geological park
  (b) The technical feasibility of road widening in narrow right of way,
  (c) Clearance of the environmental category A due to the disruption of the aesthetic of the geological park
  (d) Cost affordability to construct the wider road

96. Without clarity of these issues it is probable that the roads would fall into an ineligible status with ADB. The **PPTA concludes that based on making these changes two eligible subprojects are possible** but technical and safeguard reviews are required.

97. Findings of the individual subproject screening are presented in section XII and XIII below. A summary of findings is presented in the following table by each criterion. For many criteria, there is inadequate data available at the time of screening. The detailed actions and where agreements have been reached these are recorded in the appended subproject reports.

98. Further whilst the PPTA and Government representatives have agreement on the eligibility and the proposed design categories of the road subprojects there is to date no traffic count, or traffic forecast for establishing or verifying the design standard. It is a strong recommendation for this data to be prepared as soon as possible as the loan agreement will require traffic forecasts and road categorization are consistent before a detailed design can be approved.

| Subproject Name | Eligibility | Safeguard Compliance | GAP | Feasibility and Viability Indicators | Sustainability | Issues to be Resolved | Eligibility |
|---|---|---|---|---|---|---|---|

| Criterion | C 1 | C 2 | C 3 | C 4 | C 5 | C 6 | C 7 | C 8 | C 9 | C 10 | C 11 | C 12 | C 13 | C 14 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ha Giang City To Binh Vang Industrial Park Road | ✓ | ✓ | ✓ | ✓ | X | X | ✓ | ? | ? | ? | X | ? | ✓ | ✓ | Yes | Not yet |
| 2. Mau Due – Yen Minh – Meo Vac Road | ✓ | ✓ | ✓ | ✓ | ✓ | **X** | ✓ | **X** | **X** | **X** | **X** | **X** | ✓ | **X** | Yes | Not Yet |

## B. Output 2 Water Supply Scheme Findings

99. Findings of the individual subproject screening are presented in appendix 2 below. A summary of findings is presented in the following table by each criterion.

100. The screening highlights a significant gap in terms of the preparation of the subproject, the gaps relate to data on adequacy and safety of proposed water sources, clarity on the real demand for water services and the nature of services to be demanded. Currently the PPTA cannot confirm the eligibility in terms of water resource availability to support the technical design standards, and the likely viability of the schemes due to the lack of research into the nature of demand for water, the likely uptake of water services and the willingness and ability to pay for water. Within these caveats the subprojects meet the eligibility with respect to the outcome expectation of BIIG1 investment, the rationale and planning alignment is clear. Social safeguards and environmental safeguards category b or c are highly probable within the caveat of water supply and quality aspects. Without clear data on water quality the treatment options cannot be confirmed, and without clear demand forecasts based on consumer needs the overall design capacity and layout remains somewhat vulnerable to change.

101. The affordability of water supply is highly limited with the capital cost considered excessive. Clear asset ownership, operational and maintenance responsibilities need to be included in the proposals before the subproject can be considered eligible.

102. The PPTA conclusion is that the PMU and its District counterparts need to address, ***with urgency***, the issues of:

(i) Water supply and quality and to conduct some initial consultation with proposed consumers. Water supply gauging needs to start immediately, wider catchment modelling would be beneficial, and
(ii) Water testing needs to be conducted across a range of flow regimes and seasons.
(iii) Clear documentation from DONRE is required regarding instream flows and acceptability of the water offtakes
(iv) Scheme viability and affordability strategies need to be committed to as per para. 11 above.

103. The screening criteria summary is presented below with the detailed subproject screening reports provide in Appendix 2 that includes the required actions and where agreements have been reached these are recorded in the appended subproject reports.

**Table 12: HA Giang Summary of Water Supply Subproject Screening Findings**

| Subproject Name | Eligibility | | | | | | Safeguard Compliance | | GAP | Feasibility and Viability Indicators | | | | Sustainability | Issues to be Resolved | Eligibility |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Criterion** | **C 1** | **C 2** | **C 3** | **C 4** | **C 5** | **C 6** | **C 7** | **C 8** | **C 9** | **C 10** | **C 11** | **C 12** | **C 13** | **C 14** | | |
| 1. Water Supply Network of Coc Pai town, Nam Dan and Ban Ngo communes, Xin Man district | ✓ | ✓ | ✓ | ? | X | X | ✓ | ✓ | ✓ | ✓ | X | X | ? | X | Yes | Not Yet |

# XIII. OUTPUT 1: SUBPROJECT HA GIANG CITY TO BINH VANG INDUSTRIAL PARK ROAD

## A. Subproject Description

104. Upgrade and rehabilitation of the road from Ha Giang city to Binh Vang industrial park. Total length (km+m): 20.5km

(i) Starting point: Ward 1, Minh Khai district, Ha Giang city (end of Minh Khai road).
(ii) End point: in Ngoc Linh commune, Vi Xuyen district (connecting with the end point of the representative subproject.
- Existing alignment (km+m): Km15+290.57 to Km18+492.91 (Km20+517.47)
- New alignment (km +m): Km15+290.57 to Km16+49.39 (758.82m) – not yet approved

105. Current Road Categorization: from Km0+0.00 -: - Km15+290.57 rural road type A; section from Km16+49.39 -: - Km18+492.91 rural road type B, and Km18+492.91 -: - Km20+517.47 status of mountainous road VI (TC4054-2005). The road is to be upgraded to category IV with Asphalt road of 2km from the end point to connect with the new alignment (earth road) and 3.8km of gravel and severely damaged road section linking with Binh Vang peripheral road and category V with asphalt road of the rest.

(i) Section 1: Km0+0.00 -: - Km18+492.91 Category V mountainous road in accordance with TCVN 4054-2005), design speed Vtk=30km/h.
(ii) Section 2: Km18+492.91 -: - Km20+517.47 section of the road is designed as mountainous grade IV road according to TCVN 4054-2005), design speed Vtk=40km/h.

106. Overview of proposed works: the road subproject will construct pavements, road surface, drainage works, protection works, and traffic systems.

107. Proposed investment $ total: $12,200,000 or about $593,000 per km

## B. Rationale

### 1. Current use

108. The road from Ha Giang City to Binh Vang Industrial Park is divided into two sections with characteristics and status as follows:

(i) Section one: from ward 1, Minh Khai district, Ha Giang city (end of Minh Khai street) to the end of Noong lake, Phu Linh commune, Vi Xuyen district with a total length of 15.3km. Currently, this section is rural road A built between 2000 and 2001. The road is in bad condition. The road goes to Minh Khai Ward, Ha Giang City and Phu Linh Commune, Vi Xuyen District. There are 03 bridges on the road, reinforced concrete bridges with a width of 6.0m, bridges are degraded and cannot meet the demand for travel.
(ii) Section 2: This section goes from the end of the asphalt road and the beginning of the new road through the Noong Lake and through the mountain, Phu Linh Commune to the intersection with the asphalt road in Ngoc Linh Commune (road

to Binh Vang Industrial Park and to Highway 2) with a length of 3.2km. This road section is also in bad and cannot travel at some point. The road is in Phu Linh commune.

(iii) Section 3: This section goes from the intersection with the asphalt road in Ngoc Linh commune (road to Binh Vang industrial park and to NH 2) to the end of representative subproject 1 in Ngoc Linh commune. The road section is relatively good. The section passes through Ngoc Linh commune, Vi Xuyen district. There is a reinforced concrete bridge with a width of 6m, the status is good.

109. The road from Ha Giang City to Binh Vang Industrial Park is located in provincial road 184 (Kim Ngoc - Ha Giang City) and is part of the overall plan of Ha Giang Province until 2020 with orientation to 2030. The investment route will connect Ha Giang City to Binh Vang Industrial Zone and to Highway 2 in Vi Xuyen Town, Ha Giang Province, which will facilitate cargo traffic. Moreover, it helps to transport products from the factories to the domestic market. The road will complete the eastern alternative route to NH2 removing local traffic and trucks linked to Binh Vang Industrial zone from NH2.

110. Support connection from Tuyen Quang province to Ha Giang province through NH279 and reduce traffic load on NH2.

111. Support for traffic connections between Tuyen Quang and Ha Giang Provinces (via NH279), reducing the traffic load on NH2 as well as connecting Bac Quang and Vi Xuyen districts. On the other hand, the construction of the road sub-project will contribute to the creation of a better transport system connected to national and provincial roads.

### 2. Future use

112. The Representative Subproject Road 1 is to provide relief to NH2 between PR279 and Ngoc Linh, this sub-project road will provide an alternative to NH2 from Ngoc Linh into Ha Giang City. It would complete the alternative/ relief road function with regards NH2.

113. It is also intended to provide truck access to Binh Vang Industrial Zone. Rehabilitation of this road would also provide improved accessibility to villages along its route including connecting these directly to Ha Giang city.

114. This subproject will provide a shorter connection between NH279 (to/from Tuyen Quang) and NH2 (to/from Ha Giang City). Thus, it will also provide an alternative to NH2, reducing the traffic pressure on Ha Giang's main traffic artery. Moreover, it will provide direct access to the Binh Vang Industrial Park. The construction of this road as a viable alternative one for NH2 will reduce congestion on NH2, which is the most important road of Ha Giang. Without this road, access to Ha Giang City and beyond would be hampered, limiting the growth of cross border trade with China (especially through Thanh Thuy) and tourism development (e.g. Dong Van Geological Park) will be impeded by traffic congestion on NH2.

115. The development of industry, commerce and tourism is expected to play an important role in economic development and poverty alleviation in Ha Giang province. In addition, this subproject will provide support for all three.

| Subproject Road Name | Proposed by DPI | PPTA Findings and Recommendations | DPI Conclusion |
|---|---|---|---|
| Starting point | Ward 1, Minh Khai district, Ha Giang city (end of Minh Khai road). | Confirmed | Agreed 102 |
| End point | in Ngoc Linh commune, Vi Xuyen district (connecting with the end point of the representative subproject. | Confirmed | Agreed |
| Length | 20,5km :<br>Existing alignments: Km0+0.00 -: - Km15+290.57 and Km18+492.91 - Km20+517.47<br>New proposed alignments: Km15+290.57 - Km16+49.39 (l=758.82m)<br>Current road category: From Km0+0.00 - Km15+290.57 rural road type A; Section from Km16+49.39 - Km18+492.91 rural roads type B and Km18+492.91 - Km20+517.47 mountainous road VI (TC4054-2005<br><br>Proposed design solutions for the new alignment: road embankment through the upstream area across Noong Lake and 6m box culvert | Approximately 20.5km.<br><br>1. From Km0 - Km15+290 the road follows the existing road (Rural Road A). The currently condition of many road sections has been damaged, the width of the road 5-6m. Expected upgrade to expand to the V mountainous road.<br><br>2. From Km15+290 - Km16+100 the road section passes through Noong Lake; the PPTA consultant suggested that the local consultants consider specific route options as well as design solutions to minimize negative impacts on the environment; Area of the lake.<br><br>The PPTA consultant proposed two technical design options for comparison such as (i) viaduct and (ii) box culvert across the Noong Lake for consideration by DPI the local consultant.<br>3. From Km16+100 - Km18+492: The road passes through the production forest area and follows the existing trail. Km17+800 - Km18+492 goes through the steep slopes, so it is recommended that vertical slopes be adjusted in accordance with the design requirements.<br><br>4. From Km18+492 - Km20+517: the road follows the existing road linking to the end point of Dong Tam - Binh Tan Industrial Park.<br><br>5. Currently from Km18+492 to Binh Vang Industrial Park, the 3.8km long section of the road is now a grade A road; The road surface is severely damaged due to huge volume of heavy trucks and other traffics going from/to Binh Vang Industrial Park.<br><br>6. According to the PPTA consultant's findings, to connect with Binh Vang Industrial Zone, it is proposed to add this 3,8km section to promote the effectiveness of the road. | Agreed with the PPTA's findings<br>Existing alignment: Km0+0.00 - :- Km15+290.57 and Km18+492.91 - Km20+517.47<br>New proposed alignment: Km15+290.57 - Km16+49.39 (l=758.82m). It is requested that the local consultant take into account the PPTA Consultant's recommendations.<br>Section from Km16+49.39 - Km18+492.91 is a new alignment. An official approval for this new alignment will be provided by DPI as per the PPTA consultant's recommendation and forest areas classification.<br><br>Section from Km18+492.91 -:- Km20+517.47 category V mountainous road (TC4054-2005)<br>Upgrading and expanding section from Km 18+492 into Binh Vang Industrial Zone with length of 3,8km. This section should be included in the subproject so as to complete the road connectivity and efficiency. |
| Road Cat | Section 1: Km0+0.00 - Km18+492.91 proposed to upgrade | Confirmed | Agreed |

| | | | |
|---|---|---|---|
| | Cat V mountainous road (TCVN 4054-2005), Vtk=30km/h.<br>Cross section<br>+ Right of Way (ROW) = 3.50m<br>+ reinforced shoulders (same road surface structure) : 2x1=2.00m<br>+ earth shoulders : 2x0.50 =1.00m<br>Total (road pavement width) : = 6.50m<br><br>Section 2: Km18+492.91-:- Km20+517.47 proposed to upgrade Cat IV mountainous road (TCVN 4054-2005), Vtk=40km<br>Cross section<br>+ Right of Way (ROW) = 5.50m<br>+ reinforced shoulders (same road surface structure): 2x0.50=1.00m<br>+ earth shoulders: 2x0.50=1.00m<br>Total (road pavement width) : = 7.50m | | |
| Proposed works | To be determined | Not yet determined | will confirm in their FS |
| Status of FS | Field survey marks but not FS prepared yet | | |

## C. Findings

### 1. Status of the existing road:

(i) From Km0-Km15+290 goes along the existing road (Rural Road A). At present the condition of many road sections has been damaged, the width of the road 5-6m. Expected upgrade to expand to the V mountainous road.

(ii) From Km15+290 - Km16+100 the road section passes through Noong Lake; the PPTA consultant suggested that the local consultants consider specific route options as well as design solutions to minimize negative impacts on the environment; Area of the lake. The PPTA consultant asked for the assessment two technical design options for comparison such as (i) viaduct and (ii) box culvert across the Noong Lake for consideration by DPI the local consultant. <u>There is a potential risk of category A environment without a sympathetic design option.</u>

(iii) From Km16+100 - Km18+492: The road passes through the production forest area and follows the existing trail. Km17+800 - Km18+492 goes through the steep slopes, so it is recommended that vertical slopes be adjusted in accordance with the design requirements.

(iv) From Km18+492 - Km20+517: the road follows the existing road linking to the end point of Dong Tam - Binh Tan Industrial Park.

(v) Currently from Km18+492 to Binh Vang Industrial Park, the 3.8km long section of the road is now a grade A road; The road surface is severely damaged due to huge volume of heavy trucks and other traffics going from/to Binh Vang Industrial Park.

According to the PPTA consultant's findings, to connect with Binh Vang Industrial Zone, it is proposed to add the 3,8km section to promote the effectiveness of the road.

116. At the debriefing with ADB, the PPTA consultant presented our findings with DPI Director and DPI agreed with the PPTA consultant's recommendations and confirmed and will reply to the consultant with the official approval of the new alignment and protection or production forest areas.

## D. Eligibility

| Criteria | Status | | Risk of Non-compliance and Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| 1: Include in SEDP – if yes state page and section number | ✓ | | The road subproject has been included in province and district's SEDP document No1304/QD-UBND dated 4/7/2013 |
| 2: Included in DoT Master Plan – if yes state page and section | ✓ | | Also included in the transport master plan to 2020 with a vision to 2030 |
| 3: Proposed design concept exists – if yes state date of proposal | | x | Design is incomplete and need to address issues relating to flood plain crossing and the connection of the hill path to the flood plain |
| 4: Proposed design standard identified – if yes what standard, what is the projected economic life of the subproject | ✓ | | The road subproject will be upgraded to grade IV and V mountainous roads according to TCVN 4054-2005 |
| 5: Proposed design standard derived from (i) plan, (ii) traffic forecast, (iii) traffic forecast plus network efficiency (iv) what is the current road standard on each end point or network connection now and planned | | x | The proposed designed standard is derived from the provincial transport masterplan for districts.<br><br>The current road standard on each end point of Section 1: Km0+0.00 - Km18+492.91 proposed to upgrade Cat V and<br>Section 2: Km18+492.91-:- Km20+517.47 proposed to upgrade Cat IV mountainous road and the network connection now and planned is Cat V towards 2030. |
| 6: is the date of traffic forecast or base traffic forecast after 2015 | | x | Not yet traffic count data has limited value due to the nature of disconnection leading to latent traffic demand being hidden from counts. |
| 7: Is traffic forecast consistent with Road Categorization – if yes – at project start, at the economic life of the subproject | | x | Not yet |
| 8: Is there a preliminary design document with supporting engineering field surveys and drawings – if yes what is the date of these, what design standard is used. | ✓ | | There is a preliminary design document prepared by the local consultant in 2016, but it is a draft without supporting engineering field surveys and drawings. Key issues need further design options to be assessed<br><br>The proposed design standard is Cat IV and V. |
| 9: Is the Preliminary design already approved by DoT | | x | Not yet |
| 10: Is the preliminary design already approved by PPC | | x | Not yet |
| 11: Is there a bill of quantities with the preliminary design | | x | Not yet |
| 12: Is there a cost estimate – if yes is there a supporting bill of quantity and what is the date for the costing | | x | Not yet |

| Criteria | Status | | Risk of Non-compliance and Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| 13: Are there significant structures required – if yes please identify | | x | Not yet |
| 14: Are there significant cut and fill requirements – if yes please provide an estimate of the extent | | x | Not yet |
| 15: is the current Right of Way sufficient for the proposed or required road design | | x | Not yet |

## E. Safeguard Compliance

| Safeguard | Screening Issue | Yes | No | Explanation and Assessed Risks |
|---|---|---|---|---|
| A: Resettlement | Land Acquisition | | | Extent – minor, substantial |
| A.1 Land Acquisition | Agriculture Land | ✓ | | Substantial |
| | Urban Public Land | ✓ | | Substantial |
| | Urban Private Land | ✓ | | Substantial |
| A.2 Structures | Private houses | ✓ | | Substantial |
| | Private other | ✓ | | Substantial |
| | Public Structures | ✓ | | Substantial |
| A.3 | Other Assets | ✓ | | Substantial |
| A.4 | Resettlement – if yes number of households identified | ✓ | | Based on the PPTA consultant's field visit there will be at least from 20 to 30 households who will be significant and severely affected by the subproject (either loss of their residential and agricultural land or to be relocated |
| A.5 | Is there a Land Acquisition and compensation budget – if yes how much | | X | Not yet |
| B: Environmental Screening | | | | |
| B.1 Forests | Production forest land | ✓ | | Extent |
| - are there any of the following along the alignment of within close proximity – if yes is the risk significant | Protection forest land | | ✓ | |
| | Protected areas | | ✓ | |
| B.2 Water, rivers lakes and flood plain | Are there any areas affected by the existing or proposed alignments? If yes how significant are they | ✓ | | Flood plain crossing of lake |
| B.3 Does the proposal include any IEE screening | | | X | The proposed road subproject doesn't include any IEE screening |

| Safeguard | Screening Issue | Yes | No | Explanation and Assessed Risks |
|---|---|---|---|---|
| B.4 Did the field visit identify issues form EARF that need to be addressed | | ✓ | | Request to recheck the protection forest areas where the new alignments are proposed to go through and resettlement issues. |
| B.5 New Alignments | Risk of land slips | ✓ | | Section 1: Km0+0.00 - Km18+492.91 proposed to upgrade Cat V mountainous road (TCVN 4054-2005), Vtk=30km/h.<br>Section 2: Km18+492.91-: - Km20+517.47 proposed to upgrade Cat IV mountainous road (TCVN 4054-2005), Vtk=40km |
| | Risk of Large cuts | ✓ | | As presented above |
| | Water course disruption | ✓ | | |
| | Flood Plain Disruption | ✓ | | |
| | | | | |

