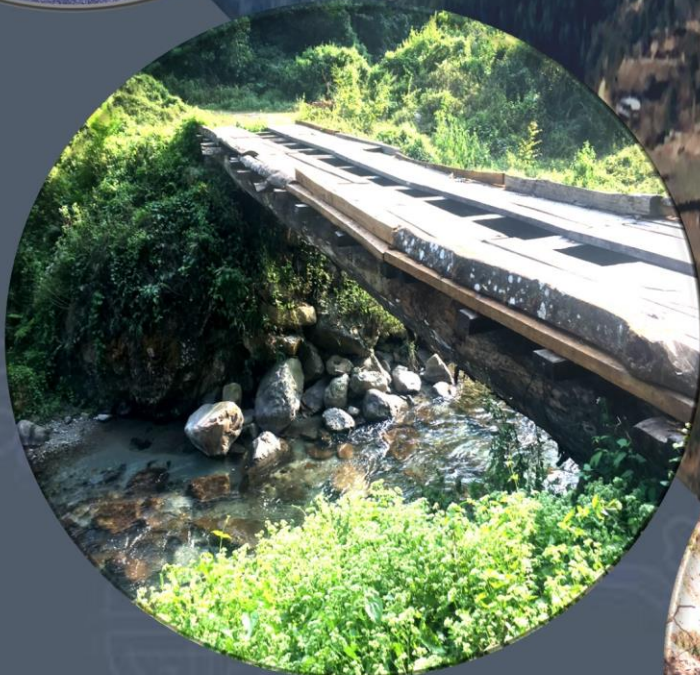


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ROYAL AUDIT AUTHORITY

*Bhutan Integrity House*



སོ་ནམ་ཞིང་ལམ་གོང་འཕེལ་དང་འཛིན་  
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Performance Audit Report on Farm Road  
Development and Management in Bhutan

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JUNE 2022

### **Disclaimer Note**

The audit was conducted in accordance with the International Standards of Supreme Audit Institutions (ISSAIs). The review was confined to assessing the adequacy of existing legal and institutional framework and operations of farm roads in Bhutan. The audit was based on the audit objectives and criteria determined in the audit plan and programme prepared by the Royal Audit Authority and the findings are based on the information and data made available by relevant agencies.

This is also to certify that the auditors during the audit had neither yielded to pressure, nor dispensed any favour or resorted to any unethical means that would be considered as violation of the Royal Audit Authority's Oath of Good Conduct, Ethics and Secrecy.



རྒྱལ་གཞུང་ཕྱི་སྐབ་དབང་འཛིན།  
ROYAL AUDIT AUTHORITY  
*Bhutan Integrity House*  
Reporting on Economy, Efficiency & Effectiveness in the use of Public Resources



RAA/PAD/PA-FR/2022/893

13<sup>th</sup> June 2022

The Secretary  
Ministry of Works and Human Settlement  
Thimphu, Bhutan

**Subject: Performance Audit Report on Farm Road Development & Management in Bhutan**

Dear Sir,

Enclosed herewith, please find the Performance Audit Report on Farm Road Development & Management in the country covering the period from 2010-11 to 2020-21. The Royal Audit Authority (RAA) conducted the audit under the mandate bestowed by the Constitution of the Kingdom of Bhutan and the Audit Act of Bhutan 2018. The audit was conducted as per the International Standards of Supreme Audit Institutions on performance auditing (ISSAI 3000) and RAA's Performance Audit Guidelines 2019.

The audit was conducted with the overall audit objective to assess the efficiency and effectiveness in the development and management of farm roads with the following sub objectives:

1. To assess the adequacy of institutional structure and planning and budgeting process;
2. To assess efficiency and effectiveness in quality control and assurance of farm road construction and maintenance.

The draft report was issued on 9<sup>th</sup> May 2022 to MoWHS, MoAF, MoF, GNHC and 13 Dzongkhags for factual confirmation, comments and feedback. Responses received that were relevant have been incorporated in the report and necessary changes were made after confirmation. The shortcomings and deficiencies observed by the RAA are detailed in **Chapter three** and audit recommendations in **Chapter four** of the report.

In line with the Audit Act of Bhutan 2018, the auditee agencies are required to submit a response to the report in the form of a Management Action Plan. The Management Action Plan should specify the action plans for implementation of the recommendations with a definite timeframe aimed to address the underlying causes of the findings. Further, as specified by Section 55 (16) of the Audit Act of Bhutan 2018, the auditee agencies concerned are required to submit signed Accountability Statement for the implementation of the recommendations provided.

The RAA would follow-up implementation of the recommendations based on the Management Action Plan and the Accountability Statement. Failure to comply will result in taking appropriate actions, which may include suspending audit clearances to the accountable official(s).

*Therefore, the RAA would like to request the concerned agencies to submit a Management Action Plan for implementation of recommendations with definite timeframe on or before 15<sup>th</sup> July 2022 along with the signed Accountability Statement (format attached). In the event of non-submission, the RAA shall invariably fix the overall supervisory accountability on the head of auditee agencies in line with Section 55(17) of the Audit Act of Bhutan 2018.*

We take this opportunity to acknowledge the co-operation and support extended by the officials of MoWHS, MoAF, MoF, GNHC and the 13 Dzongkhags for rendering necessary co-operation and support during the review.

Yours sincerely,



(Tashi)  
**Auditor General**

Copy to:

1. Hon'ble Lyonchhen, Royal Government of Bhutan, Thimphu;
2. Hon'ble Gyalpoi Zimpon, Office of Gyalpoi Zimpon, Thimphu;
3. Hon'ble Speaker, National Assembly of Bhutan, Thimphu;
4. Hon'ble Opposition Leader, National Assembly of Bhutan, Thimphu;
5. Hon'ble Chairperson, National Council of Bhutan, Thimphu;
6. Hon'ble Chairperson, Public Accounts Committee, National Assembly of Bhutan, Thimphu (*enclosed Five copies*)
7. Secretary, Ministry of Agriculture and Forest, Thimphu;
8. Secretary, Ministry of Finance, Thimphu;
9. Secretary, Gross National Happiness Commission, Thimphu;
10. Director General, Department of Roads, MoWHS, Thimphu;
11. Director General, Department of Local Government, MoHCA, Thimphu;
12. Dzongdags, Dzongkhag Administrations (20 Dzongkhags);
13. Director, Department of National Budget, Ministry of Finance, Thimphu;
14. Director, Department of Public Accounts, Ministry of Finance, Thimphu;
15. AAG, Policy and Planning and Annual Audit Report Division, RAA, Thimphu;
16. AAG, Follow-up and Clearance Division, RAA, Thimphu;
17. Office Copy; and
18. Guard file.

## MANAGEMENT ACTION PLAN

Sl.No	Audit Recommendation in brief	Action Taken or To be Taken	Estimated Implementation Date	Estimated Completion Date	Responsibility Entrusted to:	
					Name & Designation	CID no.
4.1	DoR needs to develop a Strategic Plan/ Master Plan to guide development of farm roads in the country					
4.2	MoWHS needs to consolidate institutional structures for implementing the farm road development activities					
4.3	MoAF, MoF, MoWHS and GNHC should collaborate and work towards facilitating coordination of agencies in delivering mandates of farm roads					
4.4	MoF should enforce requirement for completed drawings, designs and estimates before budget approval					
4.5	DoR should institute mechanism to ensure pre-investment feasibility studies are undertaken with proper oversight role					
4.6	DoR should ensure robust quality management system in development of farm roads through collaboration with relevant agencies					
4.7	DoR should ensure that LGs strengthen the operational effectiveness of RUGs					
4.8	DoR should ensure that the LGs consider implementing a road inventory management system for farm roads under their purview					
4.9	DoR needs to support the LGs in developing information-based plan to embrace routine, preventative and emergency repairs					

## ACCOUNTABILITY STATEMENT

<b>Sl. No.</b>	<b>RECOMMENDATIONS</b>	<b>NAME &amp; DESIGNATION</b>	<b>CID NO.</b>
4.1	DoR needs to develop a Strategic Plan/ Master Plan to guide development of farm roads in the country		
4.2	MoWHS needs to consolidate institutional structures for implementing the farm road development activities		
4.3	MoAF, MoF, MoWHS and GNHC should collaborate and work towards facilitating coordination of agencies in delivering mandates of farm roads		
4.4	MoF should enforce requirement for completed drawings, designs and estimates before budget approval		
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4.6	DoR should ensure robust quality management system in development of farm roads through collaboration with relevant agencies		
4.7	DoR should ensure that LGs strengthen the operational effectiveness of RUGs		
4.8	DoR should ensure that the LGs consider implementing a road inventory management system for farm roads under their purview		
4.9	DoR needs to support the LGs in developing information-based plan to embrace routine, preventative and emergency repairs		

## **TITLE SHEET**

Title of the Report	Performance Audit Report on Farm Road Development & Management in Bhutan
AIN	PAD-2021-287
Audited Entity	DoR, MoWHS, DoA, MoAF, GNHC, 13 Dzongkhags and 121 Gewogs
Audited Period	2010-2011 to 2020-2021
Audit Schedule	18 <sup>th</sup> October 2021 to 15 <sup>th</sup> December 2021
Team Composition	Leki Tshering, Sr. Audit Officer (CID:11806000714) Sangay Thinley, Sr. Audit Officer (CID:11516002200) Yan Kumar Bhujel, Audit Officer (CID: 11314000423) Dophu Tshering, Audit Officer (CID: 10810000608)
Direct Supervisor	Sonam Wangmo, Assistant Auditor General (CID: 11915000467)
Overall Supervisor	Dorji Wangchuk, Deputy Auditor General (CID: 10715000215)

## ACRONYMS AND ABBREVIATIONS

AMERP	Agriculture Marketing Enterprise Promotion Program
BoQ	Bill of Quantities
DoA	Department of Agriculture
DoR	Department of Road
DNB	Department of National Budget
DPA	Department of Public Accounts
DT	Dzongkhag Tshogdu
ePEMS	electronic Public Expenditure Management System
FYP	Five Year Plan
GSB	Granular Sub-base
GT	Gewog Tshogde
GNHC	Gross National Happiness Commission
IPD	Initial Project Documents
ISSAI	International Standards for Supreme Audit Institutions
KM	Kilometer
LDPM	Local Development Planning Manual
LG	Local Government
MoAF	Ministry of Agriculture and Forests
MoF	Ministry of Finance
MoWHS	Ministry of Works and Human Settlement
MoU	Memorandum of Understanding
NRDCL	Natural Resources Development Corporations
ODE	Organizational Development Exercise
PCC	Plain Cement Concrete
PHCB	Population and Housing Census of Bhutan
RAA	Royal Audit Authority
RCNI	Road Classification and Network Information
RCSC	Royal Civil Service Commission
RRR	Road Rules and Regulations
RSMP	Road Sector Master Plan
RGoB	Royal Government of Bhutan
RUG	Road User Group
SIMF	Social Impact Management Framework



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## EXECUTIVE SUMMARY

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The Royal Audit Authority (RAA) conducted the Performance Audit under the mandate bestowed by Article 25.1 of the Constitution of Kingdom of Bhutan and Section 68 (b) and 69 of the Audit Act of Bhutan 2018. This audit was conducted in accordance with the International Standards for Supreme Audit Institutions (ISSAIs) on performance auditing and RAA's Performance Audit Guidelines 2019.

Farm roads in the rural areas are expected to enhance the market access for the farmer thereby encouraging the farmers to boost domestic agricultural productions, increasing the employment for rural families, improving standard of living and other social benefits. Given the importance of farm roads, substantial investment has been made in building farm roads in the country. Currently, farm roads form 61.63% of the total road network in the country.

The audit was conducted with an overall objective to assess the efficiency and effectiveness in the development and management of farm road in the country, with the following sub objectives:

- i. To assess the adequacy of institutional structure, planning and budgeting process; and
- ii. To assess efficiency and effectiveness in quality control and assurance of farm road construction and maintenance.

The RAA reviewed the systems, structures and process of farm road development and management in the country covering 13 Dzongkhags and 121 Gewogs. The audit covered the period from 2010-2011 to 2020-2021.

During the review, the RAA noted issues in enforcement of the Road Act of Bhutan 2013 in terms of diffusion of responsibility, strategic alignments, implementation modalities and structures, planning and budgeting, and collaborations resulting in uncoordinated approach to farm road development. Issues highlighted by the report are as presented below:

- The Road Sector Master Plan 2007-2027 prepared by MoWHS does not include farm roads though there are farm roads measuring 11,257.16 KM and constituting 61.63% of the total road network in the country.
- Currently, there is a diffusion of responsibility in overseeing the development of farm roads between the DoA, MoAF and DoR, MoWHS, with both refusing to accept the lead responsibility for the farm road development in the country.
- There are several cases of wastage, abandonment and unplanned activities resulting from inadequate assessment of needs for farm roads. 19 farm roads from 13 dzongkhags, constructed at cost of approximately Nu. 41 million, have remained abandoned due to non-functionality, alternate access, change of priorities, lack of funds to complete, etc. In addition, most of the farm roads were not found pliable all throughout the year especially during the monsoon season due to loosen soil, steep gradients and lack of bridges. There were 16 farm roads just in 12 gewogs without provision for bridges.
- The RAA also noted several cases of Gewogs resorting to indiscriminate construction of farm roads irrespective of the need as well as deviating from the criteria specified in the Farm Road Guidelines. Instead of connecting the farms, such farm roads were found connecting households and monasteries.

- There is a huge variation in the initial budget approved and final expenditure incurred for farm road development indicating unrealistic budgeting process. Despite the requirement to submit drawings, designs and estimates along with the budget proposal, the current practice has been that these requirements are prepared only after the approval of the project.
- The Guidelines for Farm Road Development 2019 requires pre-investment feasibility studies such as geotechnical study, social study, and survey and design for the construction of efficient and safe road network for socio-economic development. These studies were either missing or inadequate.
- RAA noted that of 229 farm roads reviewed on sample basis, 121 farm roads representing 52.8 % did not comply with standards in at least one area, mostly deviating from the standard design in terms of providing drainage and the standard formation width of 5.1meter. With regard to the provision of critical protective structures, most of the farm roads had not achieved the desired level of requirement.
- The formation and functioning of the Road User Groups (RUGs) were found to be inconsistent and ineffective across the country, which could be due to capacity constraints and also due to impracticability of the guidelines in setting up of functions independent of Gewog Administrations.
- The activities designated as maintenance were mostly activities related to new constructions and provision of permanent structures. The RAA could not segregate expenditure incurred for maintenance to analyze the trend of maintenance costs incurred over the period of years. Further, there are no plans or schedules drawn for maintenance or rehabilitation/improvement of roads based on inventory or age of roads.
- There is a variation in the information maintained at various levels of Gewogs, Dzongkhags, DoA and DoR, leading to inaccuracies and mismatch. This is seen to pose challenge to proper planning for development and maintenance of farm road infrastructure.
- There is no proper classification of roads as intended by the Road Act 2013. Inconsistent classification not only undermines the intent of the policy to classify roads for proper management and development but also undermines the budgeting process and hinders appropriate decision making.

Based on the review and issues discussed in the report, the RAA has provided nine recommendations to facilitate authorities and agencies to put in appropriate measures and remedies for improvement in the overall development and management of farm roads in the country. The audit recommendations are:

- i. DoR needs to develop a Strategic Plan/Master Plan to guide development of farm roads in the country.
- ii. MoWHS needs to consolidate institutional structure for implementing the farm road development activities.
- iii. MoAF, MoF, MoWHS and GNHC should collaborate and work towards facilitating coordination of agencies in delivering mandates of farm roads.

- iv. MoF should enforce requirement for completed drawings, designs and estimates before budget approval.
- v. DoR should institute mechanism to ensure that pre-investment feasibility studies are undertaken with proper oversight role.
- vi. DoR should enhance oversight role in ensuring quality management system in development of farm roads.
- vii. DoR should ensure that LGs strengthen the operational effectiveness of RUGs.
- viii. DoR should ensure that the LGs consider implementing a road inventory management system for farm roads under their purview.
- ix. DoR needs to support the LGs in developing information-based plan to embrace routine, preventive and emergency repairs.

Despite the Road Act of Bhutan 2013 clearly specifying basic frameworks and responsibilities of relevant central agencies and LGs for planning, implementation, operation and maintenance of farm roads in the country, there are issues in enforcement of the Act in terms of delineating responsibility, strategic alignments, implementation modalities and structures, planning and budgeting, and collaborations resulting in uncoordinated approach to farm road development. There were issues of compromising quality, incoherent planning and implementation, inadequacies in monitoring and control, inadequate information management system etc. that have potential to undermine investment prudence, and achievement of overall goals and objectives of farm road infrastructure development.



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## CHAPTER 1: ABOUT THE AUDIT

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### 1.1 Mandate

The Royal Audit Authority (RAA) conducted the “*Performance Audit on the Farm road development and management in Bhutan*” under the mandate bestowed by Article 25.1 of the Constitution of Kingdom of Bhutan to audit and report on the economy, efficiency and effectiveness in the use of public resources.

Further, Chapter 5, Section 69 of the Audit Act of Bhutan 2018 stipulates “*The authority shall carry out performance, financial, compliance, special audit and any other form of audits that the Auditor General may consider appropriate*”.

### 1.2 Audit Standard

The audit was conducted in accordance with ISSAI 3000 and followed audit procedures as prescribed under the RAA’s Performance Audit Guidelines 2019 to maintain uniformity and consistencies of approaches in auditing.

### 1.3 Audit objectives

#### Overall audit objective:

To assess the efficiency and effectiveness in the development and management of farm road in the country.

#### Sub-audit objectives:

- To assess the adequacy of institutional structure and planning and budgeting process;
- To assess efficiency and effectiveness in quality control and assurance of farm road construction and maintenance.

### 1.4 Audit Scope

The audit was aimed at assessing the systems, structures and process of farm road development and management in the country covering 13 Dzongkhags and 121 Gewogs. The audit covered the period from financial years 2010-2011 to 2020-2021. For specific analysis, documents reviews were carried out for three financial years 2018-2019 to 2020-2021. The audit covered agencies namely; Department of Roads (DoR), Ministry of Works and Human Settlement (MoWHS), Department of Agriculture (DoA), Ministry of Agriculture and Forests (MoAF), Department of National Budget (DNB), and Department of Public Accounts (DPA), Ministry of Finance (MoF), Gross National Happiness Commission (GNHC) and 13 Dzongkhags namely; Bumthang, Chhukha, Dagana, Haa Mongar, Paro, Punakha, Pemagatsel, Samtse, Tsirang, Thimphu, Wangduephodrang and Zhemgang.

### 1.5 Audit Approach

Combination of system and problem-based audit approach was used for the audit. Using the approach, the audit reviewed the systems, structures and process of farm road development and management in the country.

## 1.6 Audit Methodology

---

Following methodologies were used for the audit:

- i. Reviewed legislations, underlying rules and regulations, and other governing authorities that are directly related to farm roads. Visited MoWHS, MoAF, MoF, GNHC, and 13 Dzongkhags and interviewed relevant officials to understand the farm road development and management in the country;
- ii. Visited Dzongkhags and Gewogs under it to review farm road proposals, planning documents, budgeting documents, Gewog Tshogde (GT) Minutes, Dzongkhag Tshogdu (DT) Minutes, farm road inventory, clearances, pre-feasibility studies, survey and design, technical estimates, work orders, BoQ, and work handing-taking notes and to physically verify the conditions of selected roads;
- iii. Activities carried out during the audit execution phase included:
  - a. Conducted interviews and discussions with key officials of the audited agencies;
  - b. Carried out joint physical inspection of selected farm roads in 13 Dzongkhags and Gewogs under them;
  - c. Carried out analysis of the financial records from financial year 2010-2011 to 2020- 2021 obtained from DPA and DNB, MoF;
  - d. Validation on the inventory pertaining to farm roads maintained by the Dzongkhag and Gewogs under them;
  - e. Examined the farm road proposals, planning, budgeting, implementation, monitoring and evaluation of roads in terms of adherence to existing authorities and their adequacies;
  - f. Carried out analysis on budgeting on farm roads as per the standard costing of farm roads as per the guidelines on farm road developments;
  - g. Carried out analysis of approved budget verses the cost estimates prepared; and
  - h. Reviewed documents related to road user groups.