## F. Social Considerations

**Table 13:**

| Criteria | Yes /No | Explanation and Assessed Risk |
|---|---|---|
| Are communes identified and named | Yes | If yes please list communes<br>3 communes:<br>Ngoc Linh<br>Dao Duc<br>Phu Linh |
| Is the population data available | (based on the PPTA consultant's interview with Vi Xuyen district, authorities (vice) presidents) and Vi Xuyen district total population as of 2016 is 106,235 people, of which 92,495 rural people and EM population is 88,340 with poverty rate of 33.51%.<br>The subproject will directly benefit totally 16,158 local people in 3 communes Ngoc Linh, Dao Duc, and Phu Linh, Vi Xuyen district. | Very high percentage of the rural population in Vi Xuyen district (92.495) and EM population (88.340 equivalent to 83.16%) and high poverty rate of 33.51%). |
| Is the number of Poor households available | Ngoc Linh commune is 210<br>Dao Duc commune is 112<br>Phu Linh commune is 263 | DPI and local consultants will coordinate with district and commune authorities and offices (social, financial and economic infrastructure) to provide updated data.<br>Minor risk |
| Is the number of near poor households available | Not yet | As presented above |
| Are Ethnic minorities identified and specified | Not yet | As presented above |
| Is land use specified | Not yet | As presented above |
| Are the number of female headed households specified | Not yet | As presented above |
| Is the GAP adequately reflected | Not yet | As presented above |

## G. Economic Assessment

| Criteria | Yes | No | Explanation and Assessed Risk |
|---|---|---|---|
| Is there an economic assessment – if yes what is EIRR | | x | A required FS to be prepared by the local consultant to assess the EIRR of the subproject. |
| Is there a detailed worksheet for the EIRR | | x | As presented above |
| Is it linked to the traffic forecast | | x | As presented above |

## H. Summary

| Recommendation | Yes | No | Explanation or Outstanding Gaps |
|---|---|---|---|
| Is the subproject eligible by being part of Provincial plans | ✓ | | The subproject is considered eligible by being part of the SEDP and Transport Masterplan as well as FNEP Master Plan. |
| Is there a clear design standard that is justified | | x | Not yet, the FS will present the proposed design standard. |
| Are there outstanding approvals required | ✓ | | Requested<br>(i) confirmation of the protection forest area of section from Km16+100 - Km18+492: The road passes through the production forest area and follows the existing trail. Km17+800 - Km18+492 goes through the steep slopes, so it is recommended that vertical slopes be adjusted in accordance with the design requirements. |
| Is there a preliminary design | | x | Not yet |
| Is there a Feasibility study | | x | Not yet |
| Is the Subproject category A for resettlement and affected persons | | x | As per the PPTA consultant's field visit to the subproject sites, the Subproject may be classified under category B or C for minor resettlement and affected persons, but this is subject to the detailed Resettlement report. |
| Is the Subproject category A for environment | ?? | ?? | Unknown requires DPI clarification<br>As per the PPTA consultant's field visit to the subproject sites, the Subproject is classified under category B or C for environment however the design option selected may trigger category A environment within the flood plain |
| Does the Subproject have clear economic inclusiveness outcomes | ✓ | | As per the PPTA consultant's subproject field visit assessment, the Subproject has clear economic inclusiveness outcomes |
| Does the subproject have clear network connectivity benefits | ✓ | | As per the PPTA consultant's subproject field visit assessment, the Subproject has clear network connectivity benefits.<br>(i) Whilst one of the roles of Representative Subproject Road 1 is to provide relief to NH2 between PR279 and Ngoc Linh, this sub-project road will provide an alternative to NH2 from Ngoc Linh into Ha Giang City. It would complete the alternative/ relief road function with regards NH2.<br><br>It is also intended to provide truck access to Binh Vang Industrial Zone. Rehabilitation of this road would also provide improved accessibility to villages along its route including connecting these directly to Ha Giang city.<br><br>This subproject will provide a shorter connection between QL279 (to/from Tuyen Quang) and NH2 (to/from Ha Giang City). Thus, it will also provide an alternative to QL2, reducing the traffic pressure on Ha Giang's main traffic artery. Moreover, it will provide direct access to the Binh Vang Industrial Park. |

| Recommendation | Yes | No | Explanation or Outstanding Gaps |
|---|---|---|---|
| Is the project expected to achieve a 9% EIRR | | x | Not yet |

## I. Ha Giang City to Binh Vang Industrial Zone Road Map


## J. Road Chainage Photos

Starting point Km0 = Minh Khai Street

Starting point Km0+00

Km2

Km2

Bridge Km6

Bridge Km6

**Km8**

**Km11**

**Km13**

**Km14**

**Km14+900**

**Km15+250**

**Km15+300**

**Km15+800**

**Km16**

**Km16+100**

**Km16+300**

**Km16+400**

**Km17**

**Km17+500**

**Km18+100**

**Km18+300**

**Km18+400**

**Km18+500**

Road connect to Binh Vang Industry

Road connect to Binh Vang Industry

Km18+500

Km18+490

Km19

Km20

**Km20+500**

**Starting point Km20+517.47**

# XIV. OUTPUT 1: SUBPROJECT MAU DUE – YEN MINH – MEO VAC ROAD

## A. Description

117. Upgrading and improving provincial road (Mau Due commune, Yen Minh district) – Sung Tra commune, Meo Vac district). Total length of 22.9km all is existing alignment. Overview of proposed works: the road subproject will construct pavements, road surface, drainage works, protection works, and traffic systems.

(i) Starting point: Km0+00 connecting with PR176 at Km13+00 in Mau Due commune, Yen Minh district).

(ii) End point: Km22+9 00 = PR176 Km36+500 Sung Tra commune, Meo Vac district .

118. Current Road Categorization: Category VI asphalt road with Width Roadbed=5m; Pavement=3,5m. Proposed Road Categorization: Category V with asphalt road.

(i) Proposed investment $ total: $14,930,000 or $652,000/km

## B. Rationale

### 1. Current use

119. This road crosses through three districts of Yen Minh, Dong Van and Meo Vac. Its alignment is shown in annex 1. The existing road is asphalt Class VI road, which has suffered degradation, especially between the center of Mau Due commune and the center of Sung Tra commune. Some parts have steep slopes (>14%). It connects Yen Minh town center with Meo Vac town center. It is proposed to improve this road to Class V standard.

120. The road area has a mountainous terrain. Based on the PPTA consultant's view, the topography of the area is difficult for the construction process with steep and narrow sections.

121. Upgrading of PR176 from Mau Due to Sung Tra that comprises three sections as illustrated in Annex 1. The details are as follows:

(i) 22.9km coinciding with the current alignment of PR176, which is currently Rural Class A standard

(ii) Some of the existing sections of the road have suffered significant degradation to the road surface and base. Some sections are either lacking drainage gutters or have degraded drains. The envisaged standard of the new/upgraded road is Class V. This road section is included in the RNMP's plans for completion by 2020 as well as forming part of the vision for 2030.

### 2. Future use

(i) This subproject road would provide better and more reliable connectivity for local residents. The primary role of the road is to provide improved road conditions to enable visitors to the Dong Vang Geological Park follow a circuit and reducing the two way traffic on the narrow NH 4C. Once this route is upgraded, it will be more

convenient for tourists to make a circular tour along NH4C and DR176, rather than having to head along NH4C in both directions.

(ii) In addition to the social (poverty alleviation) and agricultural development rationales, this road subproject also contributes to the overall development of the road network in Ha Giang and creating a tourist circuit in the FNEP region alike.

(iii) Beyond the rehabilitation of the road, upgrading to Class V would promote travel between Yen Minh, Dong Van and Meo Vac districts, Ha Giang Province.

## C. Findings

### 1. Status of the existing road:

(i) Section from Km0 – Km17+00 follows the PR176. This road is asphalt road with 5-6m to upgrade to class V. some sections are too narrow that need widening.

(ii) Section from Km17 - Km17+600 in Lung Phin commune has many houses. The road has a limited visibility. Width of existing roadbed is not enough with no have drainage system. The local consultant proposed to widen roadbed and creating two side box drainage along, with box bearing to reduce site clearance.

(iii) Section 17+600 – Km22+900 alignment along the mountain with narrow roadbed. To upgrade to Grade class V; with Roadbed width=6,5m need widening many sections and removing big quantities of rocks with topside cliffs, and downside steep slopes.

| Subproject Road Name | Proposed by DPI | PPTA Findings and Recommendations | DPI Conclusion |
|---|---|---|---|
| Starting point | At Km0+00 connecting to PR176 (in Mau Due commune, Yen Minh district) | Confirmed | Agreed |
| End point | At Km22+900 Sung Tra commune, Meo Vac district) | Confirmed | Agreed |
| Length | 22,9km:<br>Section from Km0 – Km22,9 current is cat VI Mountain with Width roadbed = 5-5,5m and with proposed to upgrade the road to Class V | Approximately 22,9km.<br>Km0 – Km17 following the existing PR176; upgrading road surface Bn=6,5m<br>Km17 – Km17+600 (Lung Pin commune Station) proposed a new side ditch along alignment to reduce site clearance.<br>Km17- Km22+900 follows the existing PR176; upgrading road surface; Bn=6.5m | Agreed with the PPTA's findings |
| Road Cat | Proposed Cat V mountainous road according to TCVN 4054-05:<br>Road pavement =6,5m, ROW =3,5m. Shoulders: 2x1,5m, reinforced pavement: 2x1m, road structure: Asphalted | Agreed Cat V mountainous road according to TCVN 4054-05:<br>Road pavement = 6,5m, ROW =3,5m. Shoulders: 2x1,5m, reinforced pavement: 2x1m, road structure: Asphalted | Agreed Cat V mountainous road according to TCVN 4054-05:<br>Road pavement = 6,5m, ROW =3,5m. Shoulders: 2x1,5m, reinforced pavement: 2x1m, road structure: Asphalted |

| | | | |
|---|---|---|---|
| Proposed works | To be determined | Not yet determined | will confirm in their FS |
| Status of FS | Field survey marks but not FS prepared yet | | |

## D. Eligibility

| Criteria | Status | | Risk of Non-compliance and Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| 1: Include in SEDP – if yes state page and section number | ✓ | | The road subproject has been included in province and district's SEDP document No1304/QĐUBND dated 4/7/2013 |
| 2: Included in DoT Master Plan – if yes state page and section | ✓ | | Also included in the transport master plan to 2020 with a vision to 2030 |
| 3: Proposed design concept exists – if yes state date of proposal | ✓ | | The design is incomplete. |
| 4: Proposed design standard identified – if yes what standard, what is the projected economic life of the subproject | ✓ | | The road subproject will be upgraded to grade V mountainous roads according to TCVN 4054-2005 |
| 5: Proposed design standard derived from (i) plan, (ii) traffic forecast, (iii) traffic forecast plus network efficiency (iv) what is the current road standard on each end point or network connection now and planned | | x | The proposed designed standard is derived from the provincial transport masterplan for districts.<br><br>The current road standard on each end point is rural road A and the network connection now and planned is Cat V towards 2030. |
| 6: is the date of traffic forecast or base traffic forecast after 2015 | | x | Not yet |
| 7: Is traffic forecast consistent with Road Categorization – if yes – at project start, at the economic life of the subproject | | x | Not yet |
| 8: Is there a preliminary design document with supporting engineering field surveys and drawings – if yes what is the date of these, what design standard is used. | ✓ | | There is a preliminary design document prepared by the local consultant in 2016, but it is a draft without supporting engineering field surveys and drawings.<br><br>The proposed design standard is Cat V. |
| 9: Is the Preliminary design already approved by DoT | | x | Not yet |
| 10: Is the preliminary design already approved by PPC | | x | Not yet |
| 11: Is there a bill of quantities with the preliminary design | | x | Not yet |
| 12: Is there a cost estimate – if yes is there a supporting bill of quantity and what is the date for the costing | | x | Not yet |
| 13: Are there significant structures required – if yes please identify | | x | Not yet |
| 14: Are there significant cut and fill requirements – if yes please provide an estimate of the extent | | x | Not yet |
| 15: is the current Right of Way sufficient for the proposed or required road design | | x | Not yet |

## E. Safeguard Compliance

| Safeguard | Screening Issue | Yes | No | Explanation and Assessed Risks |
|---|---|---|---|---|
| A: Resettlement | Land Acquisition | | | Extent – minor, substantial |
| A.1 Land Acquisition | Agriculture Land | ✓ | | substantial |
| | Urban Public Land | ✓ | | substantial |
| | Urban Private Land | ✓ | | substantial |
| A.2 Structures | Private houses | ✓ | | Moderate |
| | Private other | ✓ | | Moderate |
| | Public Structures | ✓ | | Moderate |
| A.3 | Other Assets | ✓ | | substantial |
| A.4 | Resettlement – if yes number of households identified | ✓ | | Based on the PPTA consultant's field visit there will be at least from 10 to 15 households who will be affected by the subproject (either loss of their residential and agricultural land.) |
| A.5 | Is there a Land Acquisition and compensation budget – if yes how much | | X | Not yet |
| B: Environmental Screening | | | | |
| B.1 Forests<br>- are there any of the following along the alignment of within close proximity – if yes is the risk significant | Production forest land | ✓ | | Extent |
| | Protection forest land | ✓ | X | |
| | Protected areas | ✓ | X | Dong Van Geological park is a UNESCO designated "zone" that can be considered equivalent to a protected area requiring sympathetic development. Road improvement is identified in the UNESCO planning documents. |
| B.2 Water, rivers lakes and flood plain | Are there any areas affected by the existing or proposed alignments? If yes how significant are they | | X | |
| B.3 Does the proposal include any IEE screening | | | X | The proposed road subproject doesn't include any IEE screening |
| B.4 Did the field visit identify issues form EARF that need to be addressed | | ✓ | X | Request to recheck the protection forest areas where the new alignments are proposed to go through and resettlement issues. |
| B.5 New Alignments | Risk of land slips | ✓ | | i) Km0 – Km17 opening roadbed and made new pavement.<br>ii) Km 17 – Km17+600 made new side ditch along route with face bearing to open roadbed and reduce quantity site clearing.<br>ii) Km17+600 – Km22+900 open roadbed to achieve cat V ( Roadbed width = 6,5m)…. |
| | Risk of Large cuts | ✓ | | As presented above |
| | Water course disruption | | X | |
| | Flood Plain Disruption | | X | |

## F. Social Considerations

| Criteria | Yes /No | Explanation and Assessed Risk |
|---|---|---|
| Are communes identified and named | Yes | If yes please list communes<br>5 communes:<br>▪ Mau Due<br>▪ Sung Chain<br>▪ Lung Phin<br>▪ Sung Mang<br>▪ Sung Tra |
| Is the population data available | (based on the PPTA consultant's interview with Mau Due district, and Meo Vac authorities (vice) presidents) and Mau Due commune total population as of 2016 is 1,246 households, of which 6,248 rural people and Sung Tra commune, 798 household and 4,085 people.<br>The subproject will directly benefit totally 10,333 local people in 2 communes Mau Due and Sung Tra, Yen Minh and Meo Vac districts. | Very high percentage of the rural population in two districts (68,790) and EM population (75,959 equivalent to 98%) and high poverty rate of 51%). |
| Is the number of Poor households available | Yes | Mau due commune is 34,35%<br>Sung Tra commune is 63,41% |
| Is the number of near poor households available | Not yet | Not available<br>DPI and local consultants will coordinate with district and commune authorities and offices (social, financial and economic infrastructure) to provide updated data.<br>Minor risk |
| Are Ethnic minorities identified and specified | Not yet | As presented above |
| Is land use specified | Not yet | As presented above |
| Are the number of female headed households specified | Not yet | As presented above |
| Is the GAP adequately reflected | Not yet | As presented above |

## G. Economic Assessment

| Criteria | Yes | No | Explanation and Assessed Risk |
|---|---|---|---|
| Is there an economic assessment – if yes what is EIRR | | x | A required FS to be prepared by the local consultant to assess the EIRR of the subproject. |
| Is there a detailed worksheet for the EIRR | | x | As presented above |
| Is it linked to the traffic forecast | | x | As presented above |

## H. Summary

**Table 14:**

| Recommendation | Yes | No | Explanation or Outstanding Gaps |
|---|---|---|---|
| Is the subproject eligible by being part of Provincial plans | ✓ | | The subproject is considered eligible by being part of the SEDP and Transport Masterplan as well as FNEP Master Plan. |
| Is there a clear design standard that is justified | | x | Not yet, the FS will present the proposed design standard. |
| Are there outstanding approvals required | ✓ | | Requested<br>(i) confirmation of the protection or geological park Dong Van areas for opening section from km0+00 to km 22+900 passes through protection or production forest areas of Yen Minh and Dong Van, Meo Vac districts; |
| Is there a preliminary design | | x | Not yet |
| Is there a Feasibility study | | x | Not yet |
| Is the Subproject category A for resettlement and affected persons | | x | As per the PPTA consultant's field visit to the subproject sites, the Subproject may be classified under category B or C for minor resettlement and affected persons, but this is subject to the detailed Resettlement report. |
| Is the Subproject category A for environment | x | x | Unknown requires DPI clarification<br>As per the PPTA consultant's field visit to the subproject sites, the Subproject is classified under category B or C for environment |
| Does the Subproject have clear economic inclusiveness outcomes | ✓ | | As per the PPTA consultant's subproject field visit assessment, the Subproject has clear economic inclusiveness outcomes |
| Does the subproject have clear network connectivity benefits | ✓ | | As per the PPTA consultant's subproject field visit assessment, the Subproject has clear network connectivity benefits.<br>The subproject will provide additional linkages to Yen Minh, Dong Van and Meo Vac districts, Cao Bang province, to Sam Pun border and China. These will provide economic development opportunities within the nearby areas. |
| Is the project expected to achieve a 9% EIRR | | x | Not yet |

## I. Road Maps and Photos

122. Transport Road of Mau Due commune, Yen Minh district – Sung Tra commune, Meo Vac district


## J. Road Chainage Photos

**Starting point (Km0=Km13 PR176)**

**Km0 (Section connect  Mau Due)**

**Km5**

**Km5+100**

**Km6+200**

**Km6+200**

**Km9+400**

**Km9+600**

**Km9+800**

**Km9+800**

**Km10+500**

**Km14+ 500**

**Km14+500**

**Km14+700**

**Km14+700**

**Km14+800**

**Km17+100**

**Km17+300**

**Km17+400**

**Km17+450**

**Km22+900**

**Ending point (Km36+500 PR176)**

**Sung Tra commune**

**Sung Tra commune**

# XV. OUTPUT 2: SUBPROJECT COC PAI WATER SUPPLY

## A. Description

123. Water Supply Network of Coc Pai town, Nam Dan and Ban Ngo communes, Xin Man district, Ha Giang province. There is one network being water supply network of Coc Pai town, Nam Dan and Ban Ngo communes, Xin Man district, Ha Giang province

(i) Number of communes/rural towns: 03, Coc Pai town, Nam Dan commune and Ban Ngo commune.
(ii) Total Population per commune or town and for each scheme:
(iii) Coc Pai: 4,587
  a. Student (ethnic people): 1,500
  b. Nam Dan: 3,708
  c. Ban Ngo: 3,568
(iv) Total Number of Households per commune. Town and scheme:
  a. Coc Pai: 1,077
  b. Nam Dan: 757
  c. Ban Ngo: 716
(v) Forecast number of household connections – at scheme capacity and project completion date: 80% at scheme capacity and 100% in completion date
(vi) Proportion of HH in each commune that will be connected: 90%
(vii) Volume of water to be supplied per day ($m^3$/day): 2,600

## B. Proposed Works

(i) Water source infrastructure:
  a. Surface stream water collection weir, main pipe D250mm/200m
(ii) Water treatment infrastructure:
  a. 01 Chemical-based water treatment plant
(iii) Water Conveyance infrastructure
  a. Elevated tank capacity: 500$m^3$ in upland and extra 500$m^3$ for distribution
(iv) Network –
  a. Lateral pipe: Steel pipe, diameter D200, length: 22,500 m
  b. Distribution pipe: HDPE pipe and piping material DN32-DN160. Total length: 12,400m.
  c. Connection meters: 500 sets increasing to 2,550 in 2030

## C. Proposed Investment

124. Proposed investment $3.5 Million (equivalent to 78.6 Billion VND) or $1,400 per connection at project completion.

## D. Rationale

125. Stated need for Coc Pai, Nam Dan and Ban Ngo water supply scheme

(i) Almost local people are using directly water which extract from stream without treatment. Supply of water has to base on individual gulches There is deficit of water supply in dry season. Demand for clean water with enough capacity is necessary.