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## CHAPTER 2: INTRODUCTION

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### 2.1 Brief background

---

Farm roads have always been one of the most important development activities for rural Bhutan and are considered to benefit the rural population enormously.

According to 2017 Population and Housing Census of Bhutan (PHCB), 62.2% of our people live in rural areas, and for the improvement of rural livelihoods, reducing poverty and enhancing regional balanced development, farm roads serve as an important catalyst in driving overall economic development of rural places and in terms of improved connectivity of farmlands to the market. As such, the following objectives were set for the construction and maintenance of farm roads in the country:

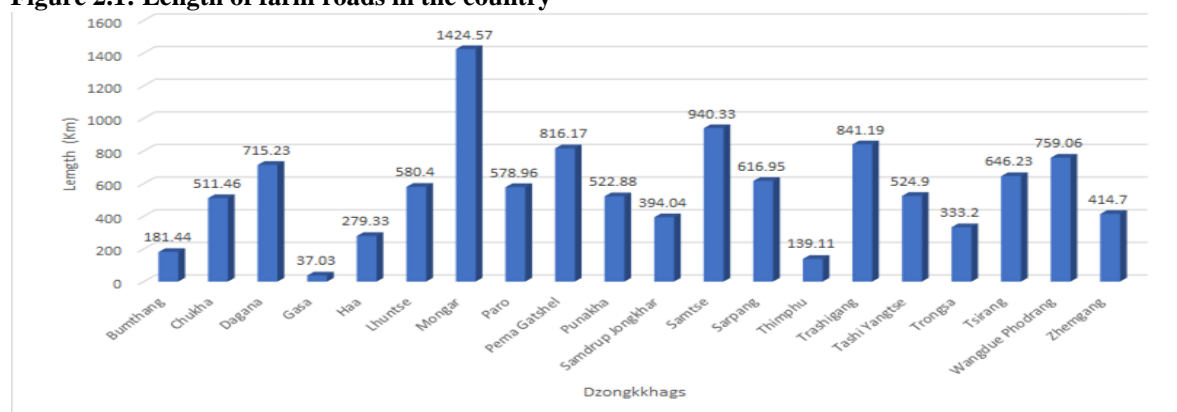
- To connect farm products to the market through provision of reliable connectivity and all-weather roads;
- To enhance food self-sufficiency and enhance livelihood of rural communities and farmers; and
- To foster local economic growth and create employment opportunities.

### 2.2 Length of farm roads

---

As of June 2020, there were 2436 farm roads measuring 11,257.16 km constituting of 61.63% of the total road network in the country. The **Figure 2.1**, shows length of farm roads in the country.

**Figure 2.1: Length of farm roads in the country**



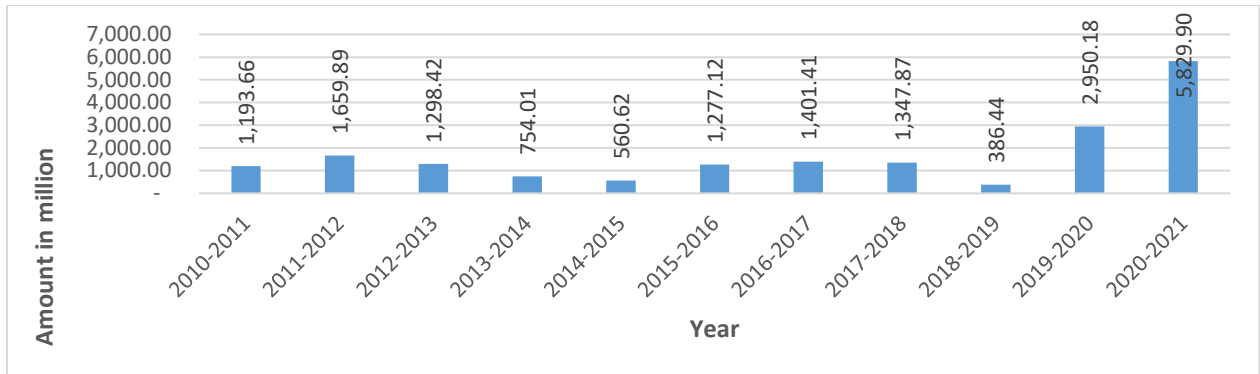
Source: Road Classification Network Information, DoR, MoWHS, 2020

### 2.3 Budget and Expenditure

---

For the financial year 2010-11 to 2020-21, the country has expended Nu.18,659.52 million for new construction and maintenance of farm roads. **Figure 2.2** shows the summary of expenditure incurred on the farm roads development activities in 20 dzongkhags from the year 2010-11 to 2020-21:

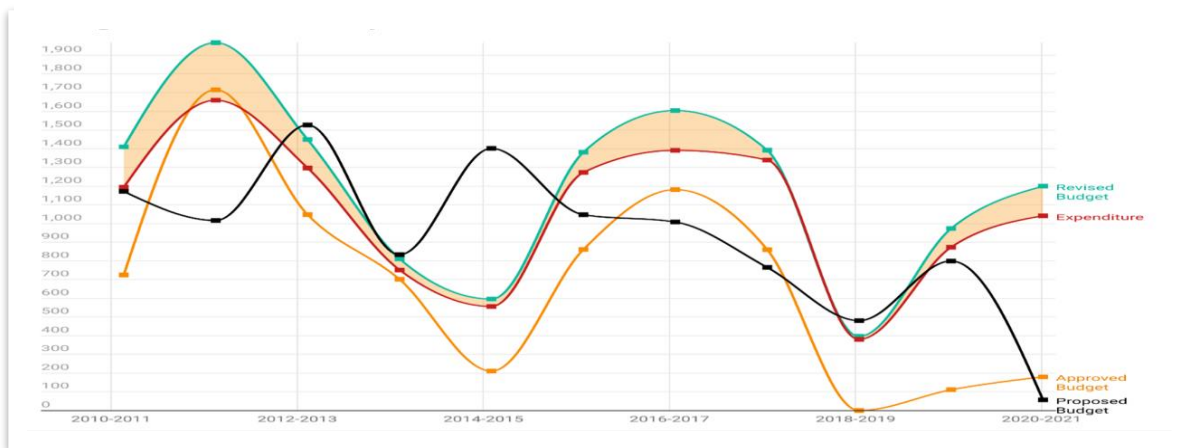
**Figure 2.2: Summary of expenditure incurred on the farm roads development from the year 2010-2011 to 2020-2021(Nu. in millions)**



Source: Department of Public Accounts, MoF

Figure 2.3 shows trends in allocations and utilization of budgets for the period 2010-2011 to 2020-2021:

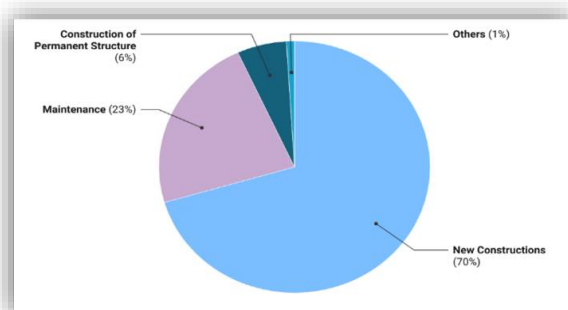
**Figure 2.3: Proposed, Approved & Revised Budget vis-a-vis Expenditure incurred from 2010-2011 to 2020-2021**



Source: Department of Public Accounts, MoF

Bifurcating the nature of works carried out, 71% of total expenditure were expended on activities related to new construction of the farm roads, 28% of total expenditure were on activities related to maintenance and improvements of farm roads, 6% on construction of permanent structure and around 1% were related to preliminary studies, RUGs and other miscellaneous expenses. Figure 2.4 shows proportion of nature of works related to farm road development.

**Figure 2.4: Bifurcation of expenses related to farm roads**



Source: DPA, MoF

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## CHAPTER 3: AUDIT FINDINGS

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This chapter on audit findings highlights the shortcomings and deficiencies where improvements are desirable. The lapses are categorised under following headings: **A. Strategic and annual planning, B. Budgeting, C. Implementation and D. Operations and management.**

---

### A. STRATEGIC AND ANNUAL PLANNING

---

Road Act of Bhutan 2013 provides framework for strategic planning of road infrastructure in the country. The LGs are required to formulate, endorse and submit subsidiary road plans to National Roads Authority to be incorporated in the Road Sector Master Plan (RSMP) from which the Five Year Plans for road infrastructure development are developed and endorsed.

The Local Development Planning Manual (LDPM) 2014 was designed to assist the Local Government (LG) in undertaking the planning process in a participatory and objective manner facilitated by respective Dzongkhags. It is to guide the LGs in development that represent the true needs and aspirations of the people of Bhutan.

Review of strategic and annual planning process showed following deficiencies as discussed in the following paragraphs.

#### 3.1 No long-term plans or master plan to guide the development of farm roads

---

a) Section 19 (3) of the Road Act 2013 requires the Department of Roads (DoR) to compile, integrate Road Master Plans and Five Year Plans (FYPs) of LGs for incorporation in the National Road Master Plan.



b) Section 20 (1) of the Road Act of Bhutan states, “A Local Government shall, formulate, endorse and submit subsidiary road plans within their jurisdiction to the National Roads Authority to be incorporated in the road master plan”.

c) RSMP 2007-2027 was prepared as an initial screening of potential road projects at a level of detail that is appropriate to strategic planning.

d) Section 5.5(a) of Road Act of Bhutan 2004 entrusted the responsibility of construction, maintenance and management of farm roads to the MoAF.

e) The RAA noted that the programs/activities related to farm road development have not been included in the RSMP prepared by DoR, MoWHS. Nor any roadmap for farm road was developed by MoAF.

f) Of the total road network of 18,264.60 kms, the length of farm roads constitutes 11,257.16 km representing 61.63% of the overall road network<sup>1</sup>. The development of farm roads has not been guided by any long-term plans or road maps.

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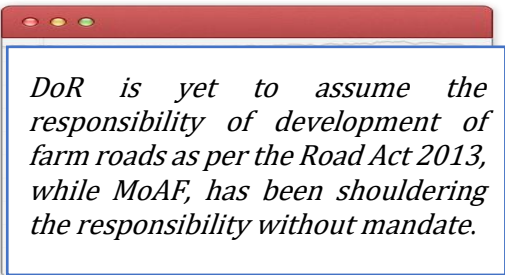
<sup>1</sup> Road Classification and Network Information of Bhutan 2020

- g) The programmes and activities of farm roads are included in the FYPs based on the proposals of the respective Dzongkhags and Gewogs. Without a master plan, the processes intended to be put in place for approval of FYPs for farm roads based on the master plan have not been enforced. The FYPs for farm roads are prepared and approved through a normal process as applied to other activities/programmes.
- h) The lack of integrated plans for development of farm roads at the national level have resulted in fragmented approach to development of farm roads. The proposals for farm roads are made by both the Dzongkhags and Gewogs, further fragmenting the planning process. For instance, for 12<sup>th</sup> FYP, Dagana Dzongkhag had proposed 182 km of farm roads for different Gewogs, beside the separate farm road construction activities reflected under respective Gewogs. Such practices may not ensure cohesive alignment of development of infrastructures to strategic objectives and development needs of the country.

**DoR responded that the Local Governments are required to formulate, endorse and submit subsidiary road plans within their jurisdiction to the National Roads Authority to be incorporated in the road master plan. DoR submits that they can compile and integrate road master plan and Five Year Plans of the Local Governments for incorporation in the National road master plan as mandated by Section 19 (3) of the Road Act, provided the Local Governments submit subsidiary road plans.**

### **3.2 Mechanism for development of farm roads not as per Road Act of Bhutan 2013**

- a) As per Road Act of Bhutan 2004, the DoR under MoWHS was designated as national authority for the development of the national road network.
- b) As per Section 5.5(a) of Road Act of Bhutan 2004, the MoAF was responsible for the construction, maintenance and management of farm roads, power tiller tracks and forest roads. Accordingly, in order to carry out the mandates, the MoAF established a dedicated farm road section under the Engineering Division, DoA and issued several guidelines, and manuals related to development of farm roads which were revised from time to time.
- c) Road Act of Bhutan 2013 maintained the authority with the DoR as a national authority for all roads in the country. The Act designates LGs (Thromdes, Dzongkhags and Gewogs) as road authorities responsible for administration and management of all roads, constructed or maintained by it, including any access roads.
- d) The Road Act of Bhutan 2013 does not specify any responsibility to the MoAF although the road authorities were maintained same. RAA noted that MoAF continued to hold lead responsibility in planning, monitoring and management of construction of farm roads through a dedicated Farm Road Section created under DoA. After the Organisational Development (OD) exercise conducted by RCSC in 2019, the Engineering Division was restructured without the Farm Roads Section.



*DoR is yet to assume the responsibility of development of farm roads as per the Road Act 2013, while MoAF, has been shouldering the responsibility without mandate.*

- e) With restructuring of Engineering Division under MoAF, the responsibility of lead/central agency for overseeing and managing farm road development remains to be entrusted to relevant agencies. As per the Act, the mandate falls on MoWHS but there was no document of formal handing/taking of responsibilities executed between the two. Further, Section 4 of Road Rules and Regulations 2016 empowers DoR as the overall monitoring authority related to farm roads.
- f) After the closure of Farm Roads Section, MoAF discontinued all farm roads related works in terms of improving guidelines and manuals. While in the Dzongkhags and Gewogs, farm road development activities are still managed and administered by the Agriculture Sector, the budget for farm road development is also provided to the Agriculture Sector without any modification. DoR is yet to assume the custody of all these documents and related functions to ensure implementation of its role. With the change in lead agency, numerous processes prescribed in the existing manuals and guidelines need to undergo change accordingly.
- g) RAA noted that existing guidelines and manuals are still being used without any amendments. This may result in challenges of delineating responsibilities, compliances, and coordination undermining the efficiency and effectiveness in the development of farm road infrastructure in the country.

**DoR responded that they are mostly responsible for the administration and management of National Highways and staffing of DoR has been approved accordingly by the RCSC. However, DoR states that if they are to shoulder additional responsibility to review farm road structures and consolidate to ensure operational efficiency and support the development of farm roads to a desired level of quality, the existing staffing will not be sufficient.**

### **3.3 Inadequacies in the process of assessing needs, consultation and prioritization**

- a) Local Development Planning Manual (LDPM) 2013 issued by GNHC requires need assessment to identify infrastructural needs of the community in consultation with people and optimize allocation of resources.
- b) The farm road guidelines specifies screening criteria for construction of farm roads to be applied in selection and prioritization of the activities.
- c) Farm road development starts with the submission of proposals from Chiwogs. The GT and DT endorse the proposals for approval of the Government through GNHC. This process occurs at the time of proposing activities for the FYP.
- d) For the annual planning process, the LDPM requires the LGs to conduct need assessment as well as prioritization to formulate annual plans.
- e) RAA noted inconsistencies in the practices of annual planning amongst various Gewogs. On review of 740 activities related to farm roads from 2018-19 to 2020-21 for 13 selected

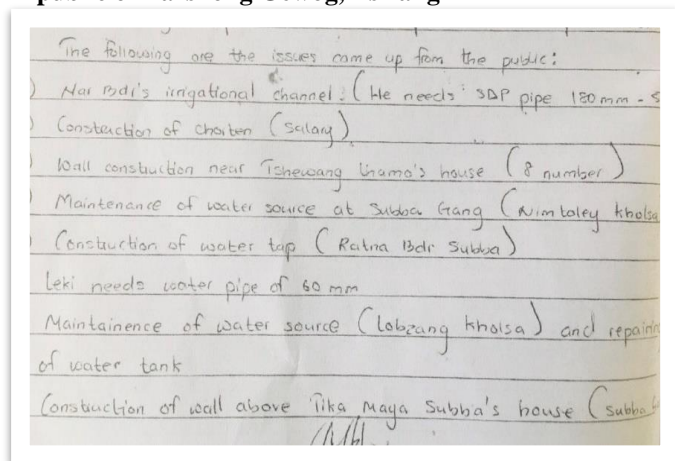
*RAA observed that most Gewogs do not have identified farm roads proposed under the programmes formulated in their respective FYPs, it contains broad activity specified as "farm road" and length to be achieved without detailing the names of the proposed farm roads.*

Dzongkhags, RAA noted that some Gewogs conduct needs assessment annually while some only prioritize activities from the identified activities in the FYP.

- f) Guideline for preparation of 12th FYP requires the agencies to plan the programmes at the beginning of the plan period. The need assessments are deemed to have been completed at the time of preparation of the FYPs. On the contrary, the LDPM specifies requirement to conduct needs assessment annually. The requirement to conduct annual need assessments is seen to be an additional requirement as these exercises are required to be completed.
- g) RAA observed that most Gewogs do not have identified farm roads proposed under the programmes formulated in their respective FYPs. It contains broad activity specified as “farm road” and length to be achieved without detailing the names of the proposed farm roads. Most Gewogs have not maintained documents of identified farm roads for implementation during the plan period. It appeared that proposed activities in the FYP are just indicative and needs assessments have not been carried out at the time of preparation of FYP.
- h) Even during annual planning, there is no record to show that needs assessment has been carried out. The annual plans are usually based on the “wish lists” probably consolidated by LG officials without proper assessment of the need based on socio-economic conditions and its alignment to strategic objectives of the government. There is no documentation of assessment and prioritization of “wish lists” despite to maintain through GT minutes which should document the reasons for selection or rejections of activities from the “wish lists”.

- i) The “wish lists” as shown in **Figure 3.1** usually contain individual people’s personal need rather than common amenities required for development of the community. It provides to show that people are not guided properly at the time of public consultation as to what to expect as inputs for identification of development needs despite specific guidelines provided through LDPM with specific roles identified for public officials and civil servants at the LGs.

**Figure 3.1: Sample of wish-listed submitted by the public of Barshong Gewog, Tsirang**



- j) The inconsistencies in the practices adopted in the planning process undermine the intent of LDPM to ensure participatory approach in development process based on needs of the community and also to ensure alignment to national development goals and objectives.
- k) The RAA noted several instances of LGs not achieving expected results despite investing huge resources in this infrastructure. The cases of wastage, abandonment and unplanned activities resulting from inadequate assessment of needs for farm roads are discussed below:

- i. The RAA noted several cases where Gewogs have resorted to discriminate construction

of farm roads irrespective of the need as well as deviating from the criteria specified in the Farm Road Guidelines. For instance, multiple stretches of farm roads were constructed under Dagala Gewog, Thimphu connecting multiple locations within the Chamgang settlement forming a network of ring roads as shown in **Figure 3.2**.

**Figure 3.2: Ring Road at Dagala Gewog, Thimphu**



- ii. As there are no agricultural land which is one of the criteria for approving the farm roads, the approval granted for construction of farm roads was not within the Farm Road Guidelines. Instead of connecting the farms, such farm roads were found connecting households and monasteries. 41 cases were observed in 27 Gewogs as shown in the **Appendix-I**.
- iii. Inadequacies of needs assessments are also manifested through cases of abandonment of farm roads. As per the information collected by RAA from 13 Dzongkhags, there are 19 farm roads that were abandoned or not pliable as shown in **Figure 3.3**. The cost of constructions of these roads amounted to Nu. 41 million as detailed in **Appendix-II**. The farm roads are usually abandoned due to non-functionality, alternate access, change of priorities, lack of funds to complete, etc.