(ii) Local people have high demand for clean domestic water; they try any way to have the best water source for use. The way they evaluate the water source clean or dirty bases on their experience about the taste and color, visual check, but they do not know exactly that it is really clean or not. The water sources exploited by the households are not inspected in accordance with state regulations. This is the opportunity for social investigators in persuading local people to participate in the project and commit to use clean water, if they have in the future.

(iii) Coc-Pai town has been being developed and expanded. Following Master Plan as mentioned in Decision No 206/QD-TTg, dated 2 February 2016, the Coc-Pai will be border-town in Ha Giang province. Population in this area is approximate 9,986 in 2030. Water demand will increase in near future.

**1. Key parameters:**

(i) Current water sources: Surface water from scattering gulches in the area. Limited ground water wells with low discharge.
(ii) Future water sources: Surface water from Nam Dan stream
(iii) Reliability of water sources – annual and seasonal reliability: Yes,
(iv) Quality of current water sources: no tests available
(v) Level of water services – hours per day: 18
(vi) Time to access water up to 5 hours
(vii) Health – water related data: Minor.

**2. Network benefits**

126. Social Benefits – who will benefit most, how will poor or marginalized benefit, benefit to ethnic minorities, female headed households, young, elderly and females: ethnic minorities, female headed households, elderly and females can use clean hygiene water

## E. Findings

127. Water sources conflict:

(i) Water source from Ban Ngo stream is supplying for various purposes: irrigation, water supply. Activities of local people in upstream are causing deficit water in downstream, especially in dry season. It may cause potential conflict of water use.
(ii) Water in Nam Dan stream is in natural flow. There is no activity of water use in this stream. Thus, its source will be suitable alternative for water demand of Coc-Pai town, Nam Dan and Ban Ngo.

128. Water source availability:

(i) Water source from Chay river: River flow in Chay river is surplus in rainy season and limitation in dry season. Difference elevation between Chay river and center of Coc-Pai town is approximate 200m, then it is required pumping from Chay river to water treatment plant. Cost of operation and maintenance will be high.
(ii) Nam Dan surface water source: Nam Dan stream is running with higher elevation comparing Coc-Pai center. There is advantage of this water sources, because of gravity flow will save cost of maintenance and operation
(iii) Ban Ngo water source: Limited capacity, especially in dry season

(iv) There is no reservoir exists in this area then water extract from reservoir is not available

(v) Ground water in this area is still not being investigated. At this time, there is limited household to use ground water. This source of water should not be considered at the moments.

**1. Recommendations:**

(i) Water source from Nam Dan stream is to be suitable alternative and proposed.
  (a) Discharge measurement will be conducted in Nam Dan stream, especially in dry season.

(ii) Water source quality
  (a) Ban Ngo stream: water quality is affected by activities of local people in upstream.
  (b) Nam Dan stream: in dry season, water quality is good but in rainy season solid particle and TSS increase, especially after rainfall and high flood flow high concentration of particle was occurring in water flow

(iii) Water quality tests will be conducted for a range of seasons and reported in the final FS.

(iv) Disadvantage in case of selection Nam Dan surface water source:
  (a) Location of water intake is far from Coc Pai center (approach 22,5km) then main pipe has to stretch with long distance. This causes hydraulic loss and capacity of strength of material. Selection of pipe material will be considered;
  (b) High elevation of water intake comparing to storage tank (more than 300m) may cause high pressure in pipeline and water hammer phenomena;

**2. High cost of connections**

129. The distance to water source and the distributed nature of connections results in a high cost of connections. The PPTA recommends additional technical design in order to review options of cost reduction of construction costs through (i) Hydraulic calculation to change diameter of pipeline; (ii) Layout of pipeline from Nam Dan water source to Coc-Pai needs to be surveyed and designed with optimum length to reduce total length. Construction cost for optimum layout will be $2.1 million as pre-estimation from PPTA

130. For estimation of water connection quantity: PPTA recommend to consider water for 1,500 students (almost ethnic pupils) and General Coc-Pai district Hospital (250 beds) and total population in Coc-Pai, Nam Dan and Ban Ngo in 2030. Pre-estimation number of connection will be 3050 in 2030. Cost per connection will be $625.

131. One other option that could be considered is the development of the current water sources with the water owners receiving water treatment in return for a water sharing agreement with the proposed subproject are.

| Subproject Water Supply Name | Proposed by DPI | PPTA Comments | Conclusion |
|---|---|---|---|
| Water source from Chay | Not be applied | Confirmed. | Will confirm in their FS |

| Subproject Water Supply Name | Proposed by DPI | PPTA Comments | Conclusion |
|---|---|---|---|
| | | High head pumping will cause high cost of O&M | |
| Water source from Ban Ngo stream | Not be applied | Confirmed | Will confirm in their FS |
| Water sources from Nam Dan stream | Using surface water from stream in Nam Dan stream | Confirmed | Will confirm in their FS |
| Water quality in Nam Dan stream | Available of data test in 2016 | Confirmed<br>Updated water quality test with 29 indicators will be provided in FS.<br>Certification of water quality test will be provided. | Will confirm in their FS |
| Water quantity in dry season | Not be mentioned | Water quantity in dry season should be determined to confirm design capacity | Will confirm in their FS |
| Water demand | 2600$m^3$/day | Confirmed | Will confirm in their FS |
| New construction of collected water structures | New construction of water weir in Nam Dan stream | - Confirmed<br>- Ha Giang PPC to confirm upstream water flow and weir construction do not affect to protected forest land | Confirmed<br>Will confirm in their FS |
| High pressure in main pipeline | Location of valve pit and pressure cut-off facilities | + Confirmed<br>Addition cut-off facilities will be considered | Will confirm in their FS |
| Pipeline | New construction of main pipe New construction of distribution pipeline network | Confirmed | Will confirm in their FS |
| Water distribution for rural villages | | Villages located far from elevated clean water pond should be provided with pipeline network and auxiliary pumps, especially in Ban Ngo commune | Will confirm in their FS and basic design |
| Water treatment process | Proposed in concept design | + Confirmed | Will confirm in their FS |
| Design of elevation of storage tank 500$m^3$ | Proposed in concept design | + Confirmed | Will confirm in their FS |
| Review of previous water supply scheme | Not be mentioned | Review should be undertaken in order to determine economically technical proposal in basic design, especially in capacity of transformer, dimension and length of water pipe, designed elevation of water storage tanks | Will confirm in their FS |
| Bill of quantity. Cost estimation | Not be mentioned in detail | Bill of quantity will be provided | Will confirm in their FS |
| Detail of EIRR | Not be mentioned | Detail of EIRR will be presented | Will confirm in their FS |

## F. Eligibility Criterion

| Criteria | Status | | Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| 1: Include in SEDP – if yes state page and section number | ✓ | | When the project is completed and put into operation, it will create a favorable infrastructure to promote sustainable socio-economic development |
| 2: Included in Sector Plan – if yes state page and section | ✓ | | Master Plan and Infrastructure plan, updated and approved in 2016 following Decision No. 206/QD-UBND dated 2 February 2016 by PPC Ha Giang.<br>Final Report of Xin Man PDC on assessment of social-economic development in 2016 and planned activities in 2017 |
| 3: Proposed design concept exists – if yes state date of proposal | ✓ | | December 2016 |
| 4: Proposed design standard identified – if yes what standard, what is the projected economic life of the subproject | ✓ | | National Vietnamese Standard: QCVN 01:2009/BYT |
| 5: Proposed design standard derived from (i) plan, (ii) demographic forecast, (iii) demographic forecast plus migration, (iv) includes institutional demand, (v) demand set for 2030 or beyond, (vi) daily demand standards | ✓ | | + Plan<br>+ Demographic forecast plus migration and<br>+ Demand set for 2030. |
| 6: is the date of demand set for at least 2030 | ✓ | | |
| 7: Is demand forecast consistent with the scheme design supply volumes at the economic life of the subproject – minimum of 2030 | ✓ | | 2600 m3/day |
| 8: Is there an established demand for a water supply scheme through a social survey | | X | |
| 9: Is a concept or preliminary engineering design available | ✓ | | Local consultant proposed a preliminary engineering design |
| 10: Is the preliminary design already approved by commune, district or PPC | | X | |
| 11: Is there a bill of quantities with the preliminary design | | X | |
| 12: Is there a cost estimate – if yes is there a supporting bill of quantity and what is the date for the costing | | X | There is pre-estimation of cost, supporting from BOQ is not clear. |
| 13: Are there significant structures required – if yes please identify | ✓ | | Collected water weir, main pipe (22,500m), elevated concrete pond (500$m^3$), water treatment plants (2,600$m^3$/day), distribution pipe (12,400m) |
| 14: is the water source confirmed in terms of annual availability, monthly availability | | X | Needs gauging data and catchment modeling |
| 15: is there approval to use the water source | | X | |
| 16: Are there water quality tests for the proposed water source | | X | |

## G. Safeguard Compliance

| Safeguard | Screening Issue | Yes | No | Explanation and Assessed Risks |
|---|---|---|---|---|
| A: Resettlement | Land Acquisition | | X | |
| A.1 Land Acquisition | Agriculture Land | | X | |
| | Urban Public Land | | X | |
| | Urban Private Land | | X | |
| A.2 Structures | Private houses | | X | |
| | Private other | | X | |
| | Public Structures | | X | |
| A.3 | Other Assets | | X | |
| A.4 | Resettlement – if yes number of households identified | | X | |
| A.5 | Is there a Land Acquisition and compensation budget – if yes how much | | X | |
| B: Environmental Screening | | | | |
| B.1 water source and network effect on forests<br>- are there any of the following along the alignment of within close proximity – if yes is the risk significant | Production forest land | | X | |
| | Protection forest land | | X | Ha Giang PPC to confirm intended water intake structure and upstream flow is not affecting forest land. |
| | Protected areas | | X | |
| B.2 Water, rivers lakes and flood plain | Are in-stream value affected, will minimum in stream flows be adhered to how significant are they | | X | |
| B.3 Does the proposal include any IEE screening | | | X | |
| B.4 Did the field visit identify issues form EARF that need to be addressed | | | X | |
| B.5 Water source catchment protection issues | Is the catchment of the water source at risk from climate change | ✓ | | Climate change may cause reduction of low water flow in dry season. Daily flow rate in dry season will be determined in FS. PPTA proposes to measure water flow in several months continuously. |
| | Risk from contamination from human settlement or livestock | | X | |
| | Risk of deforestation de-vegetation | | X | |

## H. Social Considerations

| Criteria | Yes/No | Explanation and Assessed Risk |
|---|---|---|
| Are communes identified and named | Yes | |
| Is the population data available for each commune, township | Yes | Ban Ngo commune: 3,568<br>Nam Dan commune: 3,708<br>Coc-Pai town: 4,700 |
| Is the number of Poor households available | Yes | Ban Ngo commune: 472<br>Nam Dan commune: 480<br>Coc-Pai town: 332 |
| Is the number of near poor households available | Yes | Ban Ngo commune: 523<br>Nam Dan commune: 657<br>Coc-Pai town: 31 |
| Are Ethnic minorities identified and specified | Yes | Nung, Mong, La Chi, Phu La, Tay, Dao<br>780 persons in Ban Ngo commune |
| Is land use specified | No | |
| Are the number of female headed households specified | Yes | 5% in Ban Ngo commune<br>31 in Nam Dan commune |
| Is the GAP adequately reflected | No | |

## I. Economic Assessment

| Criteria | Yes | No | Explanation and Assessed Risk |
|---|---|---|---|
| What is the cost per connection at 100% of design capacity and at project completion | ✓ | | Cost per connection:<br>+ at 100% of design capacity: $7,000<br>+ at project completion: $1,400 (for 2,550 household)<br>High cost per connection will cause problems with demand of connection to distribution pipeline. |
| Does the cost per connection exceed $900 | ✓ | | Long main pipe (D200mm; L=22,500m) will cause huge investment cost. Consultants will consider reasonable approaches to save construction cost.<br>Significant affordability issues will require DPC or PPC to provide substantial subsidies |
| Is the scheme owner and operator identified | ✓ | | Cooperative under management of Xin Man DPC |
| Is a tariff reported | ✓ | | Domestic use: 3,800 VND/$m^3$<br>Public use: 5,800 VND/$m^3$<br>Business, production, manufacturing: 11,000 VND/$m^3$ |
| Does the tariff based cost of water exceed 5% of household income for the median income of the communes, and for the lowest quartile of household incomes | ✓ | | |
| Will the tariff exclude poor and near poor households on affordability criteria of 5% of household income | ✓ | | |
| Is there a financial assessment of the water supply scheme | | X | |

| Criteria | Yes | No | Explanation and Assessed Risk |
|---|---|---|---|
| Are scheme benefits clearly identified by category of benefit | | X | |
| Is each benefit quantified | | X | |
| Is there an economic assessment – if yes what is EIRR | | X | |
| Is there a detailed worksheet for the EIRR | | X | |

## J. Summary

| Recommendation | Yes | No | Explanation or Outstanding Gaps |
|---|---|---|---|
| Is the subproject eligible by being part of Provincial plans | ✓ | | Decision No. 206/QD-TTg dated 2 February 2016 issued by Ha Giang PPC |
| Is there a clear design standard that is justified | ✓ | | QCVN 01/2009: BYT |
| Are there outstanding approvals required | ✓ | X | Water source use needs to be confirmed |
| Is there a preliminary design | ✓ | | |
| Is there a Feasibility study | | X | FS will be done to determine layout and specification of main pipeline with length 22.500m, especially high pressure of water inside |
| Is sufficient data on the availability of water provided | | X | Water quantities assessment is required by a FS to be prepared by the local consultant for the subproject. Measurement of flow discharge continuously will be undertaken in FS |
| Is there sufficient data on water quality | | X | Water quality assessment is required by a FS to be prepared by the local consultant for the subproject. Measurement of water quality flow will be undertaken in FS. |
| Is the Subproject category A for resettlement and affected persons | | X | |
| Is the Subproject category A for environment | | X | |
| Does the Subproject have clear economic inclusiveness outcomes | ✓ | | |
| Does the subproject have clear network connectivity benefits | | X | |
| Is the project expected to achieve a 9% EIRR | | X | A required FS to be prepared by the local consultant to assess the EIRR of the subproject. |
| Who will manage the scheme and are they linked to a municipal or rural town operator | ✓ | | Cooperative under Xin Man DPC that will need a full institutional and financial viability review |
| Is the scheme an expansion of an existing municipal and or rural town supply – if yes, are they required to on lend from the PPC? | | X | |

## K. Water Supply Photo and Location

Main surface water source from natural stream near Suoi Tien waterfall is proposed for water supply of Coc-Pai town, Nam-Dan and Ban-Ngo communes


Proposed weir will be located in forest with surplus water from stream and gulch. Ha Giang PPC to confirm construction activities do not affect to forest land

At present time, water quality is reasonable but in rainy season, solid particle and TSS in water increase

Household in Nam Dan commune are using water extract from small gulch without treatment

Household in Ban Ngo commune is located far from center of commune

Water tank in Nam Dan commune which made of brick and concrete is cracked


Empty tank in Coc-Pai town because of water was running out


Approved Map of infrastructural plan for water supply in Ban Ngo commune

Water PVC pipe and faucet installed by local people

Bridge in Nam Dan stream with high clearance due to peak water flow in flood season.

Local people use water from Ban Ngo upstream source for irrigation and domestic use. This affects to water quality in downstream

Nam Dan primary school is using gulch water without treatment


Nam Dan Kindergarten is using water from Ban Ngo stream. Water is deficit in dry season

Big bottle to store water which is being extracted from gulch

Students in Coc-Pai School bring big bottle to take water from gulch which is far from their school campus

Because of deficit water in home, then girl in Ban Ngo commune uses water from gulch beside provincial road No. 178

## LANG SON PROVINCE

## XVI. ADDITIONAL SUBPROJECT SCREENING REPORT

### A. Output 1 Road Subproject Findings

132. As proposed the additional road subprojects are all considered most likely to be eligible for project funding.

133. All three additional subprojects are similar types of roads and have a priority in plans and have a strong project outcome linked rationale. However, all subprojects are little more than a prefeasibility level concept produced by local engineers that were not supported technically to produce a Project level Feasibility Study. As a consequence, there remain significant gaps in the documentation required to move from prefeasibility to a FS that can be reviewed by ADB.

134. There are inconsistent data, outstanding approvals for new alignments that are essential prerequisites for undertaking a feasibility and resultant detailed designs.

135. Safeguard data sets do not yet exist, however visual inspection highlights that most subproject are likely to be category B social, however without final alignments that are marked on the ground, this remains unconfirmed, and two of the three subprojects do have potential for moderate levels of social impacts. Environmental safeguards are mostly category B however there are instances of unclear or unconfirmed forest land status which could require the environmental management plan or may elevate the subproject to category A.

136. Other significant gaps relate to the total lack of traffic forecasts to justify the upgrading of road to category V and therefore there is no basis for defining the justification for project investment and the maintenance of the investment. The PPTA view is that the roads will struggle to support an EIRR of 9%.

137. Without formal clarification of these approvals and classifications it is probable that the roads would fall into an ineligible status with ADB. The **PPTA concludes that based on the screening the subprojects are eligible and should proceed to feasibility at which stage a more detailed** safeguard reviews is required.

138. A summary of findings is presented in the following table by each criterion. For many criteria, there is inadequate data available at the time of screening. The detailed actions and where agreements have been reached these are recorded in the subproject reports below.

139. Further whilst the PPTA and Government representatives have agreement on the eligibility and the proposed design categories of the road subprojects there is to date no traffic count, or traffic forecast for establishing or verifying the design standard. It is a strong recommendation for this data to be prepared as soon as possible as the loan agreement will require traffic forecasts and road categorization are consistent before a detailed design can be approved.

**Table 15: Output 1 Subproject Screening Results**

| Subproject Name | Eligibility | | | | | | Safeguard Compliance | | GAP | Feasibility and Viability Indicators | | | | Sustainability | Issues to be Resolved | Eligibility |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Criterion** | **C 1** | **C 2** | **C 3** | **C 4** | **C 5** | **C 6** | **C 7** | **C 8** | **C 9** | **C 10** | **C 11** | **C 12** | **C 13** | **C 14** | | |
| PAC MEO – Vinh Lai Township Road | ✓ | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ? | | X | X | X | X | Yes | Yes |
| Tan Van – Binh La – Viet Yen Road | ✓ | ✓ | ✓ | ✓ | ✓ | X | ✓ | ? | ? | X | X | X | X | X | Yes | Likely |
| Khau Ban-Con Quan-Na Lua Road | ✓ | ✓ | ✓ | ✓ | ✓ | X | ? | ? | ? | X | X | X | X | X | Yes | Not yet |

## B. Output 2 Water Supply Scheme Findings

140. Three additional subprojects are proposed under output 2. Two water supply schemes are similar being smaller rural towns and associated rural communes that have unreliable sources of water from mountain streams and springs. These schemes are typified by scattered low density networks that have a relatively high cost per connection.

141. The proposals are not well developed other than in a supply side design context, i.e. the engineering of the network and supply option has some preliminary design work to support the subproject proposal. There are major gaps in the specific scope of network supply areas from a demand or water users perspective including the nature of water demand and the willingness to pay for these supplies. At a prima facie level the subprojects are conditionally eligible based on proven demand, proven reliability of water sources and quality of this source and the cost of service provision. The sustainability of these schemes needs to be addressed with far more analysis and options for reducing the cost of connections, the costs of scheme operations and management and the relationship between scheme affordability and operator viability.

142. The third water supply subproject aims to supply Mau Son tourism operators with adjacent ethnic minority households obtaining access as well. This subproject is somewhat more complex as it seeks to source water from a range of limited sources and then through a system of pumping, storage and network development at mid to high elevations on Mau Son mountain range delver water to a major tourism development currently starting to be developed. The scheme is high cost per m3 of water as currently planned. The PMU would need to have a signed agreement for the sale of water at the required price to operate and recover costs from the subproject prior to ADB approving the FS.

143. Water availability is current unproven but known to be unreliable during the dry season. In response, a storage reservoir is proposed for development within a mid to high elevation open basin that is surrounded by natural forests. There are currently unknown forest classifications however there are several signs in the area supporting protection forest areas from past donor supported projects. Detailed and clear maps of these areas are needed with the ratification of the associated forest and environmental authorities before too much investment is made in the feasibility studies. One a reservoir storage capacity and footprint is developed the environmental classification will need to be obtained, it is currently the view of the PPTA that the subproject may

trigger category A environmental safeguards, whilst the proposed reservoir dam /embankments will need careful risk assessment in case of failure and the impact on protection forests and people downstream. This subproject is considered marginal and a risk from environmental safeguards, while the affordability/ sustainability of the investment is considered to be a risk that can only be mitigated with a guaranteed water sale agreement between the PPC and the tourism operators.

**Table 16: Lang Son Summary of Water Supply Subproject Screening Findings**

| Subproject Name | Eligibility | | | | | | Safeguard Compliance | | GAP | Feasibility and Viability Indicators | | | | Sustainability | issues to be resolved | Eligibility |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Criterion | C 1 | C 2 | C 3 | C 4 | C 5 | C 6 | C 7 | C 8 | C 9 | C 10 | C 11 | C 12 | C 13 | C 14 | | |
| Tan Van Binh Gia Water Supply | ✓ | ✓ | ✓ | ? | X | X | ✓ | ✓ | ✓ | ✓ | X | X | ? | ? | Yes | Yes |
| Cuong Loi And Thai Binh Water Supply | ✓ | ✓ | ✓ | ? | ✓ | X | ✓ | ✓ | X | X | X | X | X | X | Yes | Yes |
| Mau Son Water Supply | ? | ? | ✓ | ✓ | X | X | ✓ | X | X | X | X | ? | ? | ? | yes | Not yet |

## XVII. OUTPUT 1: SUBPROJECT PAC MEO – VINH LAI TOWNSHIP ROAD

### A. Subproject Description

144. Construction and rehabilitation of Pac Keo – Vinh Lai town, Van Quan district, Lang Son province. Total length of 9.728km

(i) Starting point: at Km28+200 of NH1B.

(ii) End point: at Km23+200 of NH1B.

(a) Existing alignment (km+m): based on the proposed design document, no mention is made for the length of existing and new alignments.
(b) New alignment approval status is not confirmed

145. Current Road Categorization is Rural B: The road starts from Van Quan town through Trang Son, Dai An and Vinh Lai communes. The road is two provincial road sections of PR54 and PR53. The first road section upgrades the road surface in Van Quan town the remaining section is an existing pavement with an average width of 3.5-5.0m. This is an earth road, muddy in raining season and dusty in dry season. Average slopes along the road are 10-15%.

146. The proposed road categorization is category V with asphalt concrete road according to TCVN 4054-2005. The road subproject will construct pavements, upgrade road surface, drainage works, protection works, and traffic systems.

147. Proposed investment $5,202,819 at a cost of $535,000/km.

## B. Rationale

### 1. Current use

(i) The road Subproject involves improvement and upgrading of Pac Keo – Vinh Lai Road (Van Quan District) comprises the renovation and upgrading of 9.73km (based on the PPTA field visit findings) of provincial Roads 53 & 54, connecting Van Quan town with the communes of Trang Son, Dai An and Vinh Lai (all in Van Quan District). Its alignment is shown in Annex 1.

(ii) It is proposed to upgrade the road to Class V from its current Rural B classification. The current road has a narrow carriageway (3.0m-4.0m base width), is of very poor quality – during the site visit the alignment by a 4X4 vehicle. Rains make the road very muddy and increase risks of landslides. Connectivity is often severed.

(iii) Based on the PPTA's site visit, this is grade-B rural road with the width of 3.0-4.0m; the road surface is soil and seriously downgraded with many wheel tracks, pot-holes. In rainy season, the road surface is flooded, slippery and extremely difficult for vehicle to travel.

(iv) Access to Pac Keo – Vinh Lai road is extremely inaccessible in the rainy seasons

(v) The economy of Van Quan is predominated by agriculture (rice, corn, cassava and vegetables) and forestry (acacia, and star anise). The areas served by these roads are also dependent upon agriculture livestock breeding. There is potential for forestry development and expanding production of fruit trees and livestock. Poor road conditions have hindered development, where EM farmers face the danger of both low prices and in some instances unsold products.

(vi) Based on the PPTA field visit findings and interviewed the district and commune authorities, land area, usage, population and poverty data for the road's catchment showed that there are 8,237 people in the vicinity of the road, with 18% of households being classified as poor (or 31% if considering only Trang Son and Dai An communes).

### 2. Future use

(i) Pac Keo – Vinh Lai Road, Van Quan district, Lang Son province is located in the area with incomplete connectivity. This road, will connect the project area to Van Quan town, Van Quan district of Lang Son province via provincial Roads 53 & 54, then connect to provincial road 239 and QL3B to Lang Son city.

(ii) Upgrading this road will provide connectivity between the communes of Trang Son, Dai An and Vinh Lai, rather than being intended for through traffic.

(iii) It would provide reliable accessibility for residents in the vicinity, to reduce transport costs on products (and so increase earnings from agriculture) and improving access to healthcare, education and employment opportunities.

(iv) In addition to the social (poverty alleviation) and agricultural development rationales, this subproject also contributes to the overall development of the road network in Lang Son and the FNEP region alike.

## C. Findings

(i) Starting point: Km0+00 intersection with NH1B at Km28+200 (in Van Quan town, Van Quan district).

(ii) End point: at Km9+728,13=Km15 of PR239.

(iii) Total length of 9,73km.

(a) Existing alignment (km+m): the PPTA Consultant's field visit finding of 9,73km.

(b) New alignment (km+m): the PPTA Consultant's field visit finding of 450m at Km5+700 widening **the left side to reduce the vertical slope and avoid digging the ancient *Ficus bengalensis* (cây Đa cổ thụ)**[3] beside the proposed road. This alignment is yet to be approved.

**1. Summary of road Chainage findings**

(i) Km0+00 -:- Km0+300: asphalt road B=5,5m
(ii) Km 0+300 -:- Km0+ 700 cement concrete road section Bm=3,5m; Bn=5m.
(iii) Km0+700 -:- Km 5+300 earth road Bm=3,5-5m
(iv) Km5+300 -:- Km6 existing slopes from 12-14%; the PPTA proposed the reduction of the vertical slope from the peak slope Chainage from Km5+700 and avoid digging the ancient Ficus Bengalensis (cây Đa cổ thụ) and open a new alignment on the left side of 100m. Total length of 350m.
(v) Km6+100 -:- Km6+300 large slope and cement concrete Bm=3m.
(vi) Km6+300 -:- Km6+846: earth road, an existing bridge over the stream at Km6+846
(vii) Km6+846 -:- Km7+00: cement concrete through Trang Son commune people's committee area.
(viii) Km7+00 -:- Km9+728 (end point) Bn=3.5-4,5m; the left side of the road is rice, and corn fields while the right side is residential area mixed with gardens and rice and corn fields.

[3] Interviewing with the local people and local authorities, they strongly requested that the ancient Ficus Bengalensis (cây Đa cổ thụ) be kept as it is.

**Table 17: PPTA Recommendations**

| Subproject Road Name | Proposed by DPI | PPTA Findings and Recommendations | Conclusion |
|---|---|---|---|
| Start point | at Km28+200 of NH1B. | Km0+00 intersection with NH1B at km28+200 (in Van Quan town, Van Quan district) | Confirmed |
| End point | at Km23+200 of NH1B. | Km9+728,13=Km15 of PR239. | Confirmed |
| Length | 9,728km: | 9,73km<br>Requested confirmation:<br>(i) The new alignment is approved with a clear mark of the starting and end points<br>(ii) DPI reconfirms the total length of the proposed road subproject including the new alignment. In the IP page 21 stated 9.728km while page 31 stated 17.366km.<br>(iii) Section from Km 0+300 -:- Km0+ 700 is a cement concrete road section Bm=3,5m; Bn= 5m was constructed with rural new program using district budget. This is a new road section. The PPTA proposed to reconsider this section during the FS and construction stages.<br>(iv) Considers the preservation of the ancient Ficus Bengalensis (cây Đa cổ thụ) in the FS and construction period. | DPI confirmed and will reply to the consultant with the official approval of the new alignment and total length of the proposed road subproject including the new alignment. |
| Road category | Category V according to TCVN 4054-05<br>Road pavement =6,5m, Right of Way (ROW) =3,5m. Shoulders: 2x1,5m, reinforced shoulder width: 2x1m; proposed cement concrete road structures | Confirmed Cat V according to TCVN 4054-05<br>Road pavement =6,5m, Right of Way (ROW) =3,5m. Shoulders: 2x1,5m, the PPTA recommended that the road shoulders be not reinforced; confirmed the proposed cement concrete road structures | Agreed V but require traffic forecast to justify |
| Proposed works | To be determined in the FS | All existing works along the road are in poor conditions but they need due technical diligence in the FS | will confirm in their FS |

## D. Eligibility

| Criteria | Status | | Risk of non-compliance and explanatory comments |
|---|---|---|---|
| | Yes | No | |
| 1: Include in SEDP – if yes state page and section number | ✓ | | The road subproject has been included in Lang Son People's Committee's Decision No. 1353/QD-UBND dated 29 August 2011 approving the Adjustment of Transport Development Plan of Lang Son Province up to 2020 and orientation to 2030; It clearly states that the total number of district roads after the readjustment of the master plan is 75 roads with the total length of 896.6 km of grade-V to grade-VI road standards. ; Structure of asphalt pavement, cement concrete or new material; Drainage works, traffic safety works are built completely. |
| 2: Included in DoT Master Plan – if yes state page and section | ✓ | | Under Decision No. 545/QD-TTg dated 9 May 2012 approving the master plan for socio-economic development of Lang Son province up to 2020 (ii) development of inter-district roads; hardening the commune and village road systems, striving by 2015, 65% of rural roads will be hardened and over 90% by 2020; construction of |

| Criteria | Status | | Risk of non-compliance and explanatory comments |
|---|---|---|---|
| | Yes | No | |
| | | | border routes, roads connecting the border corridors to border patrol roads… |
| 3: Proposed design concept exists – if yes state date of proposal | ✓ | | Decision No.381/QD-UBND dated 18 March 2016 of the provincial People's Committee approving the list of subprojects proposed investment under the project "Basic Infrastructure for Inclusive Growth in the Northeastern Provinces Sector Project: Ha Giang, Cao Bang, Bac Kan, Lang Son funded by ADB |
| 4: Proposed design standard identified – if yes what standard, what is the projected economic life of the subproject | ✓ | | The road subproject will be constructed according to the scale of grade V mountainous roads according to TCVN 4054-2005 |
| 5: Proposed design standard derived from (i) plan, (ii) traffic forecast, (iii) traffic forecast plus network efficiency (iv) what is the current road standard on each end point or network connection now and planned | | x | The proposed designed standard is derived from the provincial transport masterplan for districts.<br><br>The current road standard on each end point is rural road B and the network connection now and planned is Cat V towards 2030. |
| 6: is the date of traffic forecast or base traffic forecast after 2015 | | x | Not yet |
| 7: Is traffic forecast consistent with Road Categorization – if yes – at project start, at the economic life of the subproject | | x | Not yet |
| 8:Is there a preliminary design document with supporting engineering field surveys and drawings – if yes what is the date of these, what design standard is used. | ✓ | | There is a preliminary design document prepared by the local consultant in 2015, but it is a draft without supporting engineering field surveys and drawings with inconsistent and incomplete data<br>The proposed design standard is Cat V. |
| 9: Is the Preliminary design already approved by DoT | | x | Not yet |
| 10: Is the preliminary design already approved by PPC | | x | Not yet |
| 11: Is there a bill of quantities with the preliminary design | | x | Not yet |
| 12: Is there a cost estimate – if yes is there a supporting bill of quantity and what is the date for the costing | | x | Not yet |
| 13: Are there significant structures required – if yes please identify | | x | Not yet |
| 14: Are there significant cut and fill requirements – if yes please provide an estimate of the extent | | x | Not yet |
| 15: is the current Right of Way sufficient for the proposed or required road design | | x | Not yet |

## E. Safeguard Compliance

| Safeguard | Screening Issue | Yes | No | Explanation and Assessed Risks |
|---|---|---|---|---|
| A: Resettlement | Land Acquisition | | | Extent – minor, substantial |

| Safeguard | Screening Issue | Yes | No | Explanation and Assessed Risks |
|---|---|---|---|---|
| A.1 Land Acquisition | Agriculture Land | ✓ | | Extent |
| | Urban Public Land | ✓ | | minor |
| | Urban Private Land | ✓ | | minor |
| A.2 Structures | Private houses | ✓ | | Minor |
| | Private other | ✓ | | minor |
| | Public Structures | ✓ | | extent |
| A.3 | Other Assets | ✓ | | minor |
| A.4 | Resettlement – if yes number of households identified | ✓ | | Based on the PPTA consultant's field visit findings there will be about 16 households who will be affected by the subproject (either loss of their residential and agricultural land. |
| A.5 | Is there a Land Acquisition and compensation budget – if yes how much | | x | Not yet |
| B: Environmental Screening | | | | |
| B.1 Forests<br>- are there any of the following along the alignment of within close proximity – if yes is the risk significant | Production forest land | ✓ | | Extent unknown |
| | Protection forest land | ✓ | | Clarification/confirmation requested |
| | Protected areas | | x | |
| B.2 Water, rivers lakes and flood plain | Are there any areas affected by the existing or proposed alignments? If yes how significant are they | ✓ | | Yes, some road sections go along or over streams and flood plain streams. |
| B.3 Does the proposal include any IEE screening | | | x | The proposed road subproject doesn't include any IEE screening |
| B.4 Did the field visit identify issues form EARF that need to be addressed | | ✓ | | Request to recheck the protection forest areas where the new alignments are proposed to go through and resettlement issues. |
| B.5 New Alignments | Risk of land slips | ✓ | | Many sections along the road are considered prone to risk of land slips. |
| | Risk of Large cuts | ✓ | | As presented above |
| | Water course disruption | ✓ | | As presented above |
| | Flood Plain Disruption | ✓ | | As presented above |

## F. Social Considerations

| Criteria | Yes /No | Explanation and Assessed risk |
|---|---|---|
| Are communes identified and named | Yes | If yes please list communes<br>Van Quan town, and 2 communes:<br>Trang Son,<br>Dai An |
| Is the population data available | Yes | Van Quan district total population as of 2016 is 55,173 with very high percentage of the rural population (50,170) and EM population (52,698 equivalent to 95,5%) and high poverty rate. The subproject will directly benefit totally |

| | | |
|---|---|---|
| | | 8,237 local people in Van Quan town (4,035 population) and 2 communes Trang An (1,822 people, and 2,380 people). |
| Is the number of Poor households available | Yes | Based on the PPTA consultant's field visit findings and interviews with the local authorities, Van Quan town (57 poor HHs (6%); Trang Son commune (105 poor HHs (26,2%), Dai An commune (208 poor HHs (40%). |
| Is the number of near poor households available | Not yet | As presented above |
| Are Ethnic minorities identified and specified | Not yet | As presented above |
| Is land use specified | Not yet | As presented above |
| Are the number of female headed households specified | Not yet | As presented above |
| Is the GAP adequately reflected | Not yet | As presented above |

## G. Economic Assessment

| Criteria | Yes | No | Explanation and Assessed Risk |
|---|---|---|---|
| Is there an economic assessment – if yes what is EIRR | | x | A required FS to be prepared by the local consultant to assess the EIRR of the subproject. |
| Is there a detailed worksheet for the EIRR | | x | As presented above |
| Is it linked to the traffic forecast | | x | As presented above |

## H. Screening Summary

| Recommendation | Yes | No | Explanation or Outstanding Gaps |
|---|---|---|---|
| Is the subproject eligible by being part of Provincial plans | ✓ | | The subproject is considered eligible by being part of the SEDP and Transport Masterplan as well as FNEP Master Plan. |
| Is there a clear design standard that is justified | | x | Not yet, the FS will present the proposed design standard. |
| Are there outstanding approvals required | ✓ | | Requested confirmation:<br>(i) The new alignment is approved with a clear mark of the starting and end points<br>(ii) DPI reconfirms the total length of the proposed road subproject including the new alignment. In the IP page 21 stated 9.728km while page 31 stated 17.366km.<br>(iii) Section from Km0+300 -:- Km0+700 is a cement concrete road section Bm=3,5m; Bn=5m was constructed with rural new program using district budget. This is a new road section. The PPTA proposed to reconsider this section during the FS and construction stages.<br>(iv) Considers the preservation of the ancient Ficus Bengalensis (cây Đa cổ thụ) in the FS and construction period. |
| Is there a preliminary design | | x | Not yet |
| Is there a Feasibility study | | x | Not yet |
| Is the Subproject category A for resettlement and affected persons | | x | The Subproject is classified under category B or C for minor resettlement and affected persons |
| Is the Subproject category A for environment | ?? | ?? | The Subproject is classified under category B or C for environment |

| | | | |
|---|---|---|---|
| Does the Subproject have clear economic inclusiveness outcomes | ✓ | | The Subproject has clear economic inclusiveness outcomes |
| Does the subproject have clear network connectivity benefits | ✓ | | The Subproject has clear network connectivity benefits.<br>Pac Keo – Vinh Lai Road subproject, when built, will provide connectivity between the communes of Trang Son, Dai An and Vinh Lai, rather than being intended for through traffic.<br>It would provide reliable accessibility for residents in the vicinity, to reduce transport costs on products (and so increase earnings from agriculture) and improving access to healthcare, education and employment opportunities. |
| Is the project expected to achieve a 9% EIRR | | x | Not yet |

## I. Road Map


## J. Road Sections Chainage Photos

Starting point Km0=Km28+200 NH1B

Km0+400 (Cement concrete pavement)

Km0+800 (end section of cement concrete)

Km0+800 (end section of cement concrete)

Km1+500

Km2+400

Km3

Km3+300

Km4

Km5+500

Km5+700

Km5+800

Km6+800 (Bridge) Trang Son commune

Km8+100

Km9

Km9+500

Km9+600

Ending point Km9+728 = Km15 PR 239

House near ending point


End point Km9+728

# XVIII. OUTPUT 1: SUBPROJECT TAN VAN – BINH LA – VIET YEN ROAD

## A. Subproject Description

148. Rehabilitation and upgrade of Tan Van - Binh La (Binh Gia district) - Viet Yen (Van Quan district) road, Lang Son province. Total length of 21.321km

(i) Starting point: Km0+00 intersection with NH1B at Km55+00 (in Tan Van commune area, Binh Gia district (based on the IP).