**Figure 3.3: Roads abandoned due to major slides and geological conditions**



**Samachen farm road abandoned due to unstable base, Darla, Chukha**

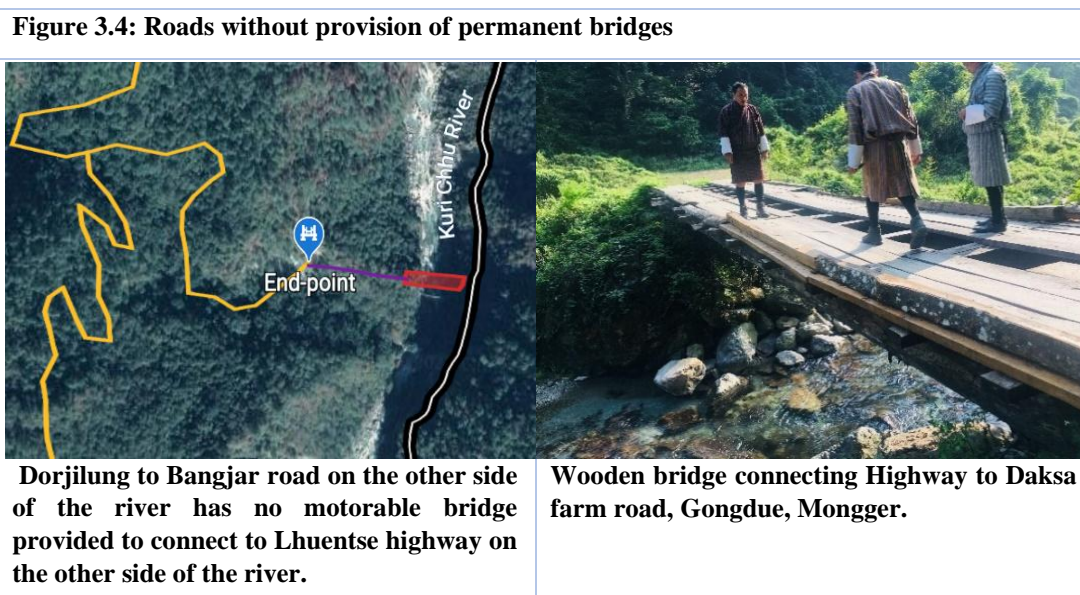


**Chokutangsa to Dongtey farm road blocked by slides and covered by bushes, Chapcha, Chukha.**

- iv. There were numerous cases of adhoc activities included beyond the proposed activities included in the FYP. For instance, there were several activities from financial years

2018-2019 to 2020-2021 implemented as adhoc activities.

- v. There were 16 farm roads in 12 Gewogs that were constructed without provision for bridges. In absence of proper paved bridges, the farm roads were either connected with wooden bridges or suspension bridges. Thus, there is no immediate benefits from the farm roads constructed. The details of farm roads without permanent bridges are provided in **Appendix-III** and shown in **Figure 3.4**.



- vi. The inadequacies in process of assessing farm road needs have resulted in building farm road that do not serve the purpose despite huge investments. Absence of harmonized system of undertaking infrastructure development through consistent assessment of plan proposals would lead to derailment from national priorities and goals besides fueling disparity in terms of building farm road infrastructure amongst Gewogs.

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## **B: BUDGETING**

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Expenditure on construction and maintenance of farm roads forms a major component of the capital expenditure incurred by the Dzongkhags and Gewogs. Over the period from FY 2010-2011 to 2020-2021, a total of Nu 18,659.52 million was spent on the development of farm roads. RAA upon review of the budgeting process for the construction and maintenance of farm roads noted the following deficiencies and lapses as discussed in subsequent paras:

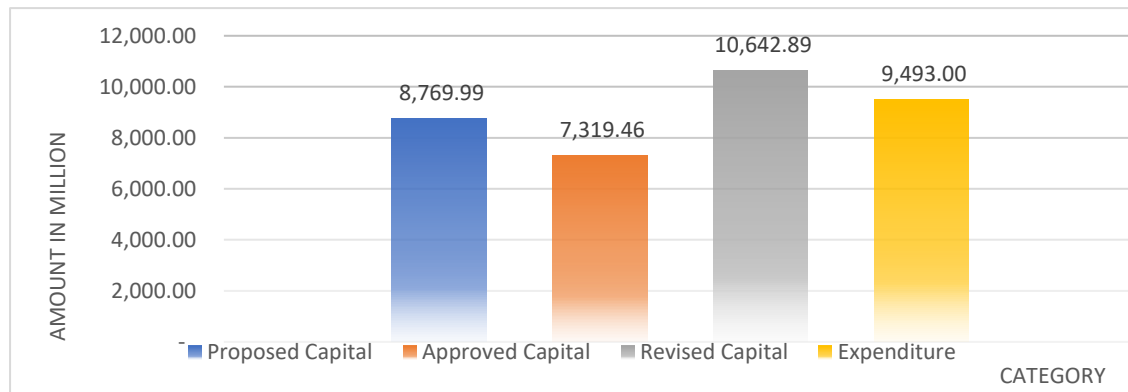
### **3.4 Unrealistic budgeting leading to huge variations**

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- a) Farm road construction, improvement and maintenance are among major activities undertaken by the Dzongkhags and Gewogs during the FYP period. During the financial years 2010-2011 to 2017-18, a sum of Nu.9,493.00 million was incurred for construction and maintenance of farm roads against the approved budget of Nu. 7,319.46 million as shown in **Figure 3.5**.



**Figure 3.5: Proposed, Approved, Revised budget and Expenditure**



- b) As apparent in the graph, the final expenditure had consistently exceeded the original approved budget for years before introduction of annual grant (until 2017-2018) considered for review. The budgets have been revised significantly from the initial approved budget. The aggregated revision of budget over the years accounted for over 45% increase over initial approved budget. And yet, the agencies have not been able to utilize the revised budgets as it showed that aggregate expenditure over the period fell short of about 12% from the total revised budget.
- c) For the FY 2018-19, the budget details consist of interim budget provided for ongoing capital works and recurrent expenditure. From FY 2019-20, the RGOB budget was approved as annual grant and is no more approved at a sub-activity level. Whereas the external funded projects were approved at the sub-activity level.
- d) Though there has been budget re-appropriation and reprioritization of activities under annual grant, the audit team could not assess the variation in approved budgets and revised budgets as the MYRB system has the provision only to record the apportionment of the approved budget (annual grant) to the respective activities.
- e) With the issuance of the budget call notification from the MoF, the Dzongkhag and Gewog Administrations start to prepare the budget proposals within the budget ceiling and as per budget call notification. The budget proposals after endorsement from the GT and DT is submitted to the DNB.
- f) One reason could be attributed to incorrect estimates of activities due to non-completion of survey and designs before the budget proposals. The other reason could be inclusion of new activities during the year, for which no record can be traced in the Gewogs and Dzongkhags.
- g) Thus, the current practice of budgeting provides to show that either the Gewogs submit unrealistic budgets or DNB does not strictly review the drawings, designs and estimates of projects during the proposal. This undermines the need to exercise budget controls and compliance requirements prescribed in the budget process.

### 3.5 Non adherence to standard costing

- a) Guidelines for Farm Road Development specifies cost standard of Nu. 3 million and 2 million per km for estimating the budget for construction of farm roads through contract and departmental execution respectively. It excludes cost for bridges, and survey and design cost maintained within the range of 3-5% of the standard cost.
- b) The standard costs are to be used for constructions in all locations irrespective of topography, and types of soil and rocks at locations of constructions. The application of such standards is merely for maintaining uniformity in budgeting but limited in practical purposes. It undermines the realistic budgeting based on the site conditions as these vary from location to location.
- c) Review of the budget proposals made by the Gewogs, and budget approved by the DNB showed that the budget proposed were very conservative in comparison to the costing based on the standards specified. The comparisons were made as shown in **Table 3.1**.

**Table 3.1: Differences in actual budget proposed in comparison to standard costing of Chhoekhor Gewog for 2020-2021**

Sl. No	Farm Road	Len gth (km)	Budget Proposed/ Exp. (Nu. in million)	Departmental			Contract		
				Stand. Cost	Diff.	Diff. (%)	Stand. Cost	Diff.	Diff. (%)
1	Yugarling to Changthel	4	0.3	8	7.7	2567%	12	11.7	3900%
2	Dhur core village to Nakjel	1	0.4	2	1.6	400%	3	2.75	688%
3	Changbi to Sepamepong	1.5	0.35	3	2.65	757%	4.5	4.3	1229%
4	Nangsiphel to Leshong	2	0.7	4	3.3	471%	6	5.5	786%
5	Khaligpa to Maleng	1	0.4	2	1.6	400%	3	2.7	675%
	Total	9.5	2.15	19	16.85	784%	28.5	26.95	1253%

Source: DPA, MoF

- d) The aggregate variance worked out to 784% and 1,253% for departmental execution and contract respectively. This provides to show that the standard costs are not used while proposing the budget. It could be either due to standard cost being exorbitantly high and not realistic or Gewogs being too conservative in proposing the budget.
- e) Even at the national level, the trend of proposing budget had been same. The aggregate budget proposed and expenditure incurred fall far below the estimates based on standard costs. The total budget proposed and expenditure incurred for the period 2010-2021 amounted to Nu. 10,107.43 million and Nu.16,551.37 million respectively as against the cost estimates of Nu. 29,584.41 million if worked out based on standard costs as shown in **Table 3.2**.

**Table 3.2: Summary of proposed budget, expenditure and cost estimates**

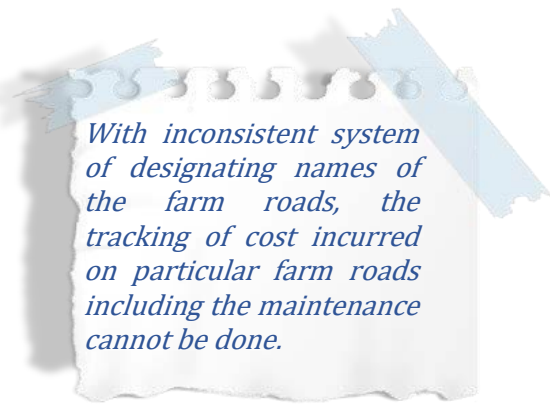
Particulars	Unit	Length/Amt
Road length as of 30 <sup>th</sup> June 2009 (A)	km	1,395.69
Proposed budget from MYRB	Nu. (in million)	10,107.43
Road length as at 30 <sup>th</sup> June 2021 (B)	km	11,257.16
Length of farm roads constructed from 2010 to 2021 (C ) = (B-A)	km	9,861.47
Expenditure incurred from 2010-2021 (D)	Nu.(in million)	16,551.37
Expenditure per km (D)/(C )	Nu.(in million)	1.68
Length of farm that will be achieved at standard cost of 3million per km (D/3)	km	5,517.12
Cost estimates if worked out at standard costs (C * 3)	Nu.(in million)	29,584.41

**Source: DPA,MoF**

- f) The fact that MoF approves the budget even if the proposals do not conform to the standards prove that quality aspects of infrastructure are not given due consideration during scrutiny of the budgets. This have had impacts on overall quality of infrastructure in terms of limiting the scope of work to mere formation cutting.

### 3.6 Lack of controls in allocation of budget for new construction and maintenance

- a) The budget for new constructions and maintenance are proposed based on the activities identified by name of the farm roads. The names have reference to locations that are connected by particular farm road. The designated names of farm roads provide useful basis for identification of the roads, which shall be used for exercising controls in allocations and apportionment of budgets.



*With inconsistent system of designating names of the farm roads, the tracking of cost incurred on particular farm roads including the maintenance cannot be done.*

- b) The RAA noted that the names of farm roads are not consistent across Gewogs. Even for the same farm road, the names captured in ePEMS vary in terms of names of places. Some names reflect length of the road and in some cases, same farm road is given different names. It was observed that names change over the period of time as evident from the records of ePEMS. The inconsistencies are discussed in **Para 3.8** (*Fragmented stretch of farm roads proposed as activity*)
- c) The RAA noted instances where Gewogs had apportioned budget for improvement and maintenance of some farm roads on a regular basis. Even though the budget were proposed for maintenance, the expenditures were mainly for provision of permanent structures. Further, the maintenance activities cannot be traced to specific farm roads as the information on maintenance of farm roads are apportioned to Chiwogs.
- d) With inconsistent system of designating names of the farm roads, the tracking of cost incurred on particular farm roads including the maintenance cannot be done. The inconsistencies in the vital information may pose challenges of making decisions in

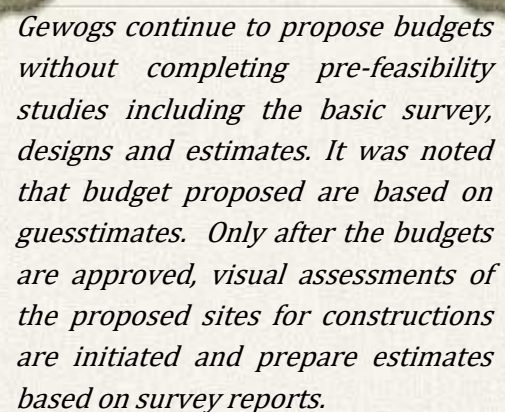
allocating budgets for new constructions, improvements and maintenance as no historical information can be processed with inconsistent names to identify farm roads. The RAA noted that even the Gewog officials could not identify farm roads within the Gewog by names.

- e) Moreover, with the amendment of Road Act of Bhutan in 2013, though the mandate for development of the national road network lies with MoWHS, the practice of planning and budgeting farm roads are still under the agriculture sector in the LGs without making befitting changes. In fact, the construction and maintenance of farm roads are executed by the engineering sector.

### 3.7 Estimates prepared without survey and design

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- a) The activities for which budget proposed should have been thoroughly appraised in respect of its feasibility, drawings and designs, cost estimates, clearances, etc., to ensure smooth implementation based on the needs and priority of the Gewogs.



*Gewogs continue to propose budgets without completing pre-feasibility studies including the basic survey, designs and estimates. It was noted that budget proposed are based on guesstimates. Only after the budgets are approved, visual assessments of the proposed sites for constructions are initiated and prepare estimates based on survey reports.*

- b) The Guidelines for Farm Road Development 2019 also specifies requirement to complete basic pre-investment feasibility for construction of roads. The Gewogs are expected to build their own competencies to undertake such studies or outsource such activities till the time capacity constraints are addressed. Guidelines on Road Classification System and Delineation of construction and maintenance responsibilities 2009 also suggests Dzongkhag to conduct pre-investment studies, geotechnical investigations, survey and designs with technical backstopping from DoA.
- c) Despite these, RAA noted that the Gewogs continue to propose budgets without completing pre-feasibility studies including the basic survey, designs and estimates. It was noted that budget proposed are based on guesstimates. Only after the budgets are approved, visual assessments of the proposed sites for constructions are initiated and prepare estimates based on survey reports. In most of the occasions, the estimates prepared at this stage are on higher side in comparison to the approved budgets. Few of such instances are depicted in **Table 3.3**.

**Table 3.3: Comparative study on variations between budget and cost estimate in the farm road construction and maintenance**

Sl. No.	Name of activity	Length (km)	Budget apportioned without survey and design (Nu. in million)	Estimate (BoQ) after survey and design (Nu. in million)	Budget deficit (Nu.in million)	Percent. (%)
1	Maintenance of Norbugang farm road segment	1.43	0.7	1.84	(1.14)	-62.01%
2	Maintenance of Dawathang farm road	1.63	0.1	0.20	(0.10)	-50.75%
3	Maintenance of Changwa to Nashphel farm road	3	0.6	1.58	(0.98)	-62.00%
4	Maintenance and construction of permanent road structure on Lusbee farm road	3	1.37	2.09	(0.72)	-34.50%
5	Construction of farm road from Thangbi to Kakaling	2.45	2.59	2.72	(0.13)	-4.82%
6	Construction of farm road from Nangsiphel to Leshong	1.76	1.20	1.29	(0.09)	-6.97%
7	Construction of farm road from Kabchen to Gumla	2.34	1.50	2.55	(1.06)	-41.00%

**Source: DPA,MoF**

- d) The resultant effects of such practices are that Gewogs are compelled to drop other planned activities. RAA noted following cases of exceeding estimates resulting in dropping of planned activities/components of the estimates as given in **Appendix-IV**.
- e) The RAA also noted cases where budget for activities were proposed but were dropped later in view of the Gewog not being able to get the consensus of the people. The cases pertaining to Kengkhar and Chaskar Gewogs where individual did not provide the land is provided in **Figure 3.6**.

**Figure 3.6: Land not provided during construction although it was agreed initially**



- f) Inability of the Gewogs to realistically propose the budgets undermines the whole budget process and controls exercised by MoF in allocation of resources. The process is merely a formality rather than objective scrutiny for efficient allocation of resources. Besides, the

disruption in the planned activities resulting from unrealistic budgeting may contribute to derailment of overall plan objectives when implementation of other activities are contingent upon budget space known at a later stage.

- g) In order to ensure realistic budgeting and to minimize disruption to other planned activities, there is a need to mandatorily require the Gewogs to complete the pre-investments activities to be completed before proposing the budget. Such a practice would also allow efficient allocation of resources besides ensuring appropriate controls in aligning proposed activities to strategic objectives of developing infrastructure in the country.

**MoF responded that draft revised annual grant guidelines 2022 has included that the “Finance Committee shall ensure that all proposals are supported with pre-requisite such as designs, drawings, cost estimates and necessary clearances. Proposed activities without the supporting documents to be de-prioritized”. The MoF also responded that the GNHC and MoF will look into streamlining the process for external funds.**

### 3.8 Fragmented stretch of farm roads proposed as activity

- a) The Gewogs undertake construction of farm roads based on the budget allocated through Resource Allocation Formula (RAF). With the view to ensure equity amongst Chiwogs, construction of roads are spread across Chiwogs. The apportioned budget for Chiwogs are generally not sufficient to fund the entire stretch of farm roads and hence, the Gewogs resort to staggered approach in executing the works spread over the period of FYP. This leads to fragmentation of the whole stretch into different parts.
- b) Construction of farm road from Pachutar to Khuree in Phuntsholing took about 10 years to complete the stretch of the whole road as shown in **Table 3.4**. Moreover, the name of farm road differed from year to year while budgeting, affecting the computation of total cost in most cases.

**Table 3.4: Pachutar to Khuree farm road, Phuntsholing, Chhukha constructed under different Sub Activity Name for over 10 years**

Sl. No	Sub Activity Name	Name of Farm Road	Length (km)	Revised Budget (Nu. in million)	Expenditure (Nu. In million)	Financial Year
1	Construction of Farm Road Pachu to Lingden I Phase(4km) (Spill Over)	Pachutar - Serina	4	0.4	0.28	2010-2011
2	Construction Farm Road Pachu to Lingden II Phase (5km)	Serina - Majuwa	5	3	0.01	2010-2011
3	Improvement of 9 KM Pachu-Lingden Farm Road (Soling/Lined drain)	Pachutar - Majuwa	9	1.04	0.67	2011-2012
4	Construction of Phase III Pachu-Lingden Farm Road	Majuwadara-Tashidingkha	4	3.1	3.1	2011-2012
5	Construction of Phase Two Pachu-Lingden Farm Road (Spill Over)	Serina - Majuwa	5	3.1	3.02	2011-2012
6	Construction of 5 Km Phase-II Farm Road Pachu to Lingden (Serina to Majawa) (Spill Over)	Serina - Majuwa	5	5.95	5.45	2012-2013
7	Const. of 5 Km Phase-Ii Farm Road Pachu to Lingden (Serina to Majawa) (Spill Over)	Serina - Majuwa	5	0	0	2012-2013

8	Construction of 5 Km Phase-Ii Farm Road Pachu to Lingden (Serina to Majawa) (Spill Over)	Serina - Majuwa	5	0	0	2012-2013
9	Constion of 5 Km Phase-Iii Farm Road Pachu-Lingden (Zedokha to Lingden) (Spill Over)	Serina - Zedokha	5	4.11	3.83	2012-2013
10	Construction of Farm Road (Majhuwa to Lingden) 5 Kms	Majuwadara-Tashidingkha	5	7.8	7.8	2015-2016
11	Construction of Farm Road from Tashidingkha to Malbasey (4kms)	Tashidingkha - Lingden	5	2.97	1.30	2016-2017
12	Construction of Farm Road from Tashidingkha to Malbasey (4kms)			0	0	2016-2017
13	Construction of Farm Raod from Tashidingkha to Malbasey (4kms)	Lingden - Malbasey	3.6	0	0	2016-2017
14	Construction of Farm Road from Tashidingkha to Malbasey (4kms)	Lingden - Malbasey	3.6	7.61	7.61	2017-2018
15	Permanent Structure at Pachutar to Lingden Farm Road	Pachutar - Serina	4	0.01	0.01	2019-2020
16	Construction of Farm Road at Malabasey to Khuree	Malbasey - khuree	1.5	0.8	0.78	2020-2021

**Source: DPA,MoF**

- c) While this is common for longer stretch of roads which need huge investments, the RAA also noted that this approach was applied to even for shorter stretch farm roads with a length of less than 8 km as provided in **Table 3.5**.

**Table 3.5: Assignment of multiple names for Drupchugang farm road, Tsholingkhar, Tsirang under Sub-Activity Name**

As per DPA/DNB system				
Sl. No.	Sub-Activity Name	Revised Budget (Nu. in million)	Expenditure (Nu. in million)	Financial Year
1	Construction of farm road from Damphu to Harpey pani/Alaichey-2.5km	3.10	2.17	2010-2011
2	Construction of farm road from damphu to Harpey Pani/Alaichey-2.5km	2.14	2.14	2011-2012
3	Construction of farm road from Damphu to Harpey pani/Alaichey-2.5km	1.17	1.17	2012-2013
4	Construction of Drupchugang-Harpeypani farm road	0.50	0.49	2014-2015
5	Construction of drain for Drupchugang farm road	0.57	0.57	2015-2016
6	Construction of Alaichey farm road	0.71	0.71	2015-2016
7	Construction of Harpeypani farm road	0.10	0.10	2016-2017
8	Construction of additional/extension of Alanche y farm road (1km)	0.57	0.57	2018-2019
<b>Total</b>		<b>8.86</b>	<b>7.92</b>	

**Source: (e-PEMS, PEMS, MYRB), MoF**

- d) This approach of fragmentation to accommodate priorities of all Chiwogs and resulting in staggered implementation only provides to show that the priorities are not set at Gewog level. This not only leads to thin spread of the resources that may affect quality but also undermines priority-based development. Besides, it may undermine efficiency and effectiveness when whole infrastructure cannot be delivered even with the completion of activities.

e) Through the prioritization exercise at the Gewog level, partial delivery of infrastructure can be avoided and there is opportunity to consolidate resources and deliver the infrastructure that is complete in all respect and based on development priorities of the Gewogs.

f) Guidelines on Design, Construction and Maintenance of Road Infrastructure incorporating Climate resilient features 2019 provides technical specifications of a farm road. It provides width specifications for critical components such as formation, drain on hill side, pavement and shoulder. Further, structures and protective works are to be provided for retaining, and protecting the road. It basically includes the following components as provided in **Table 3.6**.

Sl. No.	Road items	Remarks
1	Formation width	Excavation of earth works and over areas
2	L-drain	Earthen drain along the formation width
3	Sub-base	Permanent works
4	Base course	
5	Hard shoulder	
6	Compacted granular soil	

g) RAA noted that the scope of work is limited to formation cutting in most of the Gewogs. Other components related to drains, pavement, shoulder and other protective structures are generally left out during the initial proposal. These work components are proposed in the subsequent years as improvement to the work which is contingent upon availability of budget as shown in **Table 3.7**.

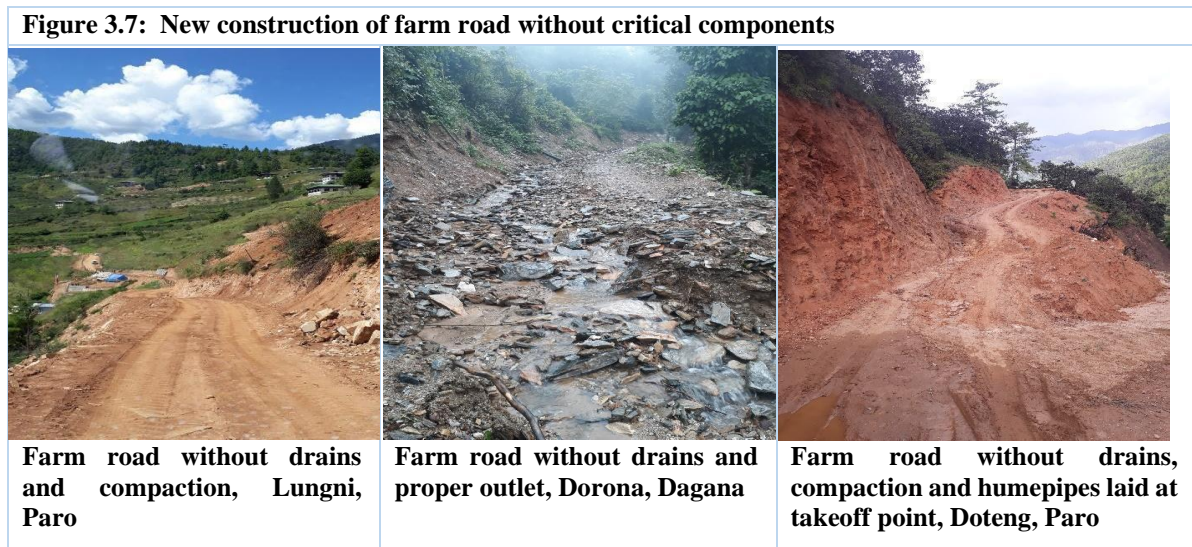
Sl. No.	Sub- activity name	Length (KM)	Budget (million)	Components executed in subsequent years
1	Maintenance of farm road from Jambay Lhakhang to Nasiphel	1.50	0.50	Re edging, resurfacing and soling construction)
2	Maintenance of farm road from Thrimkhang to Zolongthang	1.50	0.50	Re edging, resurfacing and soling construction)
3	Maintenance of farm road from Chunga chorten to Peacipong	1	1.00	Laying stone soling
4	Maintenance of Shukdra farm road	1.50	0.40	Re edging, resurfacing and soling construction)
5	Minor maintenance of Kharsum farm road	0.250	0.18	Construction of 250 meters V-drain
9	Improvement of Choekhortoe village farm road	15	0.32	Laying Hump pipes and construction of minor ancillary road structure
10	Improvement of Zomling farm road at Dhur	35	0.50	Construction of road structure (breast wall)
11	Improvement of Dhur core village farm road	2	0.40	13m Lx 4.5m H retention wall and PCC drain 79.85m long including catch pit

**Source: e-PEMS, PEMS, MYRB, MoF**

h) The main reason for resorting to such practices could be due to limited budget. As long as the access to connect the places are ensured, the infrastructure is deemed to have been put in place. However, proposing of new constructions without the complete components



compromises utility as well as safety of the roads. The road could be damaged without the provision of drains and other protective structures which are deemed necessary and critical as a part of road infrastructure. Some of the instances were noted as shown in **Figure 3.7**:



- i) It is apparent from **Figure 3.7** that the roads are rendered non-functional due to deterioration caused by flow of water. This could have been avoided if drains were provided as per the specification. The investments in infrastructure do not yield any returns as far as benefitting the intended beneficiaries are concerned.
- j) If there are other competing priorities in the subsequent years, the necessary and critical structures like drains, walls, causeways, humepipes etc., cannot be provided to render desirable functionality of the roads.

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## **C: IMPLEMENTATION**

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The Guidelines for Farm Road 2019 provides guidance for technical, economic, social and management aspects in construction and maintenance of farm roads in the country. The guideline is specifically designed to align constructions and maintenance of farm roads to the standard road designs and site selection. There are several other authorized documents published to supplement the guidelines in delivering priority and quality farm roads. The issues noted in terms of non-adherence to standards in the implementation of farm roads are discussed in the subsequent paragraphs:

### **3.9 Inadequacies in conducting Pre-investment feasibilities studies**

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The Guidelines for Farm Road Development 2019 requires to conduct pre-investment feasibilities studies such as geotechnical study, social study and survey and design in the construction of efficient and safe road network for socio-economic development.

Prefeasibility studies are required to determine the viability of project and ensure it is technically feasible and economically justifiable. Such studies contribute to the possibility of curbing unviable or un-maintainable projects and to select realistic road alignments and prepare a proper cost estimate to reduce cost escalation at a later stage and also to prevent Geologic hazards during the constructional and post constructional period.

On review of the process of conducting pre-investment feasibility studies as required by the Guidelines showed following inadequacies which are discussed below:

### 3.9.1 Non conduct of geological studies

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- a) The Guidelines specifies review of geological conditions, terrains, and precipitation and water management aspects in conducting geological studies prior to construction of the farm roads. The specific elements for verifications are proposed in each aspect to assess the technical feasibility and ensure proper planning, safe and economical design.
- b) It was noted during audit that the geological studies are not conducted for the farm road constructions. The importance of such study was well acknowledged by the agencies, but such studies were never conducted in the constructions of farm roads as no documents were maintained with the Dzongkhags or the Gewogs. The records maintained as study reports is limited to surface survey to identify the soil and rock and identify the road alignment. It does not contain assessments under each element as specified in the Guidelines.
- c) RAA noted several cases of abandoned farm roads owing to non-functionality, frequent landslides, non-provision of properly designed drainage, steep gradient etc. These issues could have been triggered by inadequate geological assessments and inadequate safeguards put in place in terms of technical solutions. Some of the cases are as provided in **Appendix-II**.
- d) The non-conduct of detailed geological studies was attributed to Dzongkhags and Gewogs administrations not having the required capacity in such field. Further, out sourcing of such services to other agencies were stated to be unmanageable owing to the fact of having multiple farm road construction activities across 201 Gewog administrations.
- e) The Guidelines suggests for capacity development of implementing agencies to undertake such studies. If agencies continue to face constraints, such activities could be outsourced and adequate budget provision to be made for such activities. RAA did not find any activities for developing capacity nor outsourcing of such activities by Gewogs.

*The non-conduct of detailed geological studies were attributed to Dzongkhags and Gewogs administrations not having the required capacity in such field.*

### 3.9.2 Inadequate conduct of social studies

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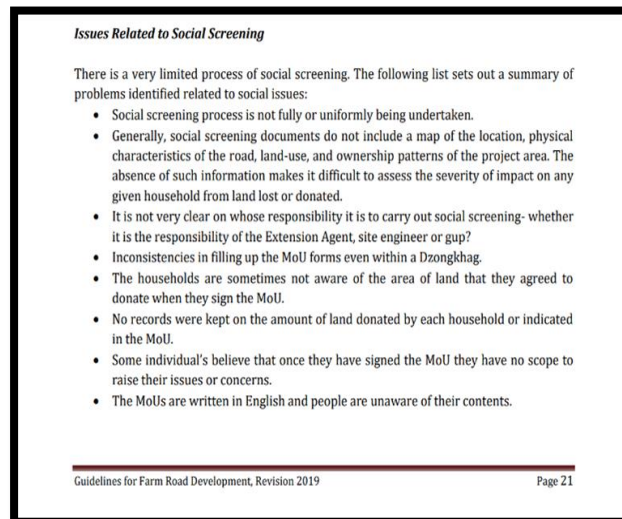
- a) Social studies encompass appraisal of socio-economic conditions, developing mitigation measures to avoid loss of land and property and consideration of environmental concerns in development of farm roads.
- b) The Guideline prescribes format for conducting social studies through Social Impact Monitoring Framework to facilitate the assessment and management of potential adverse social impact arising from farm road development programme. It details guiding principles, policies and processes for assessing the program's potential social impacts and

*While the Guidelines is explicit in terms of objectives of conducting social studies, the fact that these requirements are not complied by all Dzongkhags and Gewogs provide to show least importance provided to this requirement.*

defining opportunities to enhance benefits and mitigate adverse social impacts.

- c) RAA noted that the only activity conducted as a part of social studies is public consultation which is basically to obtain consensus of the public for road construction through their lands. There is a substantial non-compliance by all Dzongkhags and Gewogs as far as complying with the prescribed process for social screening and producing reports as per the prescribed format is concerned. The prescribed format and the documents maintained are as shown in **Appendix-V**.
- d) As stated in the Guidelines, the social screening is to identify the potential for loss of land, asset/structures, livelihoods, loss of community property resources, willingness of the community to donate land to the project and other significant social impacts. Further, to the extent possible, the project should consider alternative engineering designs to minimize adverse social impacts and land acquisition.
- e) The Guidelines identified range of existing problems related to social studies and was intended to address by prescribing detailed guidance to conduct social screening through Social Impact Monitoring Framework. However, this guidance had been ineffective as most of the issues identified continue to persist as far as social impact assessment is concerned as explained in **Figure 3.8**.
- f) While the Guidelines is explicit in terms of objectives of conducting social studies, the fact that these requirements are not complied by all Dzongkhags and Gewogs provide to show least importance accorded to this requirement. There was no records of monitoring and evaluation on the compliance to this requirement by relevant central authorities and thus, diffusing the responsibility at all levels.

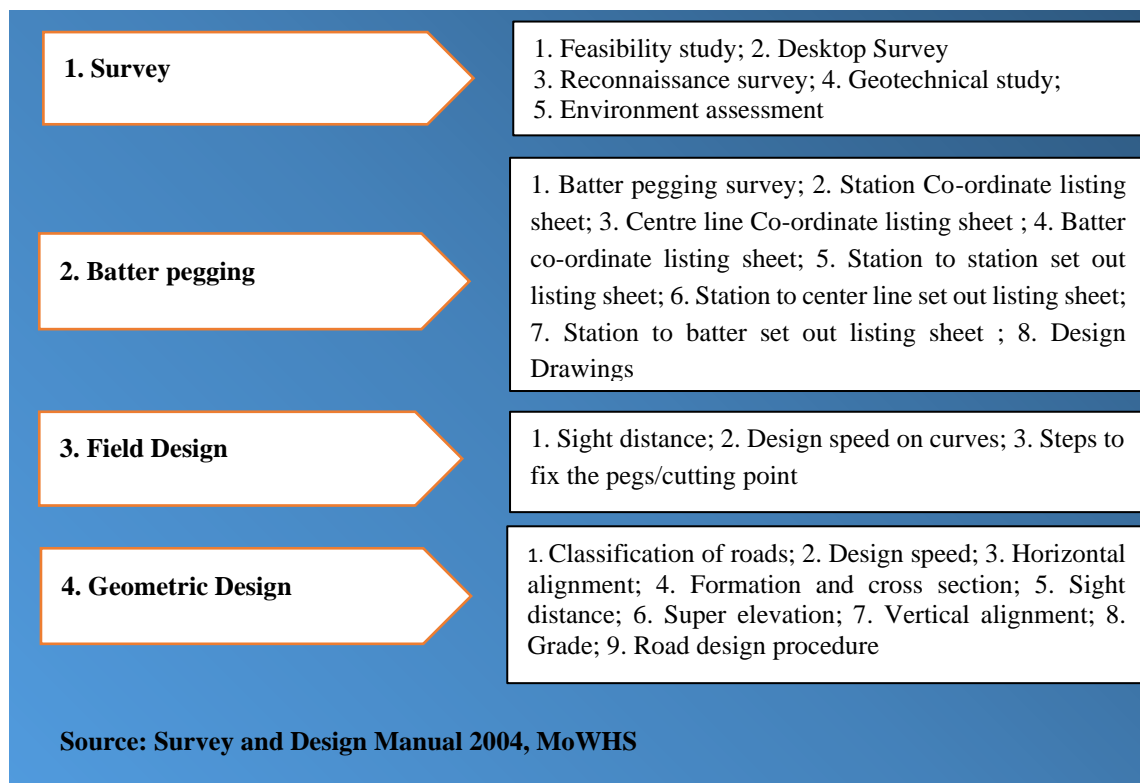
**Figure 3.8: Social issues identified in the Farm Road Guidelines, 2019**



### 3.9.3 Inadequacies in survey and design

- a) The Guidelines for Farm Road Development 2019 requires detailed survey and design to be conducted to avoid any dangerous and unstable areas or those requiring high cost for construction of embankments, walls, cross drainage structures or blasting. It is to be conducted in phased manner: marking of center line before prefeasibility studies and detailed topographical survey. The process of survey and design is prescribed in Survey Design and Manual 2004 as provided in **Figure 3.9**:

**Figure 3.9: Process of survey and design**



- b) RAA noted that there are varying practices of conducting surveys across Dzongkhags. The documents accompanying technical sanctions include a sheet that contain details of gradient, elevation, number of trees to be felled, etc., within specified chainage. There are no documents to identify different forms of studies specified in the Guidelines.
- c) While the Guidelines specifies requirement to conduct detailed survey and design, it does not specify elements of specific studies to be included as a part of survey. Nor does it prescribe any format to document the report of such exercises. It appeared that actual survey exercise is limited to visual assessment of sites based on which estimates are prepared.
- d) Dzongkhags and Gewogs attribute these inadequacies to lack of professionals, equipment, and work loads of multiple sites to handle for the site engineers in the Dzongkhags and Gewogs. Further, it was explained that the construction of road or initiation of road alignment are usually based on visual identification and assessment done by site engineers in consultation with the local leaders and road beneficiaries without in-depth surveys.
- e) The Road Survey Design Manual 2004 prescribes process and elements of surveys to be conducted in terms of survey, batter pegging, field design and geometric survey entailing detailed specific processes and procedures. The Guidelines for Farm Road Development 2019 does not specify requirement to make reference or comply with the Road Survey Design Manual 2004. Hence, it is not understood whether the current practices of surface or visual survey conducted suffices the survey requirement specified in the Guidelines.
- f) Inadequacies in survey may pose risk of instability either rendering the infrastructure non-functional due to technical issues like steep gradient or perennial problems of erosion, and

blockage resulting in huge cost of preventive structures and maintenance.

Some cases of roads that face such challenges are as discussed in **Illustration 1 to 3.**

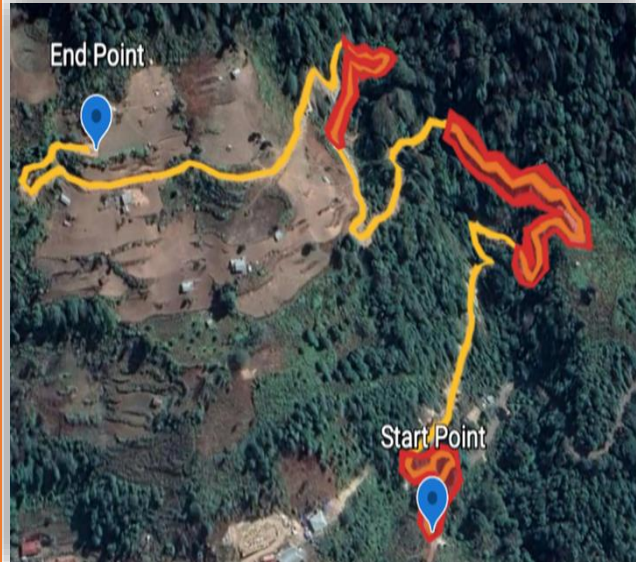
**Illustration 1:**

Thomgang to Pepsi farm road (1.73 km) in Thomgang Chiwoq under Khebisa Gewog, Dagana was constructed in the financial year 2020-2021. The cost of the construction was estimated at Nu. 2.37 million.

The farm road was constructed beyond the permissible gradient of 10% measuring about 50-100 meters in different stretches of the road with sharp curves.

The differences could be attributed to inadequate survey before the construction.

**Illustration 1: Gradient issues in Thomgang to Pepsi farm road, Khebisa Gewog, Dagana**



**Illustration 2: Chebju-Pangthang-Jug farm road passing through unstable geological conditions**



**Illustration 2:**

The construction of Chebju-Pangthang-Jug farm road at Manigang Chiwoq, Pemaling Gewog under Samtse Dzongkhag was constructed in the financial year 2017-2018 with an expenditure of Nu. 0.49 million against an approved budget of Nu. 0.50 million.

The RAA noted that a stretch of the farm road passes through an unstable geological condition (shown by red line), which remains blocked throughout the summer season, thereby, pliable during dry seasons only.

Every year, after monsoon, the Dzongkhags and Gewogs deploy earthmoving machineries to clear off the monsoon damages rather than exploring preventive measures to curtail such disaster in the longer term.