(ii) End point: Km19+321 intersection with PR232 at Km8+800 (in Viet Yen commune, Van Quan district) (based on the IP).

(a) Existing alignment (km+m): 22.5km.

(b) New alignment (km +m): 21.321km not approved

149. The road is currently a grade-B rural road with the width of 4.0-5.0m; the road surface is soil and seriously downgraded with many wheel tracks, pot-holes. In rainy season, the road surface is flooded, slippery and extremely difficult for vehicle to travel. The proposed subproject will upgrade the road to Category V with asphalt concrete road according to TCVN 4054-2005. Overview of proposed works: the road subproject will construct pavements, road surface, drainage works, protection works, and traffic systems.

150. Proposed investment $6,379,000 for an average cost per km of $598,798/km.

## B. Rationale

### 1. Current use

(i) The road Subproject comprises improvement and upgrading of Tan Van – Binh La – Viet Yen Road (Binh Gia and Van Quan Districts) and the renovation and upgrading of 21.231km of road connecting NH1B (in Tan Van commune, Binh Gia District) to PR232 (in Viet Yen commune, Van Quan District). It passes through the communes of Tan Van, Hong Thai and Binh La of Binh Gia District and Phu My and Viet Yen of Van Quan District. Its alignment is shown in Annex 1.

(ii) The road is currently designated as District Road 60 in Binh Gia and District Road 51 in Van Quan. It is an old road, built with only the roadbed opened and no road surfacing has ever been applied. Its width varies from 4.0-5.0m. Some longitudinal gradients are 12-15%.

(iii) It is proposed to upgrade the road to Class V from its current Rural B classification. The current road has a narrow carriageway (from 4.0m-5.0m base width), is of very poor quality and on the PPTA's site visit was impassable even with a 4X4 vehicle. Rains make the road very muddy and increase risks of landslides. Connectivity is often severed.

(iv) Based on the PPTA's site visit findings, this is grade-B rural road with the width of 4.0 - 5.0m; the road surface is soil and seriously downgraded with many wheel tracks, pot-holes. In rainy season, the road surface is flooded, slippery and extremely difficult for vehicle to travel.

(v) Access to Tan Van – Binh La – Viet Yen Road is extremely inaccessible in the rainy seasons due to the large potholes and muddy road.

(vi) Poor road conditions have hindered the development of these sectors, where EM farmers face the danger of both low prices and in some instances unsold products.

(vii) The economy of Binh Gia and Van Quan districts is predominated by agriculture (rice, corn, cassava and vegetables) and forestry (acacia, and star anise). The areas served by these roads are also dependent upon agriculture livestock breeding. There is potential for forestry development and expanding production of fruit trees and livestock.

(viii) Based on the PPTA field visit findings and interviewed the district and commune authorities, land area, usage, population and poverty data for the road's catchment showed that there are 10,433 people in the vicinity of the road, with 47% of households being classified as poor.

### 2. Future use

(i) Upgrading this road will provide connectivity between the communes of Tan Van, Hong Thai and Binh La of Binh Gia District and Phu My and Viet Yen of Van Quan District. It will also provide additional, reliable linkage between Binh Gia and Van Quan Districts. The road will provide reliable accessibility for residents in the vicinity, to reduce transport costs on products (and so increase earnings from agriculture) and improving access to healthcare, education and employment opportunities.

(ii) In addition to the social (poverty alleviation) and agricultural development rationales, this subproject also contributes to the overall development of the road network in Lang Son and the FNEP region alike.

## C. Findings

(i) Starting point: Km0+00 intersection with NH1B at Km55+00 (in Tan Van commune area, Binh Gia district.

(ii) End point: at Km10+652=Km10+620 intersection with PR232 (in Binh La commune, Binh Gia district).

(iii) Total length of 21.321km.

(a) Existing alignment (km+m): the PPTA Consultant's field visit finding of 10km.

(b) New alignment (km+m): the PPTA Consultant's field visit finding of 450m: section 1 at Km2+400 opening a new alignment on the right side of the existing road to minimize (residential and agricultural land acquisitions and resettlement; section 2 at Km3+100 – Km3+500 (existing road goes closely along the stream and often gets flooded) proposed to open a new alignment (passes along the foothill) on the left side.

(c) New alignment approval status: not approved yet.

### 1. Summary of road Chainage findings

(i) Km0-Km1+00: muddy road Bn=5-5,5m, Na Pai bridge Km0+269 built in 2007 with B=6m.; L=18m. Good condition. From Km0+269 – Km0+500 a 230m new cement concrete road Bm=3m; Bn=5m.

(ii) Km1+000 – Km1+900 mountainous road; earth pavement B=3,5-5m; Nam Tien bridge at Km1+258 L=6m newly constructed.
(iii) Km1+900 – Km3+00: Suoi Khay Bridge at Km2+005
(iv) Km3+100 – Km3+500: existing road is being flooded; it is proposed by the local consultant to open a new alignment of 400m on the left side going through the agricultural land field (corn field) of a local farmer.
(v) From Km4+286 Na Tau bridge – Km5+700 Ban Huan causeway; a cement concrete road section is being constructed in Hong Thai commune under 135 program (this is a dangerous and muddy and slippery road section) with Bm=3,5m; Bn=5-5,5m.
(vi) From Km5+700 – Km7+700 slope pass; earth road with Bn=5,5-6m. This is a solid and rocky road pavement. It is proposed to use asphalt concrete rather cement concrete (cost effective option and sustainable environmental and climate response.
(vii) From Km7+700 – end point Km10+652 (intersection with PR232) earth road; on the right side is the hillside while the left is agricultural land field.

| Subproject Road Name | Proposed by DPI | PPTA Findings and Recommendations | Conclusion |
|---|---|---|---|
| Start point | Km0+00 intersection with NH1B at Km55+00 (in Tan Van commune area, Binh Gia district. | Confirmed | Confirmed |
| End point | Km19+321 intersection with PR232 at Km8+800 (in Viet Yen commune, Van Quan district) (based on the IP). | Km10+652 = Km10+620 intersection with PR232 (in Binh La commune, Binh Gia district). | To be confirmed |
| Length | 21.321 (IP)<br><br>While the local consultant's draft FS confirmed 10.653km<br><br>Number of identified communes are 3 | 19,22km (identified by PPTA)<br><br>Requested confirmation:<br>(i) DPI reconfirms the total length of the proposed road subproject including the new alignment. In the IP page 21 stated 11.321km while page 31 stated 19.321km and the local consultant's draft FS confirmed 10.653km.<br>(ii) The new alignment is approved with a clear mark of the starting and end points: section 1 at km2+400 opening a new alignment on the right side of the existing road to minimize (residential and agricultural land acquisitions and resettlement; section 2 at Km3+100 – Km3+500 (existing road goes closely along the stream and often gets flooded) proposed to open a new alignment (passes along the foothill) on the left side.<br><br>(iii) Confirmed the number of communes identified to make it consistent with IP and the consultant's draft FS. | DPI confirmed and will reply to the consultant with the official approval of the new alignment and total length of the proposed road subproject including the new alignment. |

| Subproject Road Name | Proposed by DPI | PPTA Findings and Recommendations | Conclusion |
|---|---|---|---|
| | communes: Tan Van, Hong Thai and Binh La | | |
| Road category | Category V according to TCVN 4054-05<br>Road pavement =6,5m, Right of Way (ROW) = 3,5m. Shoulders: 2x1,5m, reinforced shoulder width: 2x1m; proposed cement concrete road structures | Confirmed Cat V according to TCVN 4054-05<br>Road pavement =6,5m, Right of Way (ROW) =3,5m. Shoulders: 2x1,5m, the PPTA recommended that the shoulders be not reinforced; confirmed the proposed cement concrete road structures | Agreed V |
| Proposed works | To be determined in the FS | All existing works along the road are in poor conditions but they need due technical diligence in the FS | will confirm in their FS |

## D. Eligibility

| Criteria | Status | | Risk of Non-compliance and Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| 1: Include in SEDP – if yes state page and section number | ✓ | | The road subproject has been included in Lang Son People's Committee's Decision No. 1353/QD-UBND dated 29 August 2011 approving the Adjustment of Transport Development Plan of Lang Son Province up to 2020 and orientation to 2030; It clearly states that the total number of district roads after the readjustment of the master plan is 75 roads with the total length of 896.6km of grade-V to grade-VI road standards; Structure of asphalt pavement, cement concrete or new material; Drainage works, traffic safety works are built completely. |
| 2: Included in DoT Master Plan – if yes state page and section | ✓ | | Under Decision No. 545/QD-TTg dated 09 May 2012 approving the master plan for socio-economic development of Lang Son province up to 2020 (ii) development of inter-district roads; hardening the commune and village road systems, striving by 2015, 65% of rural roads will be hardened and over 90% by 2020; construction of border routes, roads connecting the border corridors to border patrol roads….. |
| 3: Proposed design concept exists – if yes state date of proposal | ? | | |
| 4: Proposed design standard identified – if yes what standard, what is the projected economic life of the subproject | ✓ | | The road subproject will be constructed according to the scale of grade V mountainous roads according to TCVN 4054-2005 |
| 5: Proposed design standard derived from (i) plan, (ii) traffic forecast, (iii) traffic forecast plus network efficiency (iv) what is the current road standard on each end point or network connection now and planned | | x | The proposed designed standard is derived from the provincial transport masterplan for districts.<br><br>The current road standard on each end point is rural road B and the network connection now and planned is Cat V towards 2030. |

| Criteria | Status | | Risk of Non-compliance and Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| 6: is the date of traffic forecast or base traffic forecast after 2015 | | x | Not yet |
| 7: Is traffic forecast consistent with Road Categorization – if yes – at project start, at the economic life of the subproject | | x | Not yet |
| 8:Is there a preliminary design document with supporting engineering field surveys and drawings – if yes what is the date of these, what design standard is used. | ✓ | | There is a preliminary design document prepared by the local consultant in 2015, but it is a draft without supporting engineering field surveys and drawings.<br>The proposed design standard is Cat V. |
| 9: Is the Preliminary design already approved by DoT | | x | Not yet |
| 10: Is the preliminary design already approved by PPC | | x | Not yet |
| 11: Is there a bill of quantities with the preliminary design | | x | Not yet |
| 12: Is there a cost estimate – if yes is there a supporting bill of quantity and what is the date for the costing | | x | Not yet |
| 13: Are there significant structures required – if yes please identify | | x | Not yet |
| 14: Are there significant cut and fill requirements – if yes please provide an estimate of the extent | | x | Not yet |
| 15: is the current Right of Way sufficient for the proposed or required road design | | x | Not yet |

## E. Safeguard Compliance

| Safeguard | Screening Issue | Yes | No | Explanation and Assessed Risks |
|---|---|---|---|---|
| A: Resettlement | Land Acquisition | | | Extent – minor, substantial |
| A.1 Land Acquisition | Agriculture Land | ✓ | | Extent |
| | Urban Public Land | ✓ | | Extent |
| | Urban Private Land | ✓ | | Extent |
| A.2 Structures | Private houses | ✓ | | minor |
| | Private other | ✓ | | minor |
| | Public Structures | ✓ | | minor |
| A.3 | Other Assets | ✓ | | minor |
| A.4 | Resettlement – if yes number of households identified | ✓ | | Based on the PPTA consultant's field visit findings there will be about 25 households who will be affected by the subproject (either loss of their residential and agricultural land. |
| A.5 | Is there a Land Acquisition and compensation budget – if yes how much | | x | Not yet |
| B: Environmental Screening | | | | |
| B.1 Forests<br>- are there any of the following along the alignment of within close proximity – if yes is the risk significant | Production forest land | ✓ | | Extent |
| | Protection forest land | | x | |
| | Protected areas | | x | |
| B.2 Water, rivers lakes and flood plain | Are there any areas affected by the existing or proposed alignments? If yes how significant are they | ✓ | | Yes, some road sections go along or over streams and flood plain streams. |
| B.3 Does the proposal include any IEE screening | | | x | The proposed road subproject doesn't include any IEE screening |
| B.4 Did the field visit identify issues form EARF that need to be addressed | | ✓ | | Request to recheck the protection forest areas where the new alignments are proposed to go through and resettlement issues. |
| B.5 New Alignments | Risk of land slips | ✓ | | Many sections along the road are considered prone to risk of land slips. |
| | Risk of Large cuts | ✓ | | As presented above |
| | Water course disruption | ✓ | | As presented above |
| | Flood Plain Disruption | ✓ | | As presented above |

## F. Social Considerations

| Criteria | Yes/No | Explanation and Assessed risk |
|---|---|---|
| Are communes identified and named | Yes | If yes please list communes<br>4 communes:<br>▪ Tan Van<br>▪ Hong Thai<br>▪ Binh La |

| Criteria | Yes/No | Explanation and Assessed risk |
|---|---|---|
| | | ▪ Phu My,<br>▪ Viet Yen |
| Is the population data available | Yes | The subproject will directly benefit totally 10,433 HHs in 4 communes: Tan Van commune 4,412 HHs; Hong Thai (2,735 HHs); Binh La (1,390 HHs); Phu My (868 HHs); Viet Yen (1,028 HHs). |
| Is the number of Poor households available | Yes | Based on the PPTA consultant's field visit findings and interviews with the local authorities, Tan Van commune (48,5% poor HHs); Hong Thai commune (40% poor HHs); Binh La commune (48,49% poor HHs). The two other communes Phu My and Viet Yen were not provided with data. |
| Is the number of near poor households available | Not yet | Not available |
| Are Ethnic minorities identified and specified | Not yet | As presented above |
| Is land use specified | Not yet | As presented above |
| Are the number of female headed households specified | Not yet | As presented above |
| Is the GAP adequately reflected | Not yet | As presented above |

## G. Economic Assessment

| Criteria | Yes | No | Explanation and Assessed Risk |
|---|---|---|---|
| Is there an economic assessment – if yes what is EIRR | | x | A required FS to be prepared by the local consultant to assess the EIRR of the subproject. |
| Is there a detailed worksheet for the EIRR | | x | As presented above |
| Is it linked to the traffic forecast | | x | As presented above |

## H. Summary

| Recommendation | Yes | No | Explanation or Outstanding Gaps |
|---|---|---|---|
| Is the subproject eligible by being part of Provincial plans | ✓ | | The subproject is considered eligible by being part of the SEDP and Transport Masterplan as well as FNEP Master Plan. |
| Is there a clear design standard that is justified | | x | Not yet, the FS will present the proposed design standard. |
| Are there outstanding approvals required | ✓ | | Requested confirmation:<br>(i) DPI reconfirms the total length of the proposed road subproject including the new alignment. In the IP page 21 stated 11.321km while page 31 stated 19.321km and the local consultant's draft FS confirmed 10.653km.<br>(ii) the new alignment is approved with a clear mark of the starting and end points: section 1 at km2+400 opening a new alignment on the right side of the existing road to minimize (residential and agricultural land acquisitions and resettlement; section 2 at Km3+100 – Km3+500 (existing road goes closely along the stream and often gets flooded) proposed to open a new alignment (passes along the foothill) on the left side. |

| Recommendation | Yes | No | Explanation or Outstanding Gaps |
|---|---|---|---|
| | | | (iii) Confirmed the number of communes identified to make it consistent with IP and the consultant's draft FS. |
| Is there a preliminary design | | x | Not yet |
| Is there a Feasibility study | | x | Not yet |
| Is the Subproject category A for resettlement and affected persons | | x | the Subproject is classified under category B for social safeguards |
| Is the Subproject category A for environment | ?? | ?? | **Unknown requires DPI clarification relating to forest land use classification** |
| Does the Subproject have clear economic inclusiveness outcomes | ✓ | | the Subproject has clear economic inclusiveness outcomes |
| Does the subproject have clear network connectivity benefits | ✓ | | As per the PPTA consultant's subproject field visit assessment, the Subproject has clear network connectivity benefits.<br>(i) Upgrading this road will provide connectivity between the communes of Tan Van, Hong Thai and Binh La of Binh Gia District and Phu My and Viet Yen of Van Quan District. It will also provide additional, reliable linkage between Binh Gia and Van Quan Districts.<br>(ii) The road will provide reliable accessibility for residents in the vicinity, to reduce transport costs on products (and so increase earnings from agriculture) and improving access to healthcare, education and employment opportunities. |
| Is the project expected to achieve a 9% EIRR | | x | Not yet |

## I. Road Map


## J. Road Sections Chainage Photos

Starting point Km0=Km55+200 NH1B

Km0+30

Km0+60

Bridge Na Phai Km0+269

Km0+300

Km0+500

Km1

Km1+500

Km2+400 (New alignment)

Km2+500

Km3+400 (New alignment)

Km3+500 (New alignment)

Km3+700

Bridge 4+286: Na Tu Bridge

Na Tau Bridge Km4+286

Km4+300

Km4+700

Km7

Km8

Km8+500

Km10+652


Ending point Km10+652 = Km10+620 PR233

# XIX. OUTPUT 1: SUBPROJECT KHAU BAN-CON QUAN- NA LUA ROAD

## A. Subproject Description

151. Construction and upgrading of Khau Ban - Con Quan - Na Lua (Dinh Lap district) road, Lang Son province. Total length of 19.22km

(i) Starting point: Km0 (turns left at Km49 of NH4B in Dinh Lap commune, Dinh Lap district).
(ii) End point: Km18+691.95m (intersection with NH31 at Km144+550 in Na Lua village, Binh Xa commune, Dinh Lap district).
(iii) Length (km+m): 19.22km (including 18.7km of the existing road and 0.52km of new alignment connecting with Con Quan commune).
(iv) Existing alignment (km+m): 16km.
(v) New alignment (km +m): 2.7km goes in the pine production forest and earth footpath but not approved

152. Current Road Categorization: The road is currently Rural Class B. It is an earth road with the width of 4.0 - 5.0m, which combined with steep longitudinal gradients of many sections (>11% in places), makes sections of the road impassable to most vehicles during wet weather. The road surface is soil and seriously downgraded with a lot of wheel tracks, pot-holes. In rainy season, the road surface is flooded, slippery and extremely difficult for vehicle to travel. In addition, there are a number of streams with no crossing point. There are frequent closures of the road during the wet season.

153. Proposed Road Categorization: Category V with asphalt concrete road according to TCVN 4054-2005. Overview of proposed works: the road subproject will construct pavements, road surface, drainage works, protection works, and traffic systems.

154. Proposed investment $10,220,000 with an average cost of $531,737/km.

## B. Rationale

### 1. Current use

(i) The road Subproject comprises improvement and upgrading of Khau Ban – Con Quan – Na Lua Road (Dinh Lap District) for 19.22km of District Road 41 which connects NH4B at Khau Ban village (Dinh Lap commune) to NH31 at Na Lua village (Binh Xa commune), Dinh Lap district. Its alignment is shown in Annex 1.
(ii) Based on the PPTA’s site visit findings, the road is currently Rural Class B. It is an earth road with the width of 4.0 - 5.0m, which combined with steep longitudinal gradients of many sections (>11% in places), makes sections of the road impassable to most vehicles during wet weather.
(iii) The road surface is soil and seriously downgraded with a lot of wheel tracks, pot-holes. In rainy season, the road surface is flooded, slippery and extremely difficult for vehicle to travel. In addition, there are a number of streams with no crossing point. There are frequent closures of the road during the wet season.
(iv) It is proposed to upgrade the road to Class V from its current Rural B classification. The current road has a narrow carriageway (from 4.0m-5.0m

base width), is of very poor quality and on the PPTA's site visit was impassable even with a 4X4 vehicle. Rains make the road very muddy and increase risks of landslides. Connectivity is often severed.

(v) Similar to Tan Van – Binh La and Pac Keo road subprojects, access to Khau Ban – Con Quan – Na Lua Road is almost inaccessible in the rainy seasons due to the large potholes and muddy road.