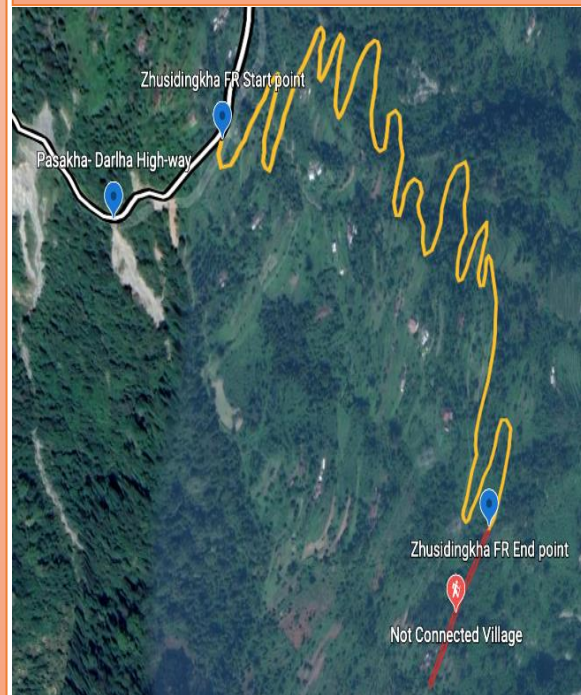
**Illustration 3:**

The construction of Zhusidingkha farm road was started on 7<sup>th</sup> August 2019 with an estimated length of 4.5 km from Phuntsholing-Pasakha-Darla highway to Zhusidingkha village under Sampheling Gewog, Chukha.

The cost of construction was estimated at Nu. 4.53 million. As the initial estimated length fell short of 500 meters, the village could not be connected even in 2021-2022.

The estimates contained only the length of excavation without any requirement of support structures indicating that survey was not conducted and the estimates were prepared based on visual assessment.

**Illustration 3: Zhusidingkha farm road Sampheling, Chhukha**



- g) As discussed above, surveys for farm road constructions in the Gewogs are not conducted in the manner prescribed by the Guidelines. These have implications on the quality and sustainability of the farm roads as risks cannot be identified and addressed due to lack of in-depth surveys.
- h) There are no monitoring and evaluation to oversee the compliances to the survey requirements by relevant authorities.

**3.10 Inadequacies in implementation and quality management**

RAA reviewed the process of implementation and quality management process in building the farm roads. The construction of farm roads shall be managed by the Dzongkhag and the Gewog Administration. The overall coordination of the construction of farm roads managed by Gewog Administration shall be led by Gewog Agriculture Extension Officer and technical aspects by Gewog Engineer.

**3.10.1 Non-conformance to Road Design Standards**

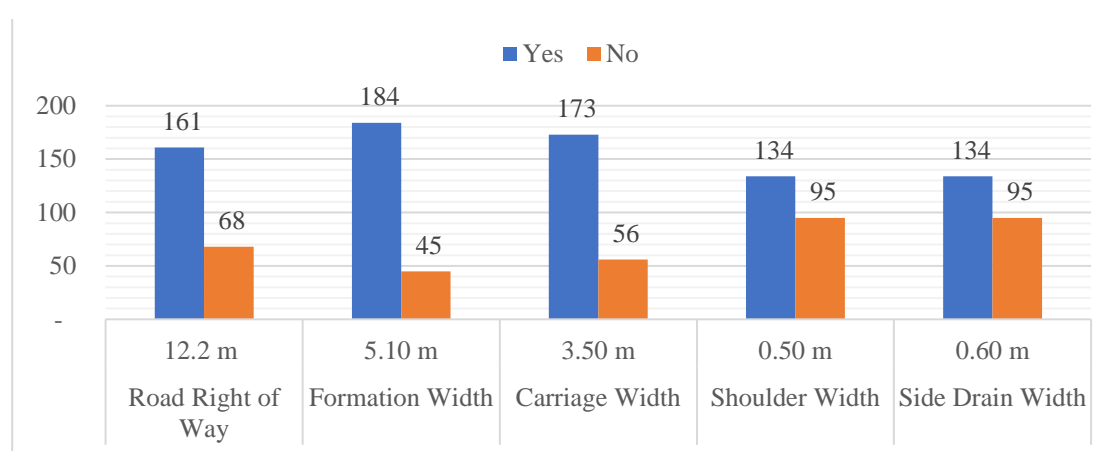
- a) Section 77 of Road Act of Bhutan 2013 stipulates that DoR shall be responsible for the development and determination of standards, specifications and quality of all types of roads in the country.
- b) Specifically for the construction of farm roads, the technical specifications and standards are prescribed in the Guidelines on Design, Construction and Maintenance incorporating Climate-resilient features 2019. The Guidelines provide basis for quality management of farm road constructions. The design standards for farm roads are prescribed in **Table 3.8**.

Road design standards	Road Right of Way	Formation Width	Carriage Width	Shoulder Width	Side Drain Width
Width (M)	12.2 m	5.10 m	3.50 m	0.50 m	0.60 m

**Source: Guidelines on Design, Construction and Maintenance incorporating Climate-resilient features 2019.**

- c) The RAA intended to review the compliance to design standards with respect to 229 farm roads selected and noted there were instances of non-compliances to width requirements. The non-compliances in each of the areas are as given in **Figure 3.10**.

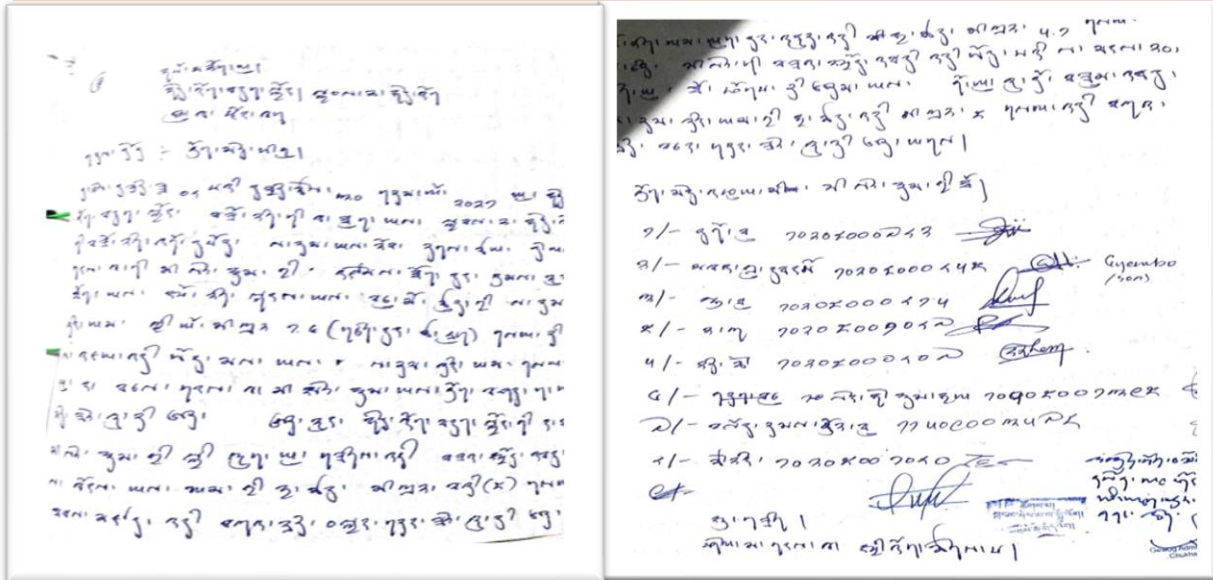
**Figure 3. 10: Summary of compliance to design standards**



- d) Non-compliances are higher in the areas of right of way, shoulder and side drain as shown in the graph. Given that these standards are deemed non-negotiable, deviation to any of these standards is a material compromise to quality of roads.
- e) RAA noted that of 229 farm roads, compliance to standards in all five areas was ensured in 108 farm roads and 121 farm roads representing 52.8 % did not comply with standards in at least in one area. This represent significant proportion of the sample not meeting the standards which is alarming if the same compliance trend can be applied to all farm roads in the country.
- f) These deviations could be attributed to inadequacies throughout the process of planning to execution of the farm roads. It is further exacerbated by lack of monitoring and evaluation by authorities. Difficult terrains and geological conditions, insufficient land, refusal by land owners, lack of oversight during constructions etc., are some of the reasons for deviation from standards. Some of the instances of deviations are as discussed in **Illustration 4 and 5**.

**Illustration 4:**

The Gewog Administration of Chapcha Gewog under Chhukha Dzongkhag constructed Parigang to Gangkha farm road with 4 m formation width against the requirement of 5.1 meters based on the request from Gangkha general public. The width of the road was reduced to 4m based on request of affected land owners for a stretch of 500 meters.



**Illustration 5: Provides instances of deviations from the design standards.**

**Instances of deviations from the design standards**

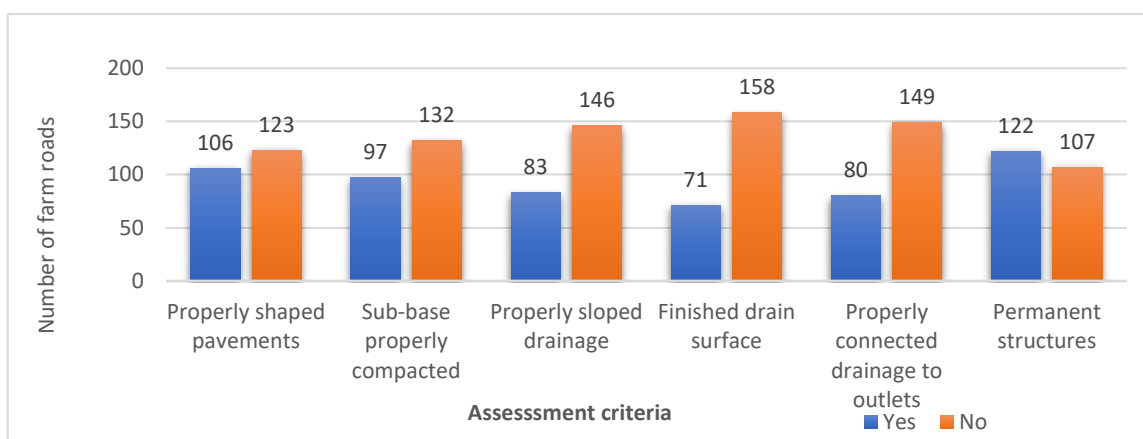
Sl. No.	Name of farm road	Gewog and Dzongkhag	Width	Reasons
1	Galey to Lapsakha farm road	Chapcha, Chukha	Formation width 3.66 m	Negligence of concerned officials
2	Jazhizhukha farm road	Bjena, Wangduephodrang	Formation width 2.95 m and carriage width 2.51m	Private land
3	Khodrak to Thramo farm road	Serminghung, Mongar	Formation width 4.17 m	Rocky terrain
4	Lhakang gang to Dadokha farm road	Shengana, Punakha	Carriage width 3.01m	Negligence of concerned officials

**3.10.2 Inadequacies in the provision of protective structures**

- a) Roads are generally constructed by cutting into the hills and thereby disturbing natural stability of slopes. Water and soil movement along the slopes tend to disturb the road formation. The disturbance to the road formation is therefore, protected by provision of structures to act as retaining, restraining and protective structures.
- b) The RAA intended to review the provision of critical protective structures in 229 farm roads based on the physical observations and noted that in most of the farm roads, desired level of protective structures was not achieved. The statuses of protective structures represented by six components are as depicted in **Figure 3.11**.



**Figure 3.11: Status of protective structures along farm roads**



- c) As shown in **Figure 3.11**, in respect of all components of protective structures, large number of farm roads have not properly placed protective structures. For instance, 146 farm roads do not have properly sloped drainage, 158 farm roads do not have finished drain surface and 149 farm roads do not have well connected drainage system to the outlet.
- d) The RAA noted that only 48 farm roads have put in place all components of protective structures and 181 farm roads representing about 79% of the sample reviewed do not have one or more components of proper protective structures. This prove to show that significant number of farm roads are rendered vulnerable to deteriorations due to runoff waters and other natural causes.
- e) These issues are mostly caused by deficiencies in planning, design, estimation and lack of budget for provision of structures as well as maintenance. Some can be attributed to inadequate monitoring during constructions to oversee conformance to specifications and standards.
- f) The deterioration of conditions of roads manifested through loosened surfaces, potholes, rutting, dust, stoniness, erosion and slides, slipperiness etc., are common sights when protective structures are not provided.

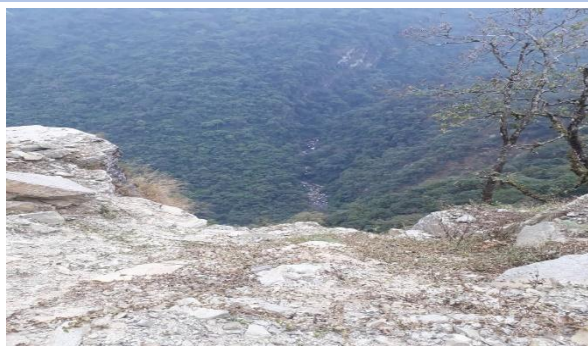
### 3.10.3 Improper disposal during excavation

- a) On review of 740 farm roads constructed in 13 selected Dzongkhags from the financial years 2018-2019 to 2020-2021, it was observed that environmental clearances were obtained in respect of all farm roads. Further, reliance can be place on processes and controls in obtaining such clearances.
- b) Agencies are required to comply with list of terms of conditions specified in the Environmental clearances. Amongst others, there is a need to identify a proper dumping place to dump the excess excavated materials and rampant dumping of excavated rocks and soil is not allowed. During the site visits, the RAA noted instances of non-compliances to this requirement. Some of the examples are as shown in **Figure 3.12**.

**Figure 3.12: Instances of environmental damages caused by new farm roads**



**Excavated materials disposed off along the road Tsachhu approach road, Goenshari, Punakha.**



**Excavated materials dumped indiscriminately affecting vegetation below, Rangsey farm road, Gakiling, Haa**



**Letokha farm road, Nyisho, Wangdue Phodrang**



**Soenakhar farm road, Sherimung, Mongar.**

- c) The RAA noted that in most cases, dumping sites are not identified and excavated soils and rocks are disposed off along the stretch of roads. It is mostly based on the convenience and not determined based on locations or sites.

These non-compliances usually occur due to inadequate monitoring by executing as well as oversight bodies. There were no evidences of monitoring being conducted at these locations and penalty imposed for non-compliances. The Environment Clearance include provision for imposing penalties for failure to comply with the terms and conditions.

## **D: OPERATION AND MANAGEMENT**

The Road Act of Bhutan 2013, specifies the roles and responsibilities of all the relevant agencies in the development and management of the farm roads in the country. The Act also intends to establish a coordinated management system that will promote safe and efficient road networks at the national and local level. However, the inadequacies noted in the enforcement of the Act with regard to operation and management of farm roads are as explained below:

### **3.11 Deficiencies in the Execution/improvement of farm roads**

- a) The Guidelines for Farm Road Development 2019 and the Guidelines on Design, Construction and Maintenance incorporating Climate-resilient features 2019 specify allowance of sub base, base course, and compacted granular soil for farm roads. The construction of farm roads were guided by these guidelines.

b) In 2020, the GNHC had developed the project document titled, “Improvement of Farm Roads” identifying list of prioritized farm roads for improvement to be undertaken in three phases starting from June 2020. The document specified criteria for selection of farm roads for improvement. The document explored three options for improvement with costing for

Sl. No.	Work specification	Cost per km (Nu. in million)	Total Cost for 6,810 km (Nu. in million)
1	Bituminous	5.30	36,093
2	Rigid pavement for 3.5 width (full)	5.80	39,430
3	GSB	1.60	10,916

**Source: Project document, GNHC**

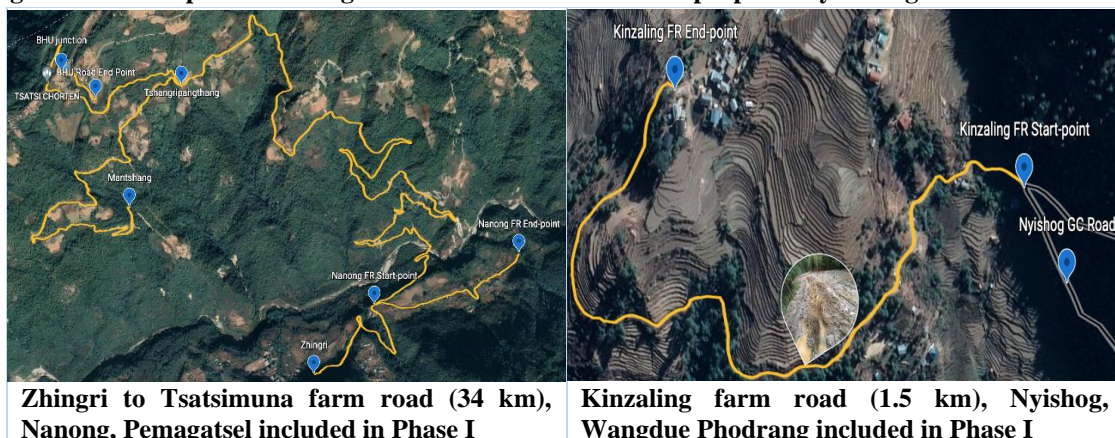
each specification as provided in **Table 3.9**. Of the three options, it recommended for GSB with permanent works (proper drainage) as the preferred option for undertaking improvement works. However, the local governments were provided flexibility to opt for black-topping or rigid pavement works if it can be managed within the available resources.

c) The document identified 592 farm roads measuring 3,338 km to be undertaken for improvement in three phases: 201 farm roads with the stretch of 1,482 km in Phase I, 197 farm roads with the stretch of 1,045 km in Phase II and 194 farm roads with the stretch of 811 km in Phase III. The Phase I was targeted to be completed by December 2020 with the budget requirement of Nu. 2,376 million and initiation of Phases II and III was contingent upon progress of phase I.

d) The list of farm roads was stated to be finalized based on the selection criteria and through a series of extensive consultation with the Dzongkhags (telephonically) which in turn supposed to have consulted with respective Gewogs. It also states that the GNHC had also revalidated the proposals with the LGs. On review of the related documents of implementation of improvement works, the RAA noted the following:

i. The RAA noted that there is no documentation on consultations being made except for the lists of farm roads finalized for improvement included in the document. There were cases of inconsistencies in the number of farm roads proposed by the Gewogs. Some Gewogs included all peripheral roads under one farm road while some identified specific stretch. This had resulted in a varying number of roads and lengths identified for improvements amongst Gewogs. Comparison of length and number of farm roads proposed by Gewogs are shown in **Figure 3.13**.

**Figure 3.13: Comparison of length and number of farm roads proposed by Gewogs for Phase-1 GSB**



- ii. The RAA also noted that the document did not specify thickness for all types of improvement works. It appeared that the thickness of the GSB, blacktopping and rigid pavements were left to the local government to decide and implement. The Guidelines on use of Standard Work Items for Common Road Works by DoR specifies 25 mm thickness for blacktopping for Secondary National Highway, while the thickness of blacktopping of farm roads were designed for 30 mm.
- iii. The document specified main criteria for selection and prioritization of farm roads for improvement as year of construction, number of beneficiaries, farm land in acreage, and production. The RAA noted that the list maintained did not include any information on these criteria against all prioritized farm roads. It appeared that the screening process was not exhaustive as intended.

**GNHC responded that grievances were submitted to the Government by the local leaders on the farm roads identified based on the criteria specified in the document. As a result, upon instruction from the Government the list was further reviewed in close consultation with Dzongkhag Administration and Gewog leaders. The final list of farm roads under Phase I were received from the LGs with endorsement and approval of the GT/DT.**

- iv. The Phase I of improvement works for 201 farm roads were to be completed within December 2020. There were no specific deadlines specified for Phase II and Phase III. For nationwide programmes such as these, RAA could not comprehend as to why definite timeline for overall project implementation were not determined to delineate responsibilities for delivery of service. As per the implementation progress as of 31st July 2021 as per GNHC/LDD-FR/2020-21/2247 dated 5th August 2021, only 88 farm roads were completed. The progress could not be achieved as intended in the project document. The RAA noted that deadlines for Phase II and III were not fixed even as of date.