(vi) Poor road conditions have hindered the development of these sectors, where Giao and Nung EM farmers face the danger of both low prices and in some instances unsold products.

(vii) The economy of Dinh Lap district is predominated by agriculture (rice, corn, cassava and vegetables) and forestry (acacia, and pine trees). The areas served by these roads are also dependent upon agriculture livestock breeding. There is potential for forestry development and expanding production of fruit trees and livestock.

(viii) Based on the PPTA field visit findings and interviewed the district and commune authorities, land area, usage, population and poverty data for the road's catchment showed that there are 7,777 people in the vicinity of the road, with 35% of households being classified as poor.

### 2. Future use

(i) Upgrading this road will provide connectivity between the communes of Dinh Lap and Binh Xa, Dinh Lap District. It will also provide additional, reliable linkage between Binh Gia and Van Quan Districts. The road will provide reliable accessibility for residents in the vicinity, to reduce transport costs on products (and so increase earnings from agriculture) and improving access to healthcare, education and employment opportunities.

(ii) Upgrading this road will provide connectivity between the communes of Dinh Lap and Binh Xa. It would also provide reliable accessibility for residents in the vicinity, to reduce transport costs on products (and so increase earnings from agriculture) and improving access to healthcare, education and employment opportunities.

(iii) In addition to the social (poverty alleviation) and agricultural development rationales, this subproject also contributes to the overall development of the road network in Lang Son and the FNEP region alike.

## C. Findings

### 1. Summary of road chainage findings

(i) Km0 – Km2: from the starting point to connect to NH4B; this road section has just been constructed with cement concrete thickness of 18cm under the new rural program and 135 program funded by district budget; Bm=3,5m; Bn=5m.

(ii) Km2 – Km6+700: the road follows the existing road, earth road with width of 6m; many road sections are muddy and the road surface is soil and seriously downgraded with a lot of wheel tracks, pot-holes, which combined with steep longitudinal gradients of many sections (>11% in places).

(iii) Km6+700 – Km7+80: the road split to the left follows the hillside and crosses the stream at Km7 + 80. Proposed to construct a RC reinforced concrete bridge of 15m in length.

(iv) Km7+080 – Km10 +500: proposed a new alignment in the direction of connecting from Con Quan village to Ngan Tra village in Binh Xa commune. The proposed new alignment goes through the pine forest areas of the local Giao and Nung EM people.
(v) Km10+500 – Km13+500 the road follows the existing road with width of 3m of earth pavement.
(vi) Km13+500 – Km14+387: the road follows the existing earth road with width of 4-5m, Khuoi Tan stream at Km14+387.
(vii) Km14+387 – Km14+500: the road follows the existing earth road.
(viii) Km14+500 – Km14+856: this road section was constructed with cement concrete surface by the local commune funds to make daily travel easy; Bm=3m. At Km14+856 a causeway Khuổi Phiêng combined with slab bridge L=6m constructed in 2014.
(ix) Km14+856 – Km16+230: the road follows the existing earth road. At Km16+230 a spillway combined with slab bridge L=5m.
(x) Km16+230 – Km17: earth and muddy road section.
(xi) Km17 – Km17+400: the route is made of cement concrete with a width of 3m to serve the local people's travel. This road section has great slope and groundwater. At Km17+362, crossing over Coc Hoc stream; Km17+562 crossing over Na Tam stream and Km17+770 crossing over Keo Cam stream.
(xii) Km17+800 to the end point at Km18+700 with cement concrete pavement of 5m wide.

| | **Proposed by DPI** | **PPTA Findings and Recommendations** | **Conclusion** |
|---|---|---|---|
| **Subproject Road Name** | Construction and upgrading of Khau Ban - Con Quan - Na Lua (Dinh Lap district) road, Lang Son province | Confirmed | Confirmed |
| Start point | Km0 (turns left at km49 of NH4B in Dinh Lap commune, Dinh Lap district). | Confirmed | Confirmed |
| End point | Km18+691.95m (intersection with NH31 at Km144+550 in Na Lua village, Binh Xa commune, Dinh Lap district). | Confirmed | Confirmed |
| Length | 19.22km | Confirmed 19.22km<br><br>Requested confirmation:<br>(i) DPI reconfirms the total length of the proposed road subproject including the new alignment. In the IP page 21 stated 16.22km while page 44 stated 19.22km and the local consultant's draft FS and PPTA's site visit findings confirmed 19.22km.<br>(ii) The new alignment is approved with a clear mark of the starting and end points: Km7+080 – Km10+500: proposed a new alignment in the direction of connecting from Con Quan village to Ngan Tra village in Binh | DPI confirmed and will reply to the consultant with the official approval of the new alignment and total length of the proposed road subproject including the new alignment. |

| | Proposed by DPI | PPTA Findings and Recommendations | Conclusion |
|---|---|---|---|
| | | Xa commune. The proposed new alignment goes through the pine forest area of the local Giao and Nung EM people.<br>(iii) From Km0+00 to Km1+900: this road section has just been constructed with cement concrete thickness of 18cm under the new rural program and 135 program funded by district budget; Bm=3,5m; Bn=5m. PPTA recommended that this newly constructed road section will be excluded from the DED and construction stage. A technical due diligence be taken at later stage to assess the road condition so as to save costs. | |
| Road category | Category V according to TCVN 4054-05<br>Road pavement =6,5m, Right of Way (ROW) = 3,5m. Shoulders: 2x1,5m, reinforced shoulder width: 2x1m; proposed cement concrete road structures | Confirmed Cat V according to TCVN 4054-05<br>Road pavement =6,5m, Right of Way (ROW) =3,5m. Shoulders: 2x1,5m, the PPTA recommended that the shoulders be not reinforced; confirmed the proposed cement concrete road structures | Agreed V |
| Proposed works | To be determined in the FS | All existing works along the road are in poor conditions but they need due technical diligence in the FS | will confirm in their FS |

## D. Eligibility

| Criteria | Status | | Risk of Non-compliance and Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| 1: Include in SEDP – if yes state page and section number | ✓ | | The road subproject has been included in Lang Son People's Committee's Decision No. 1353/QD-UBND dated 29 August 2011 approving the Adjustment of Transport Development Plan of Lang Son Province up to 2020 and orientation to 2030; It clearly states that the total number of district roads after the readjustment of the master plan is 75 roads with the total length of 896.6 km of grade-V to grade-VI road standards; Structure of asphalt pavement, cement concrete or new material; Drainage works, traffic safety works are built completely. |
| 2: Included in DoT Master Plan – if yes state page and section | ✓ | | Under Decision No. 545/QD-TTg dated 09 May 2012 approving the master plan for socio-economic development of Lang Son province up to 2020 (ii) development of inter-district roads; hardening the commune and village road systems, striving by 2015, 65% of rural roads will be hardened and over 90% by 2020; construction of border routes, roads connecting the border corridors to border patrol roads… |
| 3: Proposed design concept exists – if yes state date of proposal | ✓ | | Decision No.381/QD-UBND dated 18 March 2016 of the provincial People's Committee approving the list of subprojects proposed investment under the project "Basic Infrastructure for Inclusive Growth in the Northeastern Provinces Sector Project: Ha Giang, Cao Bang, Bac Kan, Lang Son" funded by ADB |

| Criteria | Status | | Risk of Non-compliance and Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| 4: Proposed design standard identified – if yes what standard, what is the projected economic life of the subproject | ✓ | | The road subproject will be constructed according to the scale of grade V mountainous roads according to TCVN 4054-2005 |
| 5: Proposed design standard derived from (i) plan, (ii) traffic forecast, (iii) traffic forecast plus network efficiency (iv) what is the current road standard on each end point or network connection now and planned | | x | The proposed designed standard is derived from the provincial transport masterplan for districts.<br>The current road standard on each end point is rural road B and the network connection now and planned is Cat V towards 2030. |
| 6: is the date of traffic forecast or base traffic forecast after 2015 | | x | Not yet |
| 7: Is traffic forecast consistent with Road Categorization – if yes – at project start, at the economic life of the subproject | | x | Not yet |
| 8:Is there a preliminary design document with supporting engineering field surveys and drawings – if yes what is the date of these, what design standard is used. | ✓ | | There is a preliminary design document prepared by the local consultant in 2015, but it is a draft without supporting engineering field surveys and drawings.<br><br>The proposed design standard is Cat V. |
| 9: Is the Preliminary design already approved by DoT | | x | Not yet |
| 10: Is the preliminary design already approved by PPC | | x | Not yet |
| 11: Is there a bill of quantities with the preliminary design | | x | Not yet |
| 12: Is there a cost estimate – if yes is there a supporting bill of quantity and what is the date for the costing | | x | Not yet |
| 13: Are there significant structures required – if yes please identify | | x | Not yet |
| 14: Are there significant cut and fill requirements – if yes please provide an estimate of the extent | | x | Not yet |
| 15: is the current Right of Way sufficient for the proposed or required road design | | x | Not yet |

## E. Safeguard Compliance

| Safeguard | Screening Issue | Yes | No | Explanation and Assessed Risks |
|---|---|---|---|---|
| A: Resettlement | Land Acquisition | | | Extent – minor, substantial |
| A.1 Land Acquisition | Agriculture Land | ✓ | | minor |
| | Urban Public Land | ✓ | | minor |
| | Urban Private Land | ✓ | | minor |
| A.2 Structures | Private houses | ✓ | | minor |
| | Private other | ✓ | | minor |
| | Public Structures | ✓ | | minor |
| A.3 | Other Assets | ✓ | | minor |
| A.4 | Resettlement – if yes number of households identified | ✓ | | Based on the PPTA consultant's field visit findings there will be about from 25 to 30 households who will be affected by the subproject (either loss of their residential and agricultural land. |
| A.5 | Is there a Land Acquisition and compensation budget – if yes how much | | x | Not yet |
| B: Environmental Screening | | | | |
| B.1 Forests | Production forest land | ✓ | | Forest land classification needs to be confirmed |
| - are there any of the following along the alignment of within close proximity – if yes is the risk significant | Protection forest land | | x | |
| | Protected areas | | x | |
| B.2 Water, rivers lakes and flood plain | Are there any areas affected by the existing or proposed alignments? If yes how significant are they | ✓ | | Yes, some road sections go along or over streams and flood plain streams. |
| B.3 Does the proposal include any IEE screening | | | x | The proposed road subproject doesn't include any IEE screening |
| B.4 Did the field visit identify issues form EARF that need to be addressed | | ✓ | | Request to recheck the protection forest areas where the new alignments are proposed to go through and resettlement issues. |
| B.5 New Alignments | Risk of land slips | ✓ | | Many sections along the road are considered prone to risk of land slips. |
| | Risk of Large cuts | ✓ | | As presented above |
| | Water course disruption | ✓ | | As presented above |
| | Flood Plain Disruption | ✓ | | As presented above |

## F. Social Considerations

| Criteria | Yes/No | Explanation and Assessed Risk |
|---|---|---|
| Are communes identified and named | Yes | If yes please list communes<br>2 communes:<br>▪ Dinh Lap<br>▪ Binh Xa |
| Is the population data available | Yes | The subproject will directly benefit totally 7,777 people (1,798 HHs) in 2 communes: Dinh Lap commune 4,082 people (981 HHs); Binh Xa commune 3,695 people (817 HHs). |
| Is the number of Poor households available | Yes | Based on the PPTA consultant's site visit findings and interviews with the local authorities, Dinh Lap commune (321 poor HHs, and 223 near poor HHs); Binh Xa commune (317 poor HHs). |
| Is the number of near poor households available | Not yet | Dinh Lap commune (223 near poor HHs); Binh Xa commune (the number of poor HHs is not available yet). |
| Are Ethnic minorities identified and specified | Not yet | Not available |
| Is land use specified | Not yet | As presented above |
| Are the number of female headed households specified | Not yet | As presented above |
| Is the GAP adequately reflected | Not yet | As presented above |

## G. Economic Assessment

| Criteria | Yes | No | Explanation and Assessed Risk |
|---|---|---|---|
| Is there an economic assessment – if yes what is EIRR | | x | A required FS to be prepared by the local consultant to assess the EIRR of the subproject. |
| Is there a detailed worksheet for the EIRR | | x | As presented above |
| Is it linked to the traffic forecast | | x | As presented above |

## H. Summary

| Recommendation | Yes | No | Explanation or Outstanding Gaps |
|---|---|---|---|
| Is the subproject eligible by being part of Provincial plans | ✓ | | The subproject is considered eligible by being part of the SEDP and Transport Masterplan as well as FNEP Master Plan. |
| Is there a clear design standard that is justified | | x | Not yet, the FS will present the proposed design standard. |
| Are there outstanding approvals required | ✓ | | Requested confirmation:<br>Requested confirmation:<br>(i) DPI reconfirms the total length of the proposed road subproject including the new alignment. In the IP page 21 stated 16.22km while page 44 stated 19.22km and the local consultant's draft FS and PPTA's site visit findings confirmed 19.22km.<br>(ii) the new alignment is approved with a clear mark of the starting and end points: Km7+080 – Km10+500: proposed a new alignment in the direction of connecting from Con Quan village to Ngan Tra village in Binh Xa commune. The proposed |

| Recommendation | Yes | No | Explanation or Outstanding Gaps |
|---|---|---|---|
| | | | new alignment goes through the pine forest area of the local Giao and Nung EM people.<br><br>(iii) From Km0+00 to Km1+900: this road section has just been constructed with cement concrete thickness of 18cm under the new rural program and 135 program funded by district budget; Bm=3,5m; Bn=5m. PPTA recommended that this newly constructed road section will be excluded from the DED and construction stage. A technical due diligence be taken at later stage to assess the road condition so as to save costs. |
| Is there a preliminary design | | x | Not yet |
| Is there a Feasibility study | | x | Not yet |
| Is the Subproject category A for resettlement and affected persons | | x | As per the PPTA consultant's field visit to the subproject sites, the Subproject is classified under category B or C for minor resettlement and affected persons |
| Is the Subproject category A for environment | ?? | ?? | the Subproject is classified under category B or C for environment |
| Does the Subproject have clear economic inclusiveness outcomes | ✓ | | As per the PPTA consultant's subproject field visit assessment, the Subproject has clear economic inclusiveness outcomes |
| Does the subproject have clear network connectivity benefits | ✓ | | As per the PPTA consultant's subproject field visit assessment, the Subproject has clear network connectivity benefits.<br>(iii) Upgrading this road will provide connectivity between the communes of Dinh Lap and Binh Xa, Dinh Lap District. It will also provide additional, reliable linkage between Binh Gia and Van Quan Districts. The road will provide reliable accessibility for residents in the vicinity, to reduce transport costs on products (and so increase earnings from agriculture) and improving access to healthcare, education and employment opportunities.<br>(iv) Upgrading this road will provide connectivity between the communes of Dinh Lap and Binh Xa. It would also provide reliable accessibility for residents in the vicinity, to reduce transport costs on products (and so increase earnings from agriculture) and improving access to healthcare, education and employment opportunities. |
| Is the project expected to achieve a 9% EIRR | | x | Not yet |

## I. Road Map


### 1. Road Sections Chainage Photos

Starting point Km0=Km49 NR4B

Km0+30

Km0+100

Km0+150

Km1+900

Km2+050

Km3+00

Km3+150

Km4+100

Km5+500

Km6+200

Km6+250

Km6+900

Km7+60 (new bridge L=15m)

Km10+500

Km11

Km12+800

Km13+300

Km13+600

Km14

Km14+100

Km14+387 (New bridge L=12m)

Km14+800

Km14+870

Km15+500

Km16

Km16+230 (Bridge Ban Moi) L=5m

Km16+400

Km16+800

Km17

Km17+362

Km17+500

Km17+600

Km17+800

Km18

Km18+400

Km18+650

Ending point Km18 + 700 = Km144+550 NH31

# XX. OUTPUT 2: SUBPROJECT TAN VAN BINH GIA WATER SUPPLY

## A. Subproject Description

155. The subproject is a water supply network of Tan Van commune, Binh Gia district, Lang Son province

### 1. Scale of proposed scheme

(i) Water Supply Network of Tan Van commune, Binh Gia district, Lang Son province, including 11 villages: Na Pai, Giao Thuy, Con Tau, Con Nua, Tra Lau, Pa Pec, Na Vuoc, Keo Coong, Na Dong, Na Quan, Ban Dao.
(ii) Number of communes/rural towns: 01, Tan Van commune.
(iii) Total Population per commune or town and for each scheme: 3,216 in 2016 and 3,800 in 2030
(iv) Total Number of Households per commune. Town and scheme: 714
(v) Forecast number of household connections – at scheme capacity and project completion date: 80% at scheme capacity and 100% in completion date
(vi) Proportion of HH in each commune that will be connected: 90%
(vii) Volume of water to be supplied per day ($m^3$/day): 1200

### 2. Proposed works

(i) Water source infrastructure:

- Primary pumping station (1,200 $m^3$/day)
- Secondary pumping station
- Transformer

(ii) Water treatment infrastructure:

- 01 Chemical-based water treatment plant

(iii) Water Conveyance infrastructure

- Elevated tank capacity: 03 tank with 500$m^3$ each tank
- Network – for each network state the length of pipe and number of connections: Total length 32,000m, including diameter D200–D90 and distribution pipe D75–D40, valve pit and auxiliary.

156. Proposed investment $1.78 Million (equivalent to 40 Billion VND) with a proposed investment $700 per connection at design capacity

## B. Rationale

157. At present, 11 villages in Tan Van commune have no clean domestic water source. Two main domestic water sources are used by the households and local government authorities such as school, clinics, etc. include: a) Concentrated reservoirs built by the commune, these reservoirs contains water from mountain streams, local people use HDPE D21 pipe to take water to the house for bathing and clothes washing only, not for cooking and drinking; b) From mountain streams; HDPE pipes with diameter of 21-27mm are used by households to carry water directly

to their houses from the distance of 1-3km. The price pipe cost is 5,000 VND/m. It means that each household invests about approximate 15 million VN. This water source is mainly used for cooking and drinking.

(i) Current water sources:
  (a) Surface water from scattering gulches in the area.
  (b) Limited ground water wells with low discharge.
(ii) Future water sources:
  (a) Surface water from Ro Thin reservoir
(iii) Reliability of water sources – annual and seasonal reliability: no data
(iv) Quality of current water sources: satisfy
(v) Level of water services – hours per day: 18
(vi) Time to access water – currently by gender: 7 hours to collect bottles from gulches excluding waiting time in dry seasons
(vii) Health – water related data: only minor impacts expected

## C. Findings

### 1. Water sources:

(i) Natural surface stream water: this is main source to supply but its small flow rate is not enough for water network system with high demand. Water quality is affected from human and livestock activities in upstream.
(ii) Ground water: Some household in Tan Van commune is using drilled well with limited capacity. Evaluation of ground water source was not being done. Geologic condition as limestone with karst structure may cause water leakage and loss in groundwater.
(iii) Water in reservoir:
  (a) Quantity is surplus but it may change periodically. In rainy season water capacity is large but in dry season water level decreases below dead water level. Thus, water intake in dry season may be bottleneck, especially in time of irrigated pumping
  (b) Distance from reservoir to Tan Van commune center will cause difficult to convey water with high cost
  (c) Almost reservoirs are multi-purposes both for irrigation and water domestic use. In dry season, water demand for irrigation is high, there is deficit water volume for domestic use

#### a. Recommendation:

(i) Reservoir is reasonable water source both in quantity and quality. There are available source such as Phai-Danh dam, Nam Lin, Ro-Nam. Ro-Thin reservoir.
(ii) In dry season, in case of low water level in reservoir and water demand for irrigation increasing , addition water source will be considered such as water extract from Phai-Danh reservoir.