**GNHC responded that a very ambitious timeline was provided to the LGs in order to push them to complete the works at the earliest to encourage productive engagement of the people. The GNHC also justified that there were farm roads of varying lengths, ranging from 0.47 km to as long as 39 km and that the project progress was also hampered by numerous nationwide lockdowns as well as difficulty in sourcing raw materials and machinery, limited bidders for the work in some gewogs and monsoon and post-monsoon challenges.**

- v. The document in reference titled "Improvement of Farm Roads" provided to RAA cannot be validated as official document as it does not identify the agency which had developed it, nor it bears any official references in terms of foreword entailing purpose, scope or application.

**GNHC responded that the Improvement of Farm Roads is one of the programmes identified under the Common Minimum Programme of the 12th Five Year Plan, and it is an approved document mentioned in the initial project document (IPD) which was used in seeking funding support from the development partner. The document is a formal agreement between the RGoB and the Development Partner.**

- vi. The implementation modality specified in the proposal indicated that resources allocations

would be made based on actual length of the prioritized farm roads instead of lump-sum allocations. With the flexibility to opt for black topping or rigid pavement, which are more than three times costlier than GSB works, it remains questionable whether improvement of the same length of road would be achieved within the given budget ceiling if LGs opted for higher specifications. Such options would compromise either the length or the quality of improvement works carried out. RAA noted cases where blacktopping and rigid pavement were opted during the implementation by some Gewogs as discussed in the **Illustrations 6 to 7**.

#### **Illustration 6**

Gewog Centre to Chuzomsa farm road measuring 2.5 km under Patshaling Gewog, Tsirang was identified for laying of GSB in Phase I, under the farm road improvement project of GNHC budgeted at Nu. 4.16 million.

The Gewog had executed blacktopping for the road and the road measured only 1.75 kms. The work was executed at a total cost of Nu. 3.97 million against the approved budget of 4.16 million. The work was awarded vide work order no. TD/DES-08/2020-2021/165 dated 12<sup>th</sup> October 2020 with the completion period of 5 months.

The length of road differed from the length specified in project document by 0.75 km and the cost of execution was less by 57% as compared to the costing for Bituminous in the document. If the length of the road was correctly recorded, budget allocation would be only 2.80 million for GSB instead of 4.16 million.

#### **Illustration 7**

Shengana to Gamina farm road measuring 4.5 km under Shengana Gewog, Punakha was identified for laying of GSB in Phase I, under the farm road improvement project of GNHC budgeted at Nu. 7.21 million.

The Gewog had executed the Plain Cement Concrete (PCC) of the road and it measured 2.88 km. The work was executed at a total cost of Nu. 3.95 million against the approved budget of Nu. 7.21 million. The work was awarded vide work order no. DAP/DES-4/2019-2020/4947 dated 09<sup>th</sup> January 2020 with the completion period of 4 months.

The length of road differed from the length specified in the project document by 1.62 km and the cost of execution was less by 76% as compared to the costing for rigid pavement in the document. If the length of the road was correctly recorded, budget allocation would be only 2.60 million for GSB instead of 7.21 million.

- vii. The costing for three types of improvement works were worked out in the document as shown in (b) above. As per the costing, the cost of GSB works was more than three times cheaper than the cost for blacktopping and rigid pavement. On review of some of the farm roads, the RAA noted that works of blacktopping and rigid pavement were implemented at much lower cost than GSB. The cases are as discussed in **Illustration 8 and 9**.

### Illustration 8

Manidara to Pemathang farm road measuring 5 km under Gosarling Gewog, Tsirang was identified for laying of GSB in Phase I, under the farm road improvement project of GNHC budgeted at Nu. 8.31 million.

The Gewog had executed the blacktopping for the road and the road measured 5.675 km. The work was executed at a total cost of Nu. 11.60 million against the approved budget of Nu. 8.31 million. The work was awarded vide work order no. TD/DES-08/2020-2021/529 dated 12<sup>th</sup> October 2020 with the completion period of 6 months.

The deficit amount of Nu. 3.29 million was financed from the Gewog Annual Grant. The blacktopping of the road cost only Nu. 2.044 million per km as against project estimated cost of Nu. 5.3 million per km.

### Illustration 9

Pangsho to Changchey farm road measuring 2.50 km under Gase Tshogongm, Wangdiphodrang was identified for laying of GSB in Phase I, under the farm road improvement project of GNHC budgeted at Nu. 4.16 million.

However, the Gewog had executed the blacktopping for the road and the road measured 2.05 km. The work was executed at a total cost of Nu. 4.47 million against the approved budget of Nu. 4.16 million. The work was awarded vide work order no. DAW/DES-13/2020-2021/4830 with the completion period of 6 months.

The blacktopping of the road cost only Nu. 2.18 million per km as against the project estimated cost of Nu. 5.3 million per km.

- viii. With reference to above cases, the RAA noted that the Gewog was able to contain the cost to Nu. 0.88 million per km for pavement works which was about 647% below the cost worked out in the document. It was even 50% below the cost worked out for GSB works. In view of this, the reliability of the costing made in the document is questionable. Since this would have served as reference cost for awarding the contract, it would have led to escalation of cost of works for all farm roads throughout the country.

### **GNHC responded that the technical drawings and designs, and costing (per unit costing) was prepared by MoWHS and budget was provided for GSB accordingly.**

- ix. The RAA noted that there were cases of reprioritization resulting in inclusion of farm roads which were not included in the initial lists as shown in **Table 3.10**.

Name of farm road	Fund allocation (Nu. in million)
Blacktopping of Tang and Chhoekhor roads	151
Blacktopping of farm roads under Nanglam Dungkhag (119.99 km)	504
Blacktopping of Burichhu-Doban-Trashithang Chiwog under Serithang Gewog (9.4 km) Tsirang	33

- x. The reprioritization resulted in inclusion of additional farm roads and increase in length for improvement works. The fact that these farm roads were assessed to be in good condition during the initial prioritization exercise reflect inadequacies undermining the credibility of the assessment process including the review and revalidations conducted by GNHC.

### **GNHC responded that they acknowledge the findings related to reprioritization and does not encourage reprioritization and deviations. However, these works were undertaken as per the Government directives.**

- xi. The recent initiatives to construct the higher specification farm roads would uplift the overall standards of the infrastructure if guided by overall strategic approach through a single standard of quality. As most Gewogs face constraints of resources, lowest cost specification becomes a natural choice. Such flexibility would not be desirable to maintain uniformity in the quality of farm roads throughout the country as such disparities in quality of roads across Gewogs are common sights.

### 3.12 Inconsistent implementation modality

- a) The modalities for the construction and maintenance of farm roads are provided in Guidelines for Farm Road development 2019. It specifies that the construction of farm road shall be undertaken either through contract, or departmentally with machinery support from CMU or any other hiring agency or through the combination of above two modalities. The construction shall be managed by the Dzongkhag and the Gewog Administration. The Guidelines entrusts the overall coordination of the construction of farm roads to Gewog Agriculture Extension Officer and Gewog Engineer.
- b) Accordingly, the proposals for construction and maintenance of farm roads are made to respective GTs and DTs before submission to GNHC and MoF. This process is followed by all Gewogs and Dzongkhags for all proposals of new construction, development and maintenance of farm roads.
- c) RAA noted that in deviation to the Guidelines, cases of construction of farm roads not routed through respective GTs and DTs and responsibility of constructions were entrusted to central agencies like DoR. Instances noted were as shown in the **Table 3.11**:

<b>Table 3.11: Summary of farm roads constructed by central agency</b>			
<b>Sl. No.</b>	<b>Particulars</b>	<b>Gewog and Dzongkhag</b>	<b>Remarks</b>
1	Blacktopping of Chhokhortoe Farm Road (Kurjey Gewog Office till Naspe Lhakhang Gate)	Chokhor, Bumthang	DoR (Direct)
2	Blacktopping of Dhur Farm Road (takeoff from middle of Chokhortoe road till Dhur Village top)	Chokhor, Bumthang	DoR (Direct)
3	Black topping of Tang-Tadingang Farm Road (Tang School till Tandingang Village Parking)	Tang, Bumthang	DoR (Direct)
4	Construction of Nakha/Tashigang farm road	Sangbaykha, Haa	DoR (Deposit work)
5	Construction of farm road from Dungkhag to Bebji village vial Mochu	Sangbaykha, Haa	DoR (Deposit work)
6	Blacktopping of Getana Lhakhang farm road	Lungyni, Paro	DoR (Direct)

**Source: Re-prioritization of activities, GNHC**

- d) Most of these constructions are reprioritized activities not included in the initial proposals plans of the Gewogs and also the prioritization lists under farm road development project initiated by GNHC in 2020.
- e) There is no clear basis considered for prioritization of these activities in addition to the respective plans of the LGs and also the prioritization done under farm road development project initiated by GNHC. There is also no basis for entrusting responsibility to DoR for construction of these farm roads in deviation to the Guidelines.

- f) The re-prioritization of activities also has impact on the budget allocations and distorts the budget apportioned based on the Resource Allocation Formula. In reference to the cases above, the project cost had substantially exceeded the budget limit of the Gewogs.

### 3.13 Inadequacies in maintenance and improvement of roads

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Maintenance and improvement of farm roads after completion of the construction is critical for smooth functionality and long life of the road. A planned maintenance and improvement/rehabilitation would facilitate Gewogs in allocation of resources as well as ensuring desired state of standards and conditions of farm roads and maintain its basic functionality. Nevertheless, RAA has noted the following deficiencies in carrying out maintenance and improvement of farm roads.

#### 3.13.1 Non development of plans for maintenance and improvement/ rehabilitation

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- a) Section 20(8) of Road Act of Bhutan 2013 specifies that the Local Governments shall, “*carry out major maintenance, repair and rehabilitation works in relation to farm roads and in doing so mobilize such equipment and machinery*” Further, Clauses 74, 75 and 76 of the Road Rules and Regulations 2016 requires the Local Government to maintain and improve roads administered and managed by them as defined as scope of such work.
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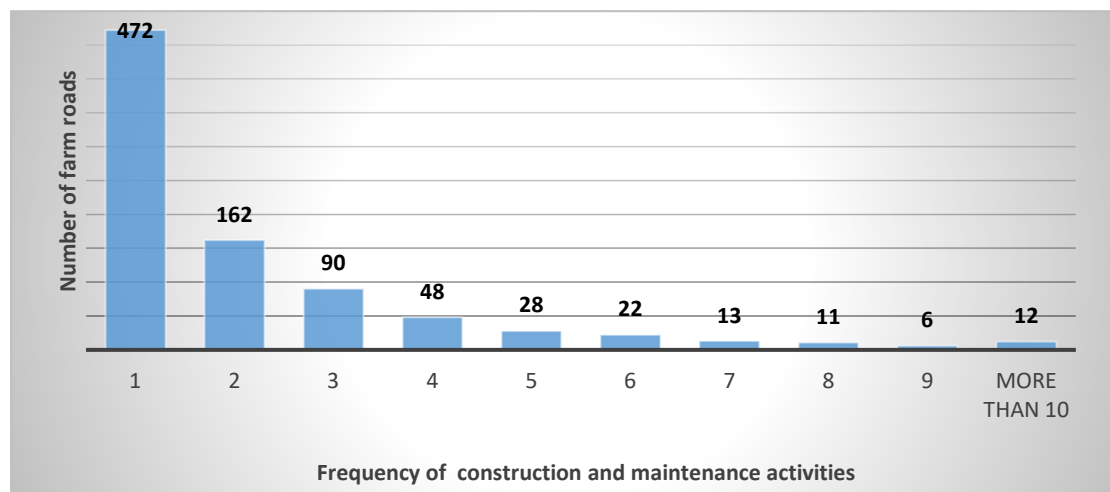
*There is no plans or schedule drawn for maintenance or rehabilitation /Improvement of roads based on inventory or age of roads. This is also due to absence of proper inventory of roads at the Gewog level.*
- b) The Guidelines for Farm Road Development classifies three types of maintenance: Routine Maintenance, Major Maintenance and Improvement/Rehabilitation. The budget for major maintenance and improvement/rehabilitation needs to be prioritized from the Annual Capital Grants. The routine maintenance is the responsibility of the beneficiaries through formation of RUGs.
- c) The budget head for construction, development and maintenance of farm roads is specified under programme “Agriculture Services”, sub-programme, “Construction and Maintenance of Farm Roads”. The activities under the sub-programme are specified by agencies by designating names of activities to be undertaken. The activities specified cannot be identified whether it was for new construction, improvement or maintenance.
- d) The activities designated as maintenance were mostly activities related to construction and provision of permanent structures like drains, culverts, walls, humepipes etc., which are related to construction of new or improvement works. The RAA could not segregate expenditure incurred for maintenance to analyze the trend of maintenance costs incurred over the period of years.
- e) As per the Guidelines for Farm Road Development 2019, the Gewog is responsible for all types of maintenance. RUGs are responsible for routine maintenance while major maintenance and improvement/rehabilitation is the responsibility of the Gewog



Administration. The improvement/rehabilitation is to be carried out typically after five years to maintain technical standards of the road.

- f) RAA intended to review the frequency of maintenance and improvement/rehabilitation carried out in respect of 846 farm roads which were five or more years older under nine Dzongkhags on the basis of budget and expenditure incurred from 2010-2011 to 2014-2015. It showed maintenance or improvement/rehabilitation activities were not done even once in respect of 472 farm roads. Others have varying frequencies of maintenance or improvement/rehabilitation as shown in **Figure 3.14**.

**Figure 3.14: Frequency of farm roads maintained**



As shown in the **Figure 3.14**, the maintenance or improvement/rehabilitation works in respect of farm roads have not been uniform across all Gewogs.

- g) The RAA noted that there is no plans or schedule drawn for maintenance or rehabilitation/improvement of roads based on inventory or age of roads. This is also due to absence of proper inventory of roads at the Gewog level.
- h) While the major maintenance would depend on occurrence of damages and urgency, the work of improvement and rehabilitation is to be scheduled every after five years to maintain the technical standards of the roads. This would entail age profile of all roads under Gewogs, records of inspections as to the conditions and the need for improvement/rehabilitation. No such records were available in the Gewogs in respect of above farm roads.
- i) As per the Road Act of Bhutan 2013, DoR is responsible for monitoring the management of overall road network in the country including the farm roads. There is no record of assessments of conditions of roads conducted by DoR to ensure that roads are maintained as per the standards prescribed at all times.
- j) Planned maintenance and improvement/rehabilitation would facilitate Gewogs in allocation of resources as well as ensuring desired state of standards and conditions of farm roads and maintain its basic functionality. The present practice of managing farm roads based on irregular improvements and maintenance would entail huge cost, if necessary, interventions are not initiated on time as needed.

### 3.14 Inadequacies related to Road User Groups (RUGs)

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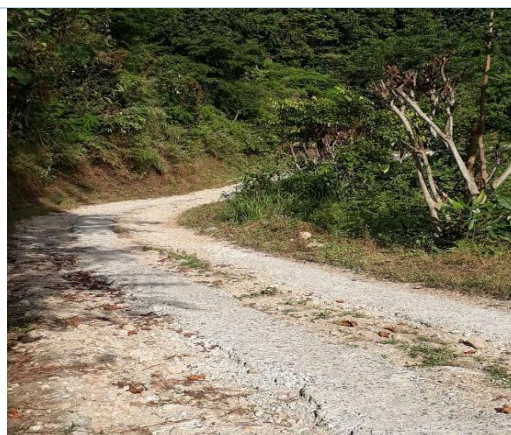
- a) Section 144 of the Road Act 2013 states, *“Road users or beneficiaries of a farm road must contribute to and maintain or repair roads periodically or in an emergency as may be required by the concerned Local Government. The duty of beneficiaries to maintain and repair such roads extends to routine and periodic maintenance which includes removing obstructions, keeping clear drains etc, and which may be determined by the government from time to time by an order in writing”*.
- b) Additionally, Section 9 (1) of Guidelines for Farm Road Development 2019 states, *“Upon completion of the construction, GA shall take over the Farm Road and hand it over to the RUG, via a MoU signed between GA and RUG. It shall then be the full responsibility of the RUG to operate and maintain the Farm Road as per the terms and conditions of the MoU”*.
- c) The RAA reviewed the institution of RUG and noted the following inadequacies as discussed below:
  - i. The main objective of forming the RUG is to entrust responsibility to maintain farm roads after it is handed over by the Dzongkhag after completion of the construction. The duties of road users and beneficiaries are specified in the Road Act of Bhutan 2013. The MoU format prescribed in the Guidelines for Farm Road Development 2019 prescribes roles and functions of RUGs through designation of Chairman, Secretary, Treasurer and Road Care Taker.
  - ii. Based on information obtained from 13 Dzongkhags visited by RAA, the formation of RUG was not consistent both within and among Dzongkhags. The RAA noted that for some farm roads, the RUGs were formally formed through execution of MoUs as per prescribed in the Guidelines. However, there were also cases of farm roads for which RUGs were not formed at all.
  - iii. Even for the farm roads for which RUGs are formed, the RAA noted that most are not operational. However, the RAA learned that the beneficiaries come together for minor and routine maintenance like clearing of bushes, filling pot holes and other minor works on a regular basis.
  - iv. Guidelines prescribes maintaining a separate maintenance funds through contributions, toll fees, or any other feasible means. The MoU also prescribes financing mechanism through contributions to be maintained in the Joint Savings Accounts as minor maintenance budgets. RAA noted that except for contributions made from the beneficiaries, RUGs have not been able to enforce toll fees and explore other sources of funds to sustain.
  - v. RAA also noted that some road user such as NRDCL, Mining & Quarry, Logging, despite being primary beneficiaries are not brought on board with other road user for maintenance/ rehabilitation of the farm roads.

- vi. The RAA also observed that in some places, RUG had maintained the farm roads properly. **Figure 3.15** describes the best practices of farm roads maintained by RUG.

**Figure 3.15: Roads maintained by RUGs**



**Damji farm road, Bongo, Chhukha. RUG conducted routine maintenance and the farm road was pliable all seasons.**



**GC to Chuzomsa farm road, Patsaling, Tsirang, has been maintained well by the RUG.**

- vii. In some cases, despite RUGs the conditions of roads have not been maintained as apparent in **Figure 3.16**. This could be due to lack of planning for routine maintenance by the RUGs as intended by the Guidelines.

**Figure 3.16: Roads not maintained by RUGs**



**Bjabcho GC to Bjabchok Goenpa, Bjabcho, Chhukha, despite the formation of RUG, the farm road was covered by bushes.**



**Pangserpo Lhakhang to Pangserpo Pry. School, Drujeygang, Dagana**

- viii. The institution of RUGs is envisaged to involve beneficiaries in sustaining the farm roads through regular maintenance of minor nature and provide sense of ownership and responsibility towards common infrastructure. The effectiveness of RUGs will only be ensured if adequate support and guidance are provided on a regular basis by the Gewog Administrations. It shall also depend to what extent members tasked with operations of the groups are capacitated to take responsibilities as specified in the MoUs and also depend on the time and effort these individuals can dedicate. The responsibilities specified in the MoUs are of nature that demands day to day engagement which may be challenging for individuals whose full-time job is farming.

- ix. The coordination between RUGs and Gewog Administrations is limited to signing of MoUs and providing trainings to members of RUGs. The regular operation of RUGs is entrusted to designated responsibility bearers identified amongst the beneficiaries, who may or may not have the capacity to conduct affairs of the group in terms of planning, organizing, and managing funds.
- x. Thus, in view of the inconsistent and varying degree of institutionalization of RUGs across the country could be due to capacity constraints and also impracticability of RUGs.

### 3.15 Inadequacies in information management system

As per Road Classification & Network Information of Bhutan 2020, the total length of farm roads in the country is 11,257.16 km which is 61.63% of the total road length in the country. With the increasing demand for farm roads, maintenance and upkeep of the existing road infrastructures to a desired level of standards and serviceability has always been a challenging task, particularly in terms of appropriate technology and resources. These challenges underscore the need for a comprehensive inventory system for evidence-based decision making in overall development and management of farm roads in the country.