### 2. Current water supply system

(i) Existing constructed water system is supplying for 4 villages. The capacity of the existing system is not enough for remain 11 villages in Tan Van commune.

(ii) Due to lacking of distribution pipeline network then some households use their water pipe to connect to public tank.
(iii) Water quality: Raw water from gulch flows to public tanks without treatment.
(iv) Water charge: Interview with water users indicate a willingness to pay up to 6,000 VND/m3

**Table 18: Findings**

| Subproject Water Supply Name | Proposed by DPI | PPTA Comments | Conclusion |
|---|---|---|---|
| Water source ground water | Not be applied | Confirmed. | Will confirm in their FS |
| Water source from Ro Thin reservoir | | Confirmed | Will confirm in their FS |
| Water quantity in dry season | DPC informed the deficit water source in dry season, especially low water volume in reservoir that cannot pump | Water quantity in dry season should be determined to confirm design capacity of alternative way, of which to use combined water sources from other large capacity reservoir (Requiring to provide additional 7500m HDPE pipe D250mm and pumping station with 750$m^3$/day capacity | Will confirm in their FS |
| Water demand | 1200$m^3$/day | Confirmed | Will confirm in their FS |
| New construction of collected water structures | Primary pumping station<br>Secondary pumping station<br>Transformer | Confirmed | Confirmed<br>Will confirm in their FS |
| Pipeline | New construction of main pipe New construction of distribution pipeline network | Confirmed Main pipeline: 32,000m HDPE D200-D90mm Distribution pipeline: 18,500m HDPE D75-D40 | Will confirm in their FS |
| Water treatment process | Not be mentioned | + Confirmed: Local consultant has to provide water treatment process (scheme and capacity of water treatment plans) for raw water sources. | Will confirm in their FS |
| Design of elevation of storage tank | Not be mentioned | + Confirmed: Local consultant to provide design of elevation of storage tanks, especially for household live far from center of Tan Van commune | Will confirm in their FS |
| Bill of quantity. Cost estimation | Not be mentioned | Bill of quantity will be provided | Will confirm in their FS |
| Detail of EIRR | Not be mentioned | Detail of EIRR will be presented | Will confirm in their FS |

## D. Eligibility

| Criteria | Status | | Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| 1: Include in SEDP – if yes state page and section number | X | | When the project is completed and put into operation, it will create a favorable infrastructure to promote sustainable socio-economic development |
| 2: Included in Sector Plan – if yes state page and section | X | | |
| 3: Proposed design concept exists – if yes state date of proposal | X | | February 2017 |
| 4: Proposed design standard identified – if yes what standard, what is the projected economic life of the subproject | | X | |
| 5: Proposed design standard derived from (i) plan, (ii) demographic forecast, (iii) demographic forecast plus migration, (iv) includes institutional demand, (v) demand set for 2030 or beyond, (vi) daily demand standards | | X | Not yet |
| 6: is the date of demand set for at least 2030 | X | | |
| 7: Is demand forecast consistent with the scheme design supply volumes at the economic life of the subproject – minimum of 2030 | X | | 1,200$m^3$/day |
| 8: Is there an established demand for a water supply scheme through a social survey | | No | |
| 9: Is a concept or preliminary engineering design available | | No | |
| 10: Is the preliminary design already approved by commune, district or PPC | | No | |
| 11: Is there a bill of quantities with the preliminary design | | No | |
| 12: Is there a cost estimate – if yes is there a supporting bill of quantity and what is the date for the costing | | No | |
| 13: Are there significant structures required – if yes please identify | X | | Pumping station, main pipe (9,500m), elevated concrete pond (500$m^3$), water treatment plants (1,200$m^3$/day), distribution pipe (22,400m) |
| 14: is the water source confirmed in terms of annual availability, monthly availability | | No | |
| 15: is there approval to use the water source | | No | |
| 16: Are there water quality tests for the proposed water source | | No | |

## E. Safeguard Compliance

| Safeguard | Screening Issue | Yes | No | Explanation and Assessed Risks |
|---|---|---|---|---|
| A: Resettlement | Land Acquisition | | X | |
| A.1 Land Acquisition | Agriculture Land | | X | |
| | Urban Public Land | | X | |
| | Urban Private Land | X | | Secondary pumping station with 200m$^2$ requires private land acquisition and compensation. At the present, local people cultivates maize and soybean |
| A.2 Structures | Private houses | | X | |
| | Private other | | X | |
| | Public Structures | | X | |
| A.3 | Other Assets | | | |
| A.4 | Resettlement – if yes number of households identified | | X | |
| A.5 | Is there a Land Acquisition and compensation budget – if yes how much | | X | |
| B: Environmental Screening | | | | |
| B.1 water source and network effect on forests<br>- are there any of the following along the alignment of within close proximity – if yes is the risk significant | Production forest land | | X | |
| | Protection forest land | | X | |
| | Protected areas | | X | |
| B.2 Water, rivers lakes and flood plain | Are in-stream value affected, will minimum in stream flows be adhered to how significant are they | | X | |
| B.3 Does the proposal include any IEE screening | | | X | |
| B.4 Did the field visit identify issues form EARF that need to be addressed | | | X | |
| B.5 Water source catchment protection issues | Is the catchment of the water source at risk from climate change | X | | Climate change may cause reduction of low water flow in dry season. Daily flow rate in dry season will be determined in FS. PPTA proposes to measure water flow in several months continuously. |
| | Risk from contamination from human settlement or livestock | | X | |

| Safeguard | Screening Issue | Yes | No | Explanation and Assessed Risks |
|---|---|---|---|---|
| | Risk of deforestation de-vegetation | | X | |

## F. Social Considerations

| Criteria | Yes/No | Explanation and Assessed risk |
|---|---|---|
| Are communes identified and named | Yes | 11 villages in Tan Van commune |
| Is the population data available for each commune, township | Yes | 3,216, issued formally by CPC Tan Van CPC |
| Is the number of Poor households available | Yes | 349 (32.86%) issued formally by Tan Van CPC |
| Is the number of near poor households available | Yes | 221 (20.71%) |
| Are Ethnic minorities identified and specified | Yes | Tay: 604 person/190 HH<br>Nung: 411 person/170 HH<br>Dao: 5% (163) |
| Is land use specified | No | |
| Are the number of female headed households specified | Yes | 5% |
| Is the GAP adequately reflected | No | |

## G. Economic Assessment

| Criteria | Yes | No | Explanation and Assessed Risk |
|---|---|---|---|
| What is the cost per connection at 100% of design capacity and at project completion | Yes | | Cost per connection:<br>+ at 100% of design capacity: $850<br>+ at project completion: $700 (for 741 household)<br>High cost per connection will cause problems with demand of connection to distribution pipeline. |
| Does the cost per connection exceed $900 | | No | Long main pipe (D200mm; L=9500m) will cause huge investment cost. Consultants will consider reasonable approaches to save construction cost. |
| Is the scheme owner and operator identified | Yes | | Cooperative under management of Binh Gia DPC |
| Is a tariff reported | Yes | | Domestic use: 3,800 VND/$m^3$<br>Public use: 12,000 VND/$m^3$<br>Business, production, manufacturing: 15,000 VND/$m^3$ |
| Does the tariff based cost of water exceed 5% of household income for the median income of the communes, and for the lowest quartile of household incomes | Yes | | |
| Will the tariff exclude poor and near poor households on affordability criteria of 5% of household income | Yes | | Poor and near poor household are willing to pay |
| Is there a financial assessment of the water supply scheme | | No | |

| Criteria | Yes | No | Explanation and Assessed Risk |
|---|---|---|---|
| Are scheme benefits clearly identified by category of benefit | | No | |
| Is each benefit quantified | | No | |
| Is there an economic assessment – if yes what is EIRR | | No | |
| Is there a detailed worksheet for the EIRR | | No | |

## H. Summary

| Recommendation | Yes | No | Explanation or outstanding gaps |
|---|---|---|---|
| Is the subproject eligible by being part of Provincial plans | Yes | | |
| Is there a clear design standard that is justified | | No | |
| Are there outstanding approvals required | | No | |
| Is there a preliminary design | | No | |
| Is there a Feasibility study | | No | FS will be done to determine layout and specification of main pipeline with length 9.500m, especially high pressure of water inside |
| Is sufficient data on the availability of water provided | | No | Water quantities assessment is required by a FS to be prepared by the local consultant for the subproject. |
| Is there sufficient data on water quality | | No | Water quality assessment is required by a FS to be prepared by the local consultant for the subproject. Measurement of water quality flow will be undertaken in FS. |
| Is the Subproject category A for resettlement and affected persons | | No | |
| Is the Subproject category A for environment | | ? | Water source clarification required |
| Does the Subproject have clear economic inclusiveness outcomes | | No | |
| Does the subproject have clear network connectivity benefits | | No | |
| Is the project expected to achieve a 9% EIRR | | No | A required FS to be prepared by the local consultant to assess the EIRR of the subproject. |
| Who will manage the scheme and are they linked to a municipal or rural town operator | Yes | | Cooperative under Binh Gia DPC |
| Is the scheme an expansion of an existing municipal and or rural town supply – if yes, are they required to on lend from the PPC? | | No | |

## I. Water Supply Photo and Location

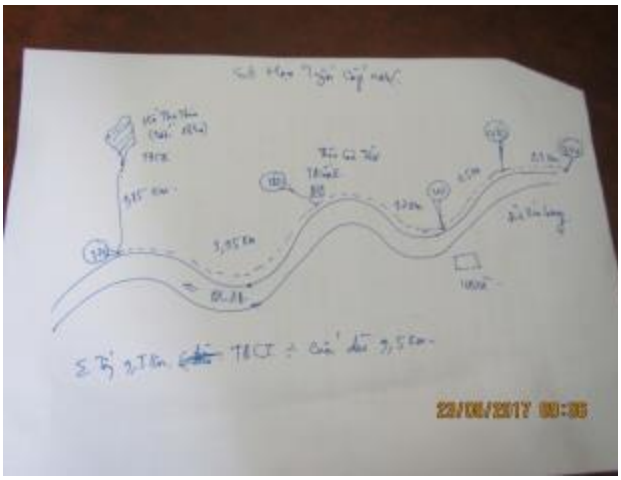
Main surface water source from Ro Thin reservoir in To Hieu communes

Main brick water tank in Tan Van to store water from gulch without treatment

Proposed location for construction of secondary pumping station in Tan Van commune, Binh Gia district

Survey of various water pipe to household that erected by local people

Alternative reservoir water source with large capacity (more 1 million $m^3$) but far from center of Tan Van commune. It requires extending more 7,500m of main pipeline.



Sketch of concept design for water supply in Tan Van commune

Existing water supply primary pump system for To Hieu commune

Current water treatment plant for To Hieu commune only but its capacity cannot be extended for other water demand

Expanding the current water treatment plant is difficult because of limitation of land area

Expanding the current secondary water pump is difficult because of limitation of land area

## XXI. OUTPUT 2: SUBPROJECT CUONG LOI AND THAI BINH WATER SUPPLY

### A. Subproject Description

158. Water Supply Network of Cuong Loi commune and Thai Binh town, Dinh Lap district, Lang Son province with 2 networks or schemes

(i) Water Supply Network of Cuong Loi communes,
(ii) Water Supply Network of Thai Binh town,

### B. Water Supply Network of Cuong Loi communes,

(i) Number of communes/rural towns: 04, including:
- Quang Hoa, Khe Bo, Dong Khoang and Ban Chuon village

(ii) Total Population per commune or town and for each scheme: 290 HH, 1,450 people
- Quang Hoa: 550
- Khe Bo: 545
- Dong Khoang: 185
- Ban Chuon: 215

(iii) Total Number of Households per commune. Town and scheme:
- Quang Hoa: 101
- Khe Bo: 109
- Dong Khoang: 37
- Ban Chuon: 43

(iv) Forecast number of household connections – at scheme capacity and project completion date: 80% at scheme capacity and 100% in completion date

(v) Proportion of HH in each commune that will be connected: 90%

(vi) Volume of water to be supplied per day ($m^3$/day): 310 including
- Quang Hoa: 100$m^3$/day
- Khe Bo: 110$m^3$/day
- Dong Khoang: 40$m^3$/day
- Ban Chuon: 50$m^3$/day

#### 1. Proposed works

(i) Water source infrastructure:
- 4 Surface stream water collection weir, main pipe D200 x 02 lines for 4 villages

(ii) Water treatment infrastructure: 04 units for:
- Quang Hoa: 100$m^3$/day
- Khe Bo: 110$m^3$/day

- Dong Khoang: 40m$^3$/day
- Ban Chuon: 50m$^3$/day

(iii) Water Conveyance infrastructure

(iv) Elevated tank capacity:

- Quang Hoa: 20m$^3$ x 01 tank
- Khe Bo: 20m$^3$ x 01 tank
- Dong Khoang: 10m$^3$ x 01 tank
- Ban Chuon: 10m$^3$ x 01 tank

**a. Quang Hoa village Network**

- Main pipe: HDPE pipe, diameter D76- 50mm, length: 3,300m
- Distribution pipe: HDPE pipe diameter D40- 32mm, length: 4,100m
- Counter: 101 sets

**b. Khe Bo village Network**

- Main pipe: HDPE pipe, diameter D90-63mm, length: 2,650m
- Distribution pipe: HDPE pipe diameter D40-32mm, length: 2,500m
- Counter: 109 sets

**c. Dong Khoang village Network**

- Main pipe: HDPE pipe, diameter D63-32mm, length: 2,000m
- Distribution pipe: HDPE pipe diameter D40-32mm, length: 1,400m
- Counter: 37 sets

**d. Ban Chuon village network**

- Main pipe: HDPE pipe, diameter D63-40mm, length: 2,500m
- Distribution pipe: HDPE pipe diameter D32mm, length: 400m
- Counter: 43 sets

159. Proposed investment $1.24 Million (equivalent to 28 Billion VND) with the cost per scheme being:

(i) In Quang Hoa village: $350.000 = $3500/connection – PPTA opinion the scheme is nonviable

(ii) In Khe Bo village: $293.000 = $2,691/connection – PPTA opinion the scheme is nonviable

(iii) In Dong Khoang: 137.000/37 = $3.702/connection – PPTA opinion the scheme is nonviable

(iv) In Ban Chuon: 150.755/43 = $3.500/connection – PPTA opinion the scheme is nonviable

## C. Water Supply Network of Thai Binh Town

(i) Number of communes/rural towns: 03, including:
(ii) Thai Binh town, Ban Muc and Binh Thai villages
(iii) Total Population per commune or town and for each scheme: 630 HH, 2,800 people
(iv) Total Number of Households per commune. Town and scheme: Thai Binh 490 HH, Ban Muc 71 HH and Binh Thai 61HH
(v) Forecast number of household connections – at scheme capacity and project completion date: 85% at scheme capacity and 100% in completion date
(vi) Proportion of HH in each commune that will be connected: 90%
(vii) Volume of water to be supplied per day ($m^3$/day): 1,600

### 1. Proposed works

(i) Water source infrastructure: pumping station
(ii) Water treatment infrastructure: 01 units for 1,600$m^3$/day
(iii) Water Conveyance infrastructure
  a. Elevated tank capacity:
  b. Network – for each network state the length of pipe and number of connections: 20.400m pipeline (D200–90)/(D75-40) and valve pit

160. Proposed investment $ total: $1.01 Million (equivalent to 22,68 Billion VND) with the cost per connection at project completion $700/connection in 2030 Rationale

## D. Rationale

### 1. Cuong Loi and Thai Binh water supply scheme

(i) Almost local people are using directly water, which will be extracted, from the stream without treatment. Supply of water has to base on individual gulch. There is deficit of water supply in dry season.

(ii) Local people have high demand for clean domestic water; they try any way to have the best water source for use. The way they evaluate the water source clean or dirty bases on their experience about the taste and color, visual check, but they do not know exactly that it is clean or not. The water sources exploited by the households are not inspected in accordance with state regulations. This is the opportunity for social investigators in persuading local people to participate in the project and commit to use clean water, if they have in the future.

#### a. Current water sources:

(i) In Cuong Loi commune: Surface water from scattering gulches in the area. Limited ground water wells with low discharge.
(ii) In Thai Binh town: Surface water from existing reservoir

### b. Future water sources:

161. Surface water from gulch and stream for Cuong Loi commune and existing reservoir for Thai Binh town

(i) Reliability of water sources – annual and seasonal reliability: Yes, most water sources are available both in wet season and dry season
(ii) Quality of current water sources: same sources as currently being used
(iii) Level of water services – hours per day: 24
(iv) Current cost of existing water sources / access as share of household income:
(v) Time to access water – currently by gender: 3 hours
(vi) Health – water related data: Minor,
(vii) Social Benefits ethnic minorities, female headed households, elderly and females can use clean hygiene water

## E. Findings

162. Water source availability: Surface water from various gulches are available for water supply, but locations of water source is scattered

**1. Recommendation: in each village, one complete water supply system will be applied**

163. Water source quality: in dry season, water quality is good but in rainy season solid particle and TSS increase, especially after rainfall and high flood flow high concentration of particle was occurring in water flow

**2. Recommendation: Water quality test will be conducted and certificated in FS preparation. Including tests during wet and dry seasons**

164. Disadvantage of water supply system: Because of scattering location of water source and water user then separation into 4 sub-areas as Quang Hoa, Khe Bo, Dong Khoang and Ban Chuon are to be applied. This will require 4 main tanks/weirs water source instead of general one tank. This will increase investment cost. High cost of construction will cause high cost per connection.