Section 179 of the Road Act 2013 states that, “*The concerned Local Government must maintain a register of roads for roads administered and managed by it*”. Section 178 of the Road Act 2013 states that, “*the Department must ensure that the register of public roads specifies and include details in accordance with the rules and regulations*”. Further, Clause 51 of the Road Rules and Regulation 2016 requires the agencies to maintain the inventory of roads by classification, year of construction, cost, maintenance history and length.

RAA intended to review the completeness and robustness in maintaining farm road information system and noted following inadequacies as discussed below:

#### 3.15.1 Inaccurate information on farm roads in the country

- a) Section 177, 178 & 179 of the Road Act of Bhutan 2013 designate DoR and concerned Local Government to maintain a register of roads administered and managed as per details specified in the Road Rules and Regulations (RRR). Clause 51 of the Road Rules and Regulations 2016 specifies form containing details of information to be maintained as shown in **Table 3.12**:

Name of the Road	Class of Road	Year of construction & cost	Date of last maintenance and cost	Length	Reference of declaration	Reference to amendment or revocation if any
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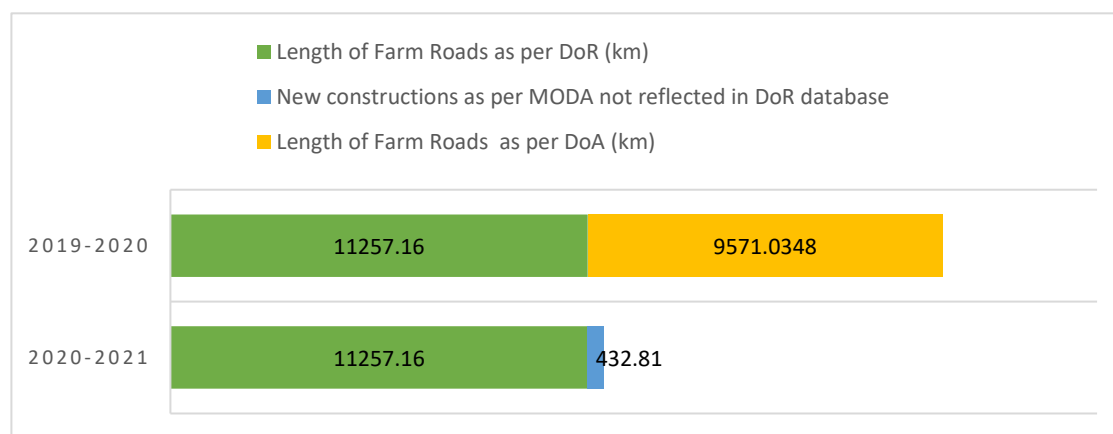
Source: Road Rules & Regulation 2016 and Revised Farm Road Development Guidelines 2019

- b) Further, the Farm Road Development Guidelines 2019 also specifies additional details of information about the road to be maintained in addition to those prescribed in the RRR 2016. These include information on estimates or contract cost, source of funding, number of households amongst others.
- c) The Road Classification and Network Information of Bhutan (RCNI) is the national level information on road networks published by MoWHS. This document was first published

in 2017 and updated in 2020. The Ministry intends to update after every five years hence.

- d) On review of the information in RCNI, the RAA noted that the information reflected in RCNI are limited to name of the farm roads, length, status of blacktop and Dzongkhag. The variation in the information requirement at various levels of Gewogs, Dzongkhags, DoA and DoR lead to incomplete information which may impede informed decision makings. The RAA also compared the information on farm roads maintained by DoA and DoR and found that there are inaccuracies and mismatch of information between the two. The differences in information noted were as shown in **Figure 3.17:**

**Figure 3.17: Length of farm roads maintained by DoR vis-a vis DoA**



- e) As shown from the graph, there is a significant difference in the length of farm roads between the records maintained by DoR and DoA for 2019-2020. Further, as per the record of DoR the length of farm roads has remained same in 2020 despite additional length executed during the year. Apparently, the information was not updated in the records of DoR.
- f) The RAA also observed that there is no common approach in determining the number of farm roads. In some cases, specific stretches are identified as a separate road and some identify whole stretch as a single road. This is apparently due to non-enforcement of standard naming of farm roads which is discussed in **Para 3.13.2 (Inconsistencies in naming farm roads)**. Further, it was noted that length recorded for fragmented segments identified as separate roads do not add up to the actual length of the whole stretch. Thus, the integrity of the information as to the number as well as its length is undermined. Such cases are as provided in **Table 3.13** and detailed in **Appendix -VI**.

**Table 3.13: Farm roads constructed in fragmented segments**

Sl. No	Name of Farm Road	Length (km)	Gewog and Dzongkhag	Starting Point	End Point
1	Pachutar to Serina	4	Phuentsholing, Chukha	Pachutar	Khuree
2	Serina to Majuwa	5			
3	Majuwadara to Tashidingkha	4			
4	Tashidingkha -Lingden	5			
5	Lingden –Malbasey	3.6			
6	Malbasey –Khuree	1.5			
1	Chachey to Phunsumgang	3.2		Chachey	Manidara

2	Pemathang-Phunsumgang Farm Road	1.8	Goserling, Tsirang		
3	Manidara to Pemathang	5.63			
1	Numkhorma to Nim Tshering Dara	1.9	Barshong, Tsirang	Numkhorma (Gewog Center)	Kharka Bdr Powdel
2	Gangtokha Farm Road (Birkha Bdr. Till Soma Dolma or Thandara	8.9			
3	Gomdhendara Farm Road	2.8			
4	Mani Dangra to Kharka Bdr Powdel	5.73			
1	Drugyel to Charezampa	4	Paro, Tsento	Drugyel	Shana
2	Charezampa to Zangkha	5			
3	Zangkhapang to Shana	5			

- g) As per Section 18 (10) of the Road Act of Bhutan 2013, the MoWHS is mandated to provide periodic reports on the status and connectivity of road networks in the country to the Government. Further, Section 19 (7) empowers the DoR to plan, construct, maintain and improve roads as part of the road network. Thus, in exercising these functions it is imperative that a robust information of road network of the country is maintained with the MoWHS.

**DoR responded that they will provide the LG with the format currently used by the Department to record road inventory but the responsibility to use/update would depend on the respective LGs. The DoR has stated that unless the LGs are forthcoming in the development of the farm road inventory, DoR cannot be held accountable because the farm road network being huge and scattered all over the country, would require additional man power to be employed under DoR for this task.**

### 3.15.2 Inadequacies in classification of farm roads

- a) The Road Act of Bhutan 2013, classifies the road network in the country into five following types of roads: National Highways, Dzongkhag Roads, Thromde Roads, Farm Roads and Access Roads. Section 77 of the Road Act of Bhutan 2013, mandates the DoR to develop and determine standards, specifications and quality of all types of roads in the country.
- b) The RCNI 2020 was published to inform stakeholders as well as the general public and provide guidance on the functional classification and access management of roads and to establish a uniform and integrated classification system for the country. It also provides the definition and technical standards of all types of roads in the country.
- c) The guideline on design, construction and maintenance of road infrastructure 2019 and the RCNI 2020 defines Farm Roads as those roads that link farmland areas/villages to an existing road of equal or higher classification to enable the transportation of inputs to the farm and agriculture produce to the market.

The following roads are listed under the classification of Access Roads:

- a. Forest Road
- b. Health Road
- c. Education Road
- d. Telecommunications Road

- e. Power Road
- f. Private Road
- g. Project Road
- h. Public Institution

d) However, the RAA noted that roads classified under different categories such as health, education, telecommunication, public institutions and Gewog Centre Road were constructed through farm roads' budget. Some examples of such activities are shown in the **Table 3.14:**

Sl. No	Activities Type	Total Exp- 2010 to 2021(Nu. in million)
1	Bridges	9.47
2	Land Development	2.45
3	Footpath	2.23
4	Gewog Center Roads	1,962.96
5	Mule Tracks	37.33
6	Power tiller Track	52.95
8	Other activities	40.40
	Grand Total	2,107.78

e) RAA also noted new developments in indentifying and classifying the roads as “Chiwog roads”, which is not a formal classification.

f) Classification of other types of road under the class of farm roads not only undermines the intent of the policy to classify roads for proper management and development but also undermines the budget provided for farm roads development. It also distorts the statistics on the farm roads, thereby hindering appropriate decision making.

### 3.15.3 Inconsistencies in naming farm roads

a) Section 14 of the Road Act of Bhutan 2013 provides that, “*The Department of Roads or a Local Government in whose area of jurisdiction the road is located, shall, by a notification, declare a road, under this Act over or on any land or water and name such road or change the name of the road*”

*There are varying practices of naming farm roads. It is common that road names reflect either particular names of place(s) or combination of places of origin and destination. In some cases, it is fragmented by stretch of roads identified by names of places in between and considered as different farm roads.*

b) In the current scenario, there are varying practices of naming farm roads. It is common that road names reflect either particular names of place(s) or combination of places of origin and destination. In some cases, it is fragmented by stretch of roads identified by names of places in between and considered as different farm roads.

c) The designation of names for farm roads is basically to render identification of particular roads which are fundamental to facilitate efficient management and provide basis for decision making at various levels. The inconsistencies in names of farm roads are prevalent throughout the country.

d) Except for requiring the LGs and DoR to designate names for the farm roads, the Act or Rules and Regulations or Guidelines does not provide any standard for naming the infrastructure. The inconsistencies basically arise from the lack of guidance.

### 3.15.4 Inadequate database of farm roads at all levels

- Section 179 of the Road Act of Bhutan 2013 specifically requires the concerned Local Government to maintain a register of roads for roads administered and managed by it. The format for maintaining information is prescribed by RRR 2016.
- In view of the inconsistencies in the information noted on comparison between the DoR and DoA, the RAA reviewed the information maintained at Gewog and Dzongkhag level and attempted to review the process of information coordination amongst multiple agencies. The RAA noted that inconsistencies and inaccuracies in information occur due to lack of proper documentation and due to existence of uncoordinated approach of consolidation at Dzongkhag and Department levels.
- There was no complete records of farm roads maintained at Gewogs. The RAA observed that the records are either recorded in excel sheet or in a register book in some Gewogs and some do not maintain either of these. Even for the information maintained in excel, the completeness and accuracy is questionable as these seemed to have been prepared merely to plan for maintenance, a sample of which is as shown in **Figure 3.18**:

**Figure 3.18: Sample of farm road information maintained by Gewog vis-à-vis DoR, MoWHS**

Details of Farm Road Maintenance Haa Dzongkhag							
Sl No.	Gewog	Name of Farm road	Length (KM)	Year of completion	Beneciary (No. HHs)	Area of farm land in acres	Production (2018-19)
1		Longjuna FR	5.5	2017-2018	4	16	1.1
2		Bazampa-Shaba FR	7.6	2016-2017	14	70	5.4
3	Sombaykha	Dungkhag to Bebji via Kowkha-Mochu FR	20	2016-2017	82	233	13.76
4		Sombayama to Nakha/Tashigang FR	15.84	2016-2017	30	180	12.38
5		Nebji Gonpa FR	1.5	2017-2018	5	15	1.03
6		Relina to Shebji FR	14.5	2016-2017	16	80	6.07
7		Bebji to Baychu	8	2018-2019	30	95	5.16
			7	72.94	181	689	44.9

Source: Farm Road Inventory Maintained by Gewog Extension Officer and DoA

*Road Classification and Network Information of Bhutan*

Farm Road Details					
Sl No	Name of Farm Road	Length (Km)			Dzongkhag
		Total	BT	NBT	
439	Pajab to Shebji farm road	21.00	0.00	21.00	Haa
440	Relina to Shebji FR	14.50	14.50	0.00	Haa
441	Sangbay Ama to Longjuna	5.50	0.00	5.50	Haa
442	Sangbay Ama to Nakha Tashigang via Nakhekha	15.84	0.00	15.84	Haa
443	Sangkiri farm road	5.00	0.00	5.00	Haa
444	Tshakhana to Tselungkha	2.00	0.00	2.00	Haa
445	Kidyloong - Senchibee farm road	4.00	0.00	4.00	Lhuentse
446	Lingabi bridge - Ney Zhisar farm road	19.00	0.00	19.00	Lhuentse
447	Nongma Chorten - Jaagchubling farm road	12.26	0.00	12.26	Lhuentse
448	Lhuentse-Jang	8.00	0.00	8.00	Lhuentse
449	Domarchen - Gewog Centre farm road	28.00	0.00	28.00	Lhuentse
450	Gewog Centre - Yumehy farm road	8.50	0.00	8.50	Lhuentse
451	Jarey-Kirana	6.50	0.00	6.50	Lhuentse
452	Ladrang - Paam farm road	5.50	0.00	5.50	Lhuentse
453	Khoma - Gucupakap farm road	17.00	0.00	17.00	Lhuentse
454	Rondung - Baptong/Kemtshong farm road	4.20	0.00	4.20	Lhuentse

Source: Farm Road Inventory maintained and published by DoR, MoWHS (RCNI 2020).

- Further, the format in which this information is maintained at Gewogs are different and based on personal initiatives of officials. This is in deviation to the formats prescribed by the RRR 2016.



- e) The inconsistencies in information maintained by central departments are basically caused by absence of updated records in the Gewogs. It appeared that whenever the central agencies like DoR, DoA and GNHC require information from the Gewogs, information are compiled only when requests are made as there are no updated records in the Gewogs. The updates do not undergo control process to ensure correctness and hence, result in inconsistencies in the information even from the same Gewog.
- f) As per Clause 52 of the RRR 2016, the Local Governments are required to furnish to the DoR information pertaining to roads under its jurisdiction in the formats prescribed. However, there is no formalized systems of submitting such information as it is only shared when requested. The report on RCNI 2020 acknowledged GNHC and DoA for providing information on farm road. It is apparent that there was no formal communication with Gewogs in the manner desired by RRR 2016 in obtaining information on farm roads.
- g) For instance, data generated from the DPA shows the name of the activities performed at the specific locations and it do not specify the name of the farm roads as shown in **Table 3.15:**

<b>Table 3.15: Discrepancies in naming the farm roads</b>	
<b>Name of Farm Road as per Sub Activity in MoF</b>	<b>Name of farm road as per the Gewog Administration</b>
Woongchilo-Rashu Gonpa Brangsachillo Farm Road 2.55Km	GC Take-up to Woongchilo to Wooliktang via Ngangshing
Rehabilitation of Farm Roads from Changchung-Wongchillo	
Monsoon Restoration and Maintenance of Farm Road S Ngangshing - Wooglightang	
Rehabilitation of Farm Roads from Changchung-Wongchillo	
Monsoon Restoration of Farm Road from Ngangshing-Woongchiloo	
Construction of Farm Road Ngangshing-Woolicktang	
Maintenance of Farm Road from Ngangshing – Woongchilo	
Construction of Farm Road from Zobelwoong to Terphu	
Clearing of Landslides Debris and Restoration of Ngangshing to Woongchilu and Nanong to Tshatshi Farm Road (Monsoon Affected)	
Construction of Chongzhikha, Nobtashi and Nepakha Farm Road.	Chongzhikha Farm Road
Construction of Permanent Structure for Shengana School to Chongzhikha Farm Road(3.5Km)	Zawdasa Farm Road
Construction of Culvert for Farm Roads at Zawdasa and Secheykha	
Maintenance of Farm Road from Jarigang to Zowdasa(3Kms)	

- h) The inconsistencies in the names produced by different agencies as shown in the table above may impede efficient allocation of budgets. Similarly, the usefulness of information would be limited for other uses.
- i) The indiscriminate use of inconsistent names by different agencies apparently occurs due to lack of standards prescribed in naming the roads and also due to absence of agencies taking responsibility for overall inventory. There is no effort for harmonizing the identification of farm roads and building a central inventory of farm roads to guide the overall planning, development and maintenance of the infrastructure.

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## **CHAPTER 4: AUDIT RECOMMENDATIONS**

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On the basis of audit findings, the RAA has developed following recommendations in order to facilitate authorities and agencies to put in appropriate measures and remedies for improvement in the overall development and management of farm roads in the country.

The recommendations were discussed and comments on appropriateness and relevance of the recommendations were solicited from the DoR and other relevant agencies. The disagreement was basically on interpretation of DoR being a lead agency for all roads including farm roads in the country. The RAA's stand on considering DoR as being a lead agency was based on Section 11 of the Road Act of Bhutan 2013 which stipulates that, "The Department of Roads, under the Ministry responsible for roads will be the national authority for all roads in the country". Thus, DoR has been indicated as responsible agency for addressing the recommendations to ensure oversight of overall development and management of farm roads in the country.

### **4.1 DoR needs to develop a Strategic Plan/ Master Plan to guide development of farm roads in the country**

The length of farm roads constitutes 11,257.16 km representing 61.63% of the overall road network in the country. The RAA noted that there is no integrated plan prepared for the development of farm roads in the country. The Road Sector Master Plan 2007-2027 prepared by MoWHS does not include farm roads development.

A long-term plan or master plan would guide the development of farm road and provide an integrated and cohesive approach in developing farm roads aligned to strategic objectives and development needs of the country. This would also help in prioritization and selection of farm roads to be constructed for the purpose of annual planning in the Gewogs.

Thus, in fulfilling the responsibilities entrusted by the Road Act of Bhutan 2013, the DoR as a national authority for all roads should develop a Road Map or Strategic Plan to guide the planning and development of the farm road infrastructure in the country.

### **4.2 MoWHS needs to consolidate institutional structures for implementing the farm road development activities**

Currently, there is a diffusion of lead responsibility in terms of overseeing the development of farm roads between the MoAF and DoR, MoWHS. While the Road Act of Bhutan 2013 specifically designates DoR as the national authority for all types of roads, MoAF had assumed the responsibility of planning, and implementation of farm road activities under agriculture sector programme. Numerous guidelines and manuals for planning and development of farm roads were issued by both the Ministries. As a result, there were numerous challenges of ensuring compliance to these authorities undermining efficiency and effectiveness of the overall process and also ensuring the quality of the infrastructure.

Thus, in order to clearly delineate responsibilities and also to establish accountability as per the Road Act of Bhutan 2013, the Government needs to review the existing structures and consolidate to ensure operational efficiency and also support development of roads to a desired level of quality. There is also a need to harmonize various guidelines and manuals related to farm roads development to facilitate consistent applications and enforcement throughout.

### **4.3 MoAF, MoF, MoWHS and GNHC should collaborate and work towards facilitating coordination of agencies in delivering mandates of farm roads**

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Road Act of Bhutan 2013 mandates DoR as the national authority for all roads in the country and designates LGs (Thromdes, Dzongkhags and Gewogs) as road authorities responsible for administration and management of all roads, constructed or maintained by it, including any access roads.

MoAF as the erstwhile responsible agency for the construction, maintenance and management of farm roads had maintained inventories, developed farm road atlas and issued several guidelines, and manuals related to development of farm roads. Though, MoAF had disengaged itself from farm road related works such as maintaining inventories, updating atlas and improving guidelines and manuals, but the agriculture sector in the LGs continue to involve in the functions of planning and budgeting of farm roads. The relevant agency must be tasked to take the responsibilities of a lead agency for development and management of farm roads and also taking custody of various guidelines and manuals governing the development and management of farm roads.

Therefore, in order to facilitate the identified agency to play a lead role, proper transfer of responsibilities must be facilitated through a proper coordination mechanism with the relevant agencies.

### **4.4 MoF should enforce requirement for completed drawings, designs and estimates before budget approval**

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In view of the huge variation in the initial budget approved and final expenditure, the process of proposal, approval and revision needs to be reviewed to ensure realistic budgeting. Despite requirement to submit drawing, designs and estimate along with the budget proposal, the current practice has been that detailed surveys, drawings, designs and estimates are prepared only after the approval of the project. Hence, the figures submitted during budget proposals were mere guesstimates. The actual budget requirement for activities proposed are known only after the budget approval which require agencies to propose for revision during the year. Further, adhoc activities are also incorporated during the year which increases the budget requirement.

Therefore, in order to ensure that LGs propose realistic budgets based on surveys, drawings, designs and estimates and also ensure proper planning and prioritization of activities, the MoF should strictly enforce the requirement to submit budget proposals along with those documents.