165. Thai Binh water supply system is having high cost per connection at present but this cost will be reduced when project is to be completion with higher connection demands

**3. Recommendation: Hygienic clean water will be necessary for poor people, children, female and ethnic people. This water supply sub-project will be more social consideration than comparing to economic assessment.**

| Subproject Water Supply Name | Proposed by DPI | PPTA Comments | Conclusion |
|---|---|---|---|
| Water source from 4 stream in 4 villages | Proposed | There are 04 water sources will be used for 04 villages | Will confirm in their FS |
| Water quantity in dry season of Cuong Loi commune | Not be mentioned | Water quantity in dry season should be determined to confirm design capacity | Will confirm in their FS |
| Water demand | 1,600$m^3$/day and 310$m^3$/day | Confirmed | Will confirm in their FS |
| New construction of collected water structures | New construction of water weirs in Cuong Loi stream | there are 04 weirs will be constructed for 4 villages | Confirmed<br>Will confirm in their FS |
| Pipeline | New construction of main pipe New construction of distribution pipeline network | Confirmed | Will confirm in their FS |
| Water treatment process | Proposed in previous FS | + Confirmed PPTA found that water treatment process mentioned in FS by local consultant is adequate.<br>There are 04 water treatment plants locating in 04 villages with same water treatment process. | Will confirm in their FS |
| High connection cost in Cuong Loi commune and Thai Binh town | Mentioned in preliminary design | Confirmed | Will confirm in their FS |
| Land acquisition for water treatment plant in Thai Binh town | Proposed in previous FS (650$m^2$) | + Confirmed | Will confirm in their FS |
| Bill of quantity. Cost estimation | Not be mentioned in detail | Bill of quantity will be provided | Will confirm in their FS |
| Detail of EIRR | Not be mentioned | Detail of EIRR will be presented | Will confirm in their FS |

## F. Eligibility

| Criteria | Status | | Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| 1: Include in SEDP – if yes state page and section number | X | | When the project is completed and put into operation, it will create a favorable infrastructure to promote sustainable socio-economic development |
| 2: Included in Sector Plan – if yes state page and section | X | | Master Plan and Infrastructure plan, updated and approved in 2016 by PPC Lang Son<br>Final Report of Dinh Lap PDC on assessment of social-economic development in 2016 and planned activities in 2017 |
| 3: Proposed design concept exists – if yes state date of proposal | X | | December 2016 |
| 4: Proposed design standard identified – if yes what standard, what is the projected economic life of the subproject | X | | National Vietnamese Standard: QCVN 01:2009/BYT |
| 5: Proposed design standard derived from (i) plan, (ii) demographic forecast, (iii) demographic forecast plus migration, (iv) includes institutional demand, (v) demand set for 2030 or beyond, (vi) daily demand standards | X | | Plan |
| 6: Is the date of demand set for at least 2030 | X | | |
| 7: Is demand forecast consistent with the scheme design supply volumes at the economic life of the subproject – minimum of 2030 | X | | 1,600$m^3$/day for Thai Binh town<br>310$m^3$/day for Cuong Loi commune |
| 8: Is there an established demand for a water supply scheme through a social survey | | No | |
| 9: Is a concept or preliminary engineering design available | X | | Local consultant proposed a preliminary engineering design |
| 10: Is the preliminary design already approved by commune, district or PPC | | No | |
| 11: Is there a bill of quantities with the preliminary design | | No | |
| 12: Is there a cost estimate – if yes is there a supporting bill of quantity and what is the date for the costing | | No | There is pre-estimation of cost, supporting from BOQ is not clear. |
| 13: Are there significant structures required – if yes please identify | X | | Collected water weir, main pipe, elevated concrete pond , water treatment plants, distribution pipe |
| 14: is the water source confirmed in terms of annual availability, monthly availability | | No | |
| 15: Is there approval to use the water source | | No | |
| 16: Are there water quality tests for the proposed water source | | No | |

## G. Safeguard Compliance

| Safeguard | Screening Issue | Yes | No | Explanation and Assessed Risks |
|---|---|---|---|---|
| A: Resettlement | Land Acquisition | X | | |
| A.1 Land Acquisition | Agriculture Land | | X | |
| | Urban Public Land | X | | 650m$^2$ in Thai Binh town |
| | Urban Private Land | | X | |
| A.2 Structures | Private houses | | X | |
| | Private other | | X | |
| | Public Structures | | X | |
| A.3 | Other Assets | | | |
| A.4 | Resettlement – if yes number of households identified | | X | |
| A.5 | Is there a Land Acquisition and compensation budget – if yes how much | | X | |
| B: Environmental Screening | | | | |
| B.1 water source and network effect on forests<br>- are there any of the following along the alignment of within close proximity – if yes is the risk significant | Production forest land | X | | In Cuong Loi commune with small area<br>In Thai Binh is not affected |
| | Protection forest land | | X | |
| | Protected areas | | X | |
| B.2 Water, rivers lakes and flood plain | Are in-stream value affected, will minimum in stream flows be adhered to how significant are they | | X | Weirs that are in stream need to be considered |
| B.3 Does the proposal include any IEE screening | | X | | FS mentioned IEE screening |
| B.4 Did the field visit identify issues form EARF that need to be addressed | | | X | |
| B.5 Water source catchment protection issues | Is the catchment of the water source at risk from climate change | X | | Climate change may cause reduction of low water flow in dry season. Daily flow rate in dry season will be determined in FS. PPTA proposes to measure water flow in several months continuously. |
| | Risk from contamination from human settlement or livestock | | X | |
| | Risk of deforestation de-vegetation | | X | |

## H. Social Considerations

| Criteria | Yes/No | Explanation and Assessed Risk |
|---|---|---|
| Are communes identified and named | Yes | Cuong Loi and Thai Binh |
| Is the population data available for each commune, township | Yes | As mentioned in item B description |
| Is the number of Poor households available | Yes | In Cuong Loi: 83 households (list of poor HH is available in 2016)<br>In Thai Binh: 106 household (20.8%) |
| Is the number of near poor households available | Yes | In Cuong Loi: 163 households(list of near poor HH is available in 2016)<br>In Thai Binh: 42 HH (8.2%) |
| Are Ethnic minorities identified and specified | Yes | Nung, Mong, La Chi, Phu La, Tay, Dao (80%) |
| Is land use specified | No | |
| Are the number of female headed households specified | Yes | 5% |
| Is the GAP adequately reflected | No | |

## I. Economic Assessment

| Criteria | Yes | No | Explanation and Assessed Risk |
|---|---|---|---|
| What is the cost per connection at 100% of design capacity and at project completion | Yes | | |
| Does the cost per connection exceed $900 | Yes | | |
| Is the scheme owner and operator identified | Yes | | Cooperative under management of Dinh Lap DPC |
| Is a tariff reported | Yes | | Domestic use: 3,800 VND/$m^3$<br>Public use: 5,800 VND/$m^3$<br>Business, production, manufacturing: 11,000 VND/$m^3$ |
| Does the tariff based cost of water exceed 5% of household income for the median income of the communes, and for the lowest quartile of household incomes | | No | |
| Will the tariff exclude poor and near poor households on affordability criteria of 5% of household income | | No | |
| Is there a financial assessment of the water supply scheme | | No | |
| Are scheme benefits clearly identified by category of benefit | | No | |
| Is each benefit quantified | | No | |
| Is there an economic assessment – if yes what is EIRR | | No | |
| Is there a detailed worksheet for the EIRR | | No | |

## J. Summary

| Recommendation | Yes | No | Explanation or Outstanding Gaps |
|---|---|---|---|
| Is the subproject eligible by being part of Provincial plans | Yes | | New rural Plan in Dinh Lap district |
| Is there a clear design standard that is justified | Yes | | QCVN 01/2009: BYT |
| Are there outstanding approvals required | | No | |
| Is there a preliminary design | Yes | | Preliminary design was done in FS |
| Is there a Feasibility study | Yes | | FS was done in December 2016 |
| Is sufficient data on the availability of water provided | Yes | | Water quantities were provided in FS |
| Is there sufficient data on water quality | Yes | | Water quality test was done in 2016 with 29 parameters. TSS indicator is higher than critical value |
| Is the Subproject category A for resettlement and affected persons | | No | |
| Is the Subproject category A for environment | | No | |
| Does the Subproject have clear economic inclusiveness outcomes | Yes | | |
| Does the subproject have clear network connectivity benefits | | No | |
| Is the project expected to achieve a 9% EIRR | | No | A required FS to be prepared by the local consultant to assess the EIRR of the subproject. |
| Who will manage the scheme and are they linked to a municipal or rural town operator | Yes | | Cooperative under Dinh Lap DPC |
| Is the scheme an expansion of an existing municipal and or rural town supply – if yes, are they required to on lend from the PPC? | | No | |

## K. Water Supply Photo and Location

Existing water tank in Khe Bo village is empty

Water stream source in Dong Khoang village

Water stream source in Quang Hoa village

Water stream source in Ban Chuon village

Water quality in Khe Bo is affecting by livestock activities

Water tank in Dong Khoang village, which is made of brick and concrete. Water is taken from Dong Khoang stream without treatment facility

After rainfall, there is surplus water inside tank but containing solid particle

This water source in Ban Chuon village is using for both irrigation and living use

Existing transformer in Thai Binh plant needs to be upgraded

Surplus water source in Thai Binh town

Existing main pipe in Thai Binh water source need to be upgraded

Pump in Thai Binh water source need to be raised capacity

Various water extract pipe erected by local people when water treatment plant was not working

Water treatment plant in Thai Binh town is old and small capacity

Electric control box in Thai Binh water treatment plant which is using old technology

Chemical room in water treatment plant. Chlorine is pumped direct to water tank

# XXII. OUTPUT 2: SUBPROJECT MAU SON WATER SUPPLY

## A. Subproject Description

166. Water Supply Network of Mau Son area, Lang Son province

(i) Scale of proposed scheme
(ii) Number of networks or schemes if bundled: 01
**(iii) Water Supply Network of Mau Son area, Lang Son province**
(iv) Number of communes/rural towns: 01, Mau Son area.
(v) Total Population per commune or town and for each scheme: Nil
(vi) Total Number of Households per commune. Town and scheme: Nil
(vii) Forecast number of household connections – at scheme capacity and project completion date: 100% at scheme capacity and 100% in completion date
(viii) Proportion of HH in each commune that will be connected: Nil
(ix) Volume of water to be supplied per day ($m^3$/day): Nil

### 1. Proposed works

(i) Water source infrastructure:

- Water saving Dam or Weir
- Primary pumping station
- Secondary pumping station (minimum units: 03 as proposed by JSC Mau Son)
- Small reservoir/pond (various locations)
- Transformer

(ii) Water treatment infrastructure:

- 01 Chemical-based water treatment plant (capacity will be determined)

(iii) Water Conveyance infrastructure

- Elevated tank: Quantity and location will be determined
- Network – for each network state the length of pipe and number of connections:
  - Main pipeline network from dam/weir to small reservoirs/ponds
  - Primary pipeline network from Small reservoir/pond to elevated tanks
  - Secondary pipeline network from elevated tanks to end-users

167. Proposed investment $ total: $2.46 Million (equivalent to 56 Billion VND)

## B. Rationale

(i) Mau Son is planning to be tourism attracting area, then water demand will increase in the near future; As proposed in master plan, in 2025 there is 800,000 tourists (35,000 foreigners)/ in 2030 is 1,000,000 people with 50,000 foreigners). Service-based labor will be 2,800 in 2025 and 4,000 in 2030. Hygienic clean water demand will be huge quantity.

(ii) Ethnic people in Mau son area is using water from natural stream. or gulch without treatment. They require clean water for domestic use.
(iii) At present, there are limited water supply in this area that constructed in the previous time. Almost system is pump-based network with small volume. Water supply system with high quality standard is to be required; especially investors are constructing a complex facility for tourist such a high class hotel, entertainments, etc.
(iv) Current water sources: Surface water from scattering gulches in the area. Limited ground water wells with low discharge.
(v) Future water sources: Surface water from planning reservoir
(vi) Reliability of water sources – annual and seasonal reliability: Have to be considered
(vii) Quality of current water sources:
(viii) Level of water services – hours per day: 24

## C. Findings

### 1. Water sources:

(i) Natural surface stream water: this is main source to supply but its flow rate is unavailable
(ii) Ground water: Limitation of ground water source is constraint for consideration as water source.

#### a. Recommendation:

(i) Location of intended water source reservoir will be considered to satisfy with requirement of Land Forest Planning that approved by MARD.
(ii) Hydrological and hydraulic calculation will be done to determine potential water volume, especially in case of climate change and forest area decreasing which cause deficit water low flow in dry season but surplus water flow in rain season; **Inflow quantity to reservoir** is an important hydrological parameter which require to determine
(iii) ***Water balance*** calculation has to consider to determine reasonable pumping capacity, volume of main water source reservoirs, volume of small reservoir/ponds and elevated water tanks
(iv) Construction of intake water source will be considered in FS to meet requirement of forest land protection, volume to supply vast water pumping
(v) Construction activities will affect to reserved forest land then surface rainfall-runoff flow will increase unpredictably. Concentration of surface water flow may be problems in rainy season. It may cause erosion and land sliding if protected structures are not to be designed carefully. Therefore, soil protect have to be considered.

### 2. Water quality:

168. Water quality test records are unavailable and as there are proposed to several sources that all experience dry season flow issues these will all need to be tested at differing periods of the year including the dry season and after rainfall events. The test results will be needed before the completion of the feasibility study to enable water security to be confirmed and also to enable the appropriate design for water treatment facilities.

### 3. Waste Water discharge:

169. There is large amount of waste water discharge when Mau Son tourist area is in operation

#### a. Recommendation:

(i) Waste water discharge system will be considered and designed
(ii) Off-take waste water discharge will be considered to avoid conflict of clean water source and waste water discharge

### 4. Water supply scheme layout:

170. Water supply layout will be considered with General Master Plan of Infrastructure and general infrastructure plan that being designed by Mau Son JS company, especially location of main water source downstream reservoir, main and secondary pumping station, small reservoir/ponds and elevated water tanks

#### a. Recommendation:

(i) Concept design and basic engineering design have to consider the location of main water supply infrastructures following General Plan.
(ii) Step layout of pumping system with high water-head (400m) will be considered to avoid over-load of pumps

### 5. Safety of small reservoir and ponds:

(i) Water small reservoir and ponds will be located in high elevation area. These source of water contain potential hazard of water flood propagation to downstream
(ii) Potential evaporation in surface of small reservoir may cause water loss
(iii) Deposition of soil in reservoir bed may cause reduction of efficient water volume in reservoir

#### a. Recommendation:

(i) Engineering design have to consider safety of water storing structures, especially over-flow in dam/weir, stability of dam/weir to avoid risk of water surplus discharge flow in downstream;
(ii) Protection structures such as retaining wall, gabion for stable slope, rip-rap for anti-scouring in downstream have to be considered;
(iii) Volume of elevated small reservoir will be considered with potential evaporation due to high windy velocity in upland as well as deposition of soil from slope land sliding
(iv) Significant risk to natural forest and protection forest areas – unclear if reservoir is sufficient for securing supply

### 6. Water charge:

171. Tariff water is to be high, preliminary estimation water tariff as 15.000 VND/m3 not including charge fee for environmental service and tax. This tariff may not consider high O&M cost for critical high-head pumping

### a. Recommendation:

(i) Confirmation of willing to pay high water tariff will be determined and a purchase agreement confirmed prior to any project support

(ii) Total investment cost and O& M cost have to be calculated to determine water tariff reasonable.

## D. Eligibility

| Criteria | Status | | Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| 1: Include in SEDP – if yes state page and section number | X | | When the project is completed and put into operation, it will create a favorable infrastructure to promote sustainable socio-economic development |
| 2: Included in Sector Plan – if yes state page and section | X | | Mentioned in Decision No 240/QD-TTg dated 20 February 2017 for approval of Master Plan of Mau Son tourist Area, Lang Son province until 2030 |
| 3: Proposed design concept exists – if yes state date of proposal | X | | February 2017 |
| 4: Proposed design standard identified – if yes what standard, what is the projected economic life of the subproject | | X | |
| 5: Proposed design standard derived from (i) plan, (ii) demographic forecast, (iii) demographic forecast plus migration, (iv) includes institutional demand, (v) demand set for 2030 or beyond, (vi) daily demand standards | | X | . |
| 6: Is the date of demand set for at least 2030 | | X | |
| 7: Is demand forecast consistent with the scheme design supply volumes at the economic life of the subproject – minimum of 2030 | | X | |
| 8: Is there an established demand for a water supply scheme through a social survey | | No | |
| 9: Is a concept or preliminary engineering design available | | No | |
| 10: Is the preliminary design already approved by commune, district or PPC | | No | |
| 11: Is there a bill of quantities with the preliminary design | | No | |
| 12: Is there a cost estimate – if yes is there a supporting bill of quantity and what is the date for the costing | | No | |
| 13: Are there significant structures required – if yes please identify | X | | Dam/Weir<br>Main pumping station<br>Secondary pumping station |

| Criteria | Status | | Explanatory Comments |
|---|---|---|---|
| | Yes | No | |
| | | | Small reservoir/pond<br>Elevated water tanks<br>Distribution water pipeline |
| 14: is the water source confirmed in terms of annual availability, monthly availability | | No | |
| 15: is there approval to use the water source | | No | |
| 16: Are there water quality tests for the proposed water source | | No | |

## E. Safeguard Compliance

| Safeguard | Screening Issue | Yes | No | Explanation and Assessed Risks |
|---|---|---|---|---|
| A: Resettlement | Land Acquisition | | X | |
| A.1 Land Acquisition | Agriculture Land | | X | |
| | Urban Public Land | | X | |
| | Urban Private Land | | X | |
| A.2 Structures | Private houses | | X | |
| | Private other | | X | |
| | Public Structures | | X | |
| A.3 | Other Assets | | | |
| A.4 | Resettlement – if yes number of households identified | | X | |
| A.5 | Is there a Land Acquisition and compensation budget – if yes how much | | X | |
| B: Environmental Screening | | | | |
| B.1 water source and network effect on forests<br>- are there any of the following along the alignment of within close proximity – if yes is the risk significant | Production forest land | X | X | |
| | Protection forest land | X | X | |
| | Protected areas | X | X | |
| B.2 Water, rivers lakes and flood plain | Are in-stream value affected, will minimum in stream flows be adhered to how significant are they | ?? | | Unknown as pumping sources undocumented |
| B.3 Does the proposal include any IEE screening | | | X | |

| Safeguard | Screening Issue | Yes | No | Explanation and Assessed Risks |
|---|---|---|---|---|
| B.4 Did the field visit identify issues form EARF that need to be addressed | | | X | |
| B.5 Water source catchment protection issues | Is the catchment of the water source at risk from climate change | X | | Climate change may cause reduction of low water flow in dry season. Daily flow rate in dry season will be determined in FS. PPTA proposes to measure water flow in several months continuously. |
| | Risk from contamination from human settlement or livestock | | X | |
| | Risk of deforestation de-vegetation | X | | |

## F. Social Considerations

| Criteria | Yes/No | Explanation and Assessed risk |
|---|---|---|
| Are communes identified and named | No | |
| Is the population data available for each commune, township | No | |
| Is the number of Poor households available | No | |
| Is the number of near poor households available | No | |
| Are Ethnic minorities identified and specified | No | |
| Is land use specified | No | |
| Are the number of female headed households specified | No | |
| Is the GAP adequately reflected | No | |

## G. Economic Assessment

| Criteria | Yes | No | Explanation and Assessed Risk |
|---|---|---|---|
| What is the cost per connection at 100% of design capacity and at project completion | | No | The proposal seeks to sell the majority of water to a private sector tourism operation |
| Does the cost per connection exceed $900 | | No | |
| Is the scheme owner and operator identified | | No | |
| Is a tariff reported | | No | |
| Does the tariff based cost of water exceed 5% of household income for the median income of the communes, and for the lowest quartile of household incomes | | No | |
| Will the tariff exclude poor and near poor households on affordability criteria of 5% of household income | | No | |
| Is there a financial assessment of the water supply scheme | | No | |

| Criteria | Yes | No | Explanation and Assessed Risk |
|---|---|---|---|
| Are scheme benefits clearly identified by category of benefit | | No | |
| Is each benefit quantified | | No | |
| Is there an economic assessment – if yes what is EIRR | | No | |
| Is there a detailed worksheet for the EIRR | | No | |

## H. Summary

| Recommendation | Yes | No | Explanation or Outstanding Gaps |
|---|---|---|---|
| Is the subproject eligible by being part of Provincial plans | Yes | | |
| Is there a clear design standard that is justified | | No | |
| Are there outstanding approvals required | | No | |
| Is there a preliminary design | | No | |
| Is there a Feasibility study | | No | |
| Is sufficient data on the availability of water provided | | No | |
| Is there sufficient data on water quality | | No | |
| Is the Subproject category A for resettlement and affected persons | | No | |
| Is the Subproject category A for environment | | No | |
| Does the Subproject have clear economic inclusiveness outcomes | | No | |
| Does the subproject have clear network connectivity benefits | | No | |
| Is the project expected to achieve a 9% EIRR | | | A required FS to be prepared by the local consultant to assess the EIRR of the subproject. |
| Who will manage the scheme and are they linked to a municipal or rural town operator | Yes | | Lang Son water supply and environmental service JSC |
| Is the scheme an expansion of an existing municipal and or rural town supply – if yes, are they required to on lend from the PPC? | | No | |

## I. Water Supply Photo and Location

Location for construction of weir in Mau Son area. inflow water data is unavailable

Location for intended small reservoir in high degree slope

Group discussion on location of water treatment plant relating critical high-head pumping

Survey location of elevated water tank

Location for construction five-star hotel. Underground water tanks will be suitable solution

Individual electric water pump. Water is extracting from intermediate pond below. Pond was constructed by French in the past

Location to construct pond capacity 3,000m$^3$ as proposed by Mau son JSC. This volume is to be supplied for one-day basic water use of 450 rooms in three-star hotel. High slope may be potential risk damage of pond to downstream

Location to construct secondary pumping station as proposed by Mau Son JSC. Height from this to downstream water source is nearly 300m that requires big power pumps