### **4.5 DoR should institute mechanism to ensure that pre-investment feasibility studies are undertaken with proper oversight role**

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The Guidelines for Farm Road Development 2019 requires pre-investment feasibility studies such as geotechnical study, social study, and survey and design in the construction of efficient and safe road network for socio-economic development.

It was noted during audit that the geological studies are not conducted for the farm road constructions. With regard to social studies, the RAA noted that the only activity conducted as a part of social studies is public consultation which is basically to obtain consensus of the public for road construction through their lands. Further, there are varying practices of conducting

surveys across Dzongkhags and in most cases the surveys conducted are inadequate as far as fulfilling the requirement prescribed in Survey Design and Manual 2004. There were substantial non-fulfillment of this requirement and also lack of monitoring on its compliances.

These inadequacies in survey may pose risk of instability either rendering the infrastructure non-functional due to technical issues like steep gradient or perennial problems of erosion, and blockage resulting in huge cost on building preventive structures and maintenance at a later stage. Besides, projects need to be screened through social parameters to direct the investment based on needs of the community as well as aligning to the national development goals.

Therefore, DoR in collaboration with relevant agencies should institute appropriate mechanism to enforce the requirement of conducting pre-investment feasibility studies in implementing farm road activities.

#### **4.6 DoR should enhance oversight role in ensuring quality management system in development of farm roads**

Specifically, for the construction of farm roads, the technical specifications and standards are prescribed in the Guidelines on Design, Construction and Maintenance incorporating Climate-resilient features 2019 published by the DoR, MoWHS. The Guidelines provides a basis for quality management of farm road constructions and the DoR as the national road authority has the responsibility to provide technical specification and also ensure quality of roads in the country.

RAA noted that of 229 farm roads reviewed, 121 farm roads representing 52.8 % did not comply with standards in at least one area, mostly deviating from the standard design in terms of providing drainage and the standard formation width of 5.1 m. With regard to the provision of critical protective structures such as permanent structures, pavement, sub base and drainage, it was noted that in most of the farm roads, desired level of protective structures was not achieved.

For proper disposal of excavated materials, the terms and conditions in the environmental clearances obtained specify a need to identify a proper dumping place to dump the excess excavated materials and rampant dumping of excavated rocks and soil is not allowed. However, during the site visits, the RAA noted instances of non-compliances to this requirement.

The RAA recommends the DoR to enhance its oversight role to enforce proper quality control and assurance mechanisms in the development of farm roads.

#### **4.7 DoR Should ensure that LGs strengthen the operational effectiveness of RUGs**

The institution of Road User Groups (RUGs) is envisaged to involve beneficiaries in sustaining the farm roads through regular maintenance of minor nature and provide sense of ownership and responsibility towards common infrastructure. The effectiveness of RUGs will only be ensured if adequate support and guidance are provided on a regular basis by the Gewog Administrations. It shall also depend to what extent members tasked with operations of the groups are capacitated to take responsibilities as specified in the MoUs and also depend on the time and effort these individuals can dedicate. The responsibilities specified in the MoUs are of nature that demands day to day engagement which may be challenging for individuals whose full-time job is farming. The formation and functioning of the RUGs were found to be

inconsistent and ineffective across the country, which could be due to capacity constraints and also impracticability of the guidelines in setting up of functions independent of Gewogs.

Therefore, the DoR should take the lead in reviewing the existing procedure on formation and operation of RUGs in consultation with the LGs and develop workable mechanisms with adequate facilitation and support from Gewog Administration to enhance the effectiveness of the RUGs in carrying out regular maintenance of farm roads.

#### **4.8 DoR should ensure that the LGs consider implementing a road inventory management system for farm roads under their purview**

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The incomplete and inaccurate inventory of farm roads in the country as required by the Road Act of Bhutan 2013, as well as lack of ownership and responsibility for its maintenance is seen to pose challenge to proper planning for development and maintenance of farm road infrastructure. Such inconsistencies exist at all levels including LGs, MoAF, DoR, GNHC, MoF etc. There is no single source of accurate information on farm roads in the country for various decision-making needs.

This challenge is fueled by lack of standardized system either IT system or Manual capturing all information needed and lack of monitoring by relevant authorities. A robust inventory of farm roads would inform the planning for development, operations and maintenance, and also can be a useful information for other socio-economic development activities.

Thus, there is a need for DoR to enforce the provision of the Act to maintain overall inventory of farm roads through robust monitoring systems instituted at all levels based on the responsibilities delineated by the Act and assume ownership of quality and comprehensiveness of the overall farm roads information.

#### **4.9 DoR needs to support the LGs in developing information-based plan to embrace routine, preventative and emergency repairs**

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The Guidelines for Farm Road Development 2019 classifies three types of maintenance: Routine Maintenance, Major Maintenance and Improvement/Rehabilitation. The budget for major maintenance and improvement/rehabilitation need to be prioritized from the Annual Capital Grants. The routine maintenance is the responsibility of the beneficiaries through formation of RUGs.

On review of the expenditure, RAA noted that the activities designated as maintenance were mostly activities related to construction and provision of permanent structures. The RAA could not segregate expenditure incurred for maintenance to analyze the trend of maintenance costs incurred over the period of years. Further, there is no plans or schedule drawn for maintenance or rehabilitation/improvement of roads based on inventory or age of roads.

As per the Act, DoR is responsible for monitoring the management of overall road network in the country including the farm roads. DoR lacked a proper farm roads information system to support strategic planning for maintenance, rehabilitation and improvement of existing farm roads and also for informing planning of new ones.

Therefore, the DoR should support the LGs in developing plans for maintenance, rehabilitation and improvement of farm roads in a more orderly manner.

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## **CHAPTER 5: AUDIT CONCLUSION**

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The RAA conducted this audit to assess the systems, structures and process of farm road development and management in the country and to recommend measures to improve based on issues identified.

Road Act of Bhutan 2013 provides basic frameworks and delineates responsibilities to relevant central agencies and LGs for planning, implementation, operation and maintenance of farm roads in the country.

The RAA noted issues in enforcement of the Road Act of Bhutan 2013 in terms of diffusion of responsibility, strategic alignments, implementation modalities and structures, planning and budgeting, and collaborations resulting in uncoordinated approach to farm road development. There were issues of compromising quality, incoherent planning and implementation, inadequacies in monitoring and control, inadequate information management system etc. that have potential to undermine investment prudence, and achievement of overall goals and objectives of farm road infrastructure development.

The RAA has developed nine recommendations based on the issues noted during the review to facilitate authorities and agencies to put in appropriate measures and remedies for improvement in the overall development and management of farm roads in the country. It is expected that the relevant authorities and agencies would act on this report and recommendations and formulate necessary strategies for improvement.

# Appendices

Appendix-I	List of farm roads with ring roads and connecting individual households and Lhakhangs
Appendix-II	List of abandoned or not pliable farm roads
Appendix-III	List of farm roads without the provision for bridges
Appendix-IV	Comparison of cost estimates with approved budgets
Appendix-V	Cases of planned activities dropped
Appendix-VI	Prescribed format for social screening

## List of farm roads with ring roads and connecting individual households and Lhakhangs

Sl. No.	Name of the farm road	Gewog & Dzongkhag	Length (Km)	Remarks
1	Chamgang Toed	Dagala, Thimphu	2	Connects to individual households
2	Chamgang Moed	Dagala, Thimphu	.5	Connects to individual households
3	Dengkha to Shaba MS	Shaba, Paro	2.5	Ring road
4	Drakten Lhakhang	Dogar, Paro		Connects to Lhakhang
5	Ugyen Guru - Apsha	Luni, Paro	1	Connects to individual households
6	Ugyen Guru - Tshoshetangkha	Luni, Paro	1	Connects to individual households
7	Rangatsa - Wochay	Luni, Paro	1.5	Connects to individual households
8	Chamthangkha Farm Road	Naja, Paro	0.3	Connects to individual households
9	Jashina Farm Road	Naja, Paro	0.3	Connects to individual households
10	Nekorma at Barshongtoed	Barshong, Tsirang	1	Connects to individual households
11	Barshongtoed	Barshong, Tsirang	7	Ring road
12	Barshongmoed	Barshong, Tsirang	2.2	Ring road
13	Kamigolai-Mongalaydara	Patsaling, Tsirang	7	Ring road
14	Tashipang-Upper Samshing Gaden FR	Mendrelgang, Tsirang	4	Ring road
15	Tsebar Nangray-Khawar	Khar, Pemagatshel	2.5	Ring road
16	Nangkhor -Darchung	Shumar,Pemagatsel	2.5	Connects to School
17	Choetaygang to Lathokha/Norbugang	Samar, Haa	1	Connects to individual households
18	Pangtey-Nangye	Chumey, Bumthang	0.5	Ring road
19	Matalongchu	Thoedtsho, Wangdue Phodrang	4	Connects to individual households
20	Wachey- Gangzhikha	Bjena, Wangdue Phodrang	4.1	Ring road
21	Domkha Junction- Tashigang FR	Phungyul, Wangdue Phodrang	1.2	Ring road
22	Chungsaykha_Domkha	Phungyul, Wangdue phodrang	3.5	Connects to individual households
23	Chuchuna to Gewog Centre	Kazhi, Wangdue Phodrang	3.5	Ring road
24	Gangphel-Dangrabu	Phobjikha, Wangdue Phodrang	0.9	Ring road
25	Geog Center - Nyzergang FR	Rubesa, wangdue Phodrang	2	Ring road
26	Nyena Chorten to Dogselgang FR	Gangtey,Wangdue Phodrang	.32	Ring road
27	Thangoo Lhakhang to Phatsa FR	Theodtsho, Wangdue phodrang	3.5	Connects to individual households
28	Gemja farm road	Nahi, Wangdue phodrang	.48	Connects to individual households
29	Shengana LSS to Gamina	Shengana, Punakha	8.5	Connects three Chiwogs
30	Kinzangling Ring road	Yoeltse, Samtse	1.5	Ring road
31	Dungkharling Ring Round	Yoeltse, Samtse	2	Ring road



## List of farm roads with ring roads and connecting individual households and Lhakhangs

32	Soenakhar ring road	Yoeltse, Samtse	0.8	Ring road
33	Kilikhar to Lapsa	Drepung, Mongar		Ring road
34	Wamling farm road	Drepung, Mongar	3	Ring road
35	Tsangkhar to Gyalposhing	Drepung, Mongar	11	Ring road
36	Dungsingma Pam farm road	Chaskar, Mongar	4.7	Ring road
37	Gewog Center - Thumling via Ngyertsi	Tsakaling, Mongar	4.5	Ring road
38	Damjee to Kotokha	Bongo, Chhukha	4	Ring road
39	Bjabcho Eukha - Bjabcho Gompa	Bjabcho, Chhukha	2.5	Connects to Goenpa
40	Chokotangsa to Dongtey	Chapcha, Chhukha	2.9	Connects to individual households
41	Highway to Bunakha	Chapchu, Chhukha	2.5	Ring road

## List of abandoned or not pliable farm roads

Sl. No.	Name of the Road	Dzongkhag	H/H Benefitted	Cost (Million Nu.)	Remarks
1	Karbertaer to Chukhangsum	Haa	44	0.8	Abandoned
2	Sektana To Fentana	Haa	7	4.37	Not pliable
3	Paijab to Sebji via Relina	Haa	24	0.8338	Not pliable (High Gradient)
4	Thongphel - Lerigang	Bumthang	58	3.0	Not pliable
5	Samarchen to Sinchula	Chukha			Old abandoned, new alignment not connected
6	Chokotangsa to Dzongtey	Chukha	28		Not pliable due to gradient and landslide
7	Damjee to Ketokha	Chukha	21		Not Pliable (blocked with major landslide)
8	Khadrak To Thramo	Mongar	7	0.49	Not pliable
9	Lamji Farm Road	Samtse	16	2.64	Not pliable
10	Sengden-Majuwa	Samtse	32	3.19	Not pliable
11	Lower Denchukha To Upper Denchukha	Samtse	30	2.331528	Not pliable
12	Sombek Farm Road	Samtse	60	11.94	2.5 Km of the road is abandoned due to re-alignment
13	Lower Phunsumgang	Tsirang	15	.9	Not pliable
14	Wocheypakha To Amladhing	Wangduephodrang	1	.38	Not pliable
15	Womna To Womnaphakha	Wangduephodrang	5	.1	Not pliable
16	Kotana To Lumchey farm road	Wangduephodrang	8	0.3	Abandoned
17	Khomsar Wama	Zhemgang	10	3.475	Not pliable
18	Arpalaling	Zhemgang	4	1.00	Not pliable
19	Digala To Rilangbi	Zhemgang	25	4.302737	Not pliable

## List of farm roads without permanent bridges

Sl. No.	Name of the Road	Gewog/Dzongkhag	HHs Benefitted	Remarks
1	Gewog Center to Satsangsa	Namgaycholing, Samtse	154	No Bridge
2	Chebju-Tachey	Pemaling, Samtse	20	No Bridge
3	Sangbey Ama to Tashigang via Nakekha	Sombaykha, Haa	27	Wooden Bridge
4	Sertena to Fentena	Gakiling, Haa	7	Wooden Bridge
5	Tenga	Gakiling, Haa	44	No Bridge
6	Ruecheykha to Ula Khatoed	Rubsesa, Wangdue Phodrang	26	No Bridge
7	Serzhong-Khadrak-Yarab	Shelrimuhung, Mongar	105	Wooden bridge
8	Serzhong-Khadrak-Thramo	Shelrimuhung, Mongar	105	No Bridge (Wooden Bridge damaged)
9	Serzhong-Khadrak-Thiling	Shelrimuhung, Mongar	105	Wooden bridge
10	Gewog Center to Dorjilung	Tsamang, Mongar		No Bridge
11	Highway to Gothongla to Pam to Daksa	Gongdu, Mongar	33	Wooden Bridge
12	Sepnari to Bagla	Gongdu, Mongar	32	Wooden Bridge
13	Khomsar to Digala	Bardo, Zhemgang	220	No Bridge
14	Buli to Tshaidang	Nanong, Zhemgang	70	No Bridge
15	Gewog Center to Chuzomsa	Patshaling, Tsirang	35	Wooden Bridge
16	Kapashing	Tsholingkhar, Tsirang		Wooden Bridge

## Comparison of cost estimates with approved budgets

Dzongkhag	Gewog	Name of the farm road	Budget apportioned (Nu. in million)	Estimate (Nu. in million)	Budget deficit	Percentage difference
Bumthang	Chhoekhor	Maintenance of Tamshing farm road	0.50	1.98	(1.48)	-74.81%
Bumthang	Chhoekhor	Maintenance of Pongar farm road	0.25	0.26	(0.01)	-5.08%
Bumthang	Chhoekhor	Maintenance of Norbugang farm road segment	0.70	1.84	(1.14)	-62.01%
Bumthang	Chhoekhor	Maintenance of Dawathang farm road	0.10	0.20	(0.10)	-50.75%
Bumthang	Chhoekhor	Maintenance of Changwa to Nashphel farm road	0.60	1.58	(0.98)	-62.00%
Bumthang	Chhoekhor	Maintenance and construction of Permanent road structure on Lusbee farm roads	1.37	2.09	(0.72)	-34.50%
Bumthang	Chhoekhor	Construction of farm road from Thangbi to Kakaling	2.59	2.72	(0.13)	-4.82%
Bumthang	Chhoekhor	Minor maintenance of Kharsum farm road	0.18	0.18	(0.00)	-2.60%
Bumthang	Chhoekhor	Maintenance of Shukdra farm road	0.60	0.61	(0.01)	-1.20%
Bumthang	Chhoekhor	Maintenance of farm road from Thrimkhang to Zholongthang	0.60	0.61	(0.01)	-2.22%
Bumthang	Chhoekhor	Maintenance of farm road from Jambay lhakhang to Nasiphel	0.50	0.41	0.09	23.40%
Bumthang	Chhoekhor	Maintenance of Chungga chorten to Peacipong	0.75	0.77	(0.02)	-2.84%
Bumthang	Chhoekhor	Improvement of Zomling farm road at Dhur village	0.60	0.61	(0.01)	-1.15%
Bumthang	Chhoekhor	Improvement of farm road at Dhur core village	0.40	0.40	(0.00)	-0.65%
Bumthang	Chhoekhor	Construction of farm road from Nangsiphel to Leshong	1.20	1.29	(0.09)	-6.97%
Bumthang	Chhoekhor	Construction of farm road from Khalingpa to Maleng	0.40	0.53	(0.13)	-23.95%
Bumthang	Chhoekhor	Construction of farm road from Changbi to Sepamepong	0.60	0.49	0.11	23.70%
Tsirang	Dunglagan g	Maintenance of Kherithang farm road	0.32	0.29	0.03	11.84%
Tsirang	Dunglagan g	Maintenance of Gopini farm road	0.09	0.10	(0.01)	-8.05%
Tsirang	Dunglagan g	Maintenance of farm road at Norjangsa	0.10	0.10	0.00	4.28%
Tsirang	Dunglagan g	Maintenance of farm road at Dangreybu Toe	0.10	0.10	0.00	0.75%
Tsirang	Dunglagan g	Maintenance of Dangreybumea farm road	0.10	0.10	(0.00)	-4.71%
Tsirang	Dunglagan g	Maintenance of Karna Bahadur community farm road at Drangrebu Toed	0.30	0.30	0.00	-1.02%

## Comparison of cost estimates with approved budgets

Tsirang	Dunglagan g	Maintenance and widening of farm road at upper Khirithang	0.50	0.62	(0.12)	-19.59%
Tsirang	Dunglagan g	Improvement(widening) of community farm road at Dangrebu toed Chiwog	0.50	0.54	(0.04)	-7.81%
Tsirang	Dunglagan g	Construction of farm road at Lower Gopini	0.48	0.59	(0.11)	-18.28%
Tsirang	Dunglagan g	Construction of farm road at Komeray at Grangrebu Maed chiwog	0.40	0.61	(0.21)	-33.96%
Tsirang	Dunglagan g	Construction of farm road at Hatidunga 1km	0.30	0.77	(0.47)	-61.27%
Tsirang	Mendrelgan g	Construction of farm road under Riserbo chiwog	2.81	3.70	(0.89)	-23.99%
Tsirang	Mendrelgan g	Major maintenance and extension of 3 km farm road at lower Dzamlingzor	2.05	2.93	(0.89)	-30.23%
Tsirang	Mendrelgan g	Extension of lower Pemashong farm road with length 2km	0.72	1.20	(0.49)	-40.55%
Tsirang	Mendrelgan g	Extension of farm road from end point of Mendrelgang farm road 2 km	0.81	1.13	(0.32)	-28.08%
Tsirang	Mendrelgan g	Extension of 2km Tashipang fr from jhorpani to upper Pemashong	0.78	1.39	(0.60)	-43.48%
Tsirang	Patshaling	Maintenance of farm road from Mirgaypani to Pokharey	0.80	0.89	(0.10)	-10.68%
Tsirang	Patshaling	Construction of Patshalingtoed farm road	0.51	0.54	(0.03)	-6.36%
Tsirang	Patshaling	Construction of farm road from Bagshingkhola to Nepal dara	0.75	0.88	(0.13)	-14.83%
Tsirang	Patshaling	Construction of farm road from Thakhorling to Khopi	0.63	0.82	(0.19)	-23.10%
Tsirang	Patshaling	Construction of farm road from Thakhorling to Beteni	0.92	1.23	(0.31)	-25.55%
Tsirang	Patshaling	construction of farm road to Pangthangtoed Pathangmaed and Gongreydara	1.03	1.83	(0.80)	-43.58%
Tsirang	Patshaling	Construction of Pangthang to Malbassay farm road	2.00	2.24	(0.24)	-10.71%
Tsirang	Patshaling	Construction of Moray Dara to Khuchi farm road	0.63	0.85	(0.21)	-25.12%
Tsirang	Patshaling	Construction of Lower Pangthang to Sadugoan farm road	0.24	2.32	(2.08)	-89.66%
Tsirang	Patshaling	Construction of Thakhorling end to Beteni Ps farm road	0.79	1.21	(0.43)	-35.16%
Tsirang	Sergithang	Construction of Wakleytar to Tshochasa farm road	1.40	3.07	(1.67)	-54.43%
Tsirang	Sergithang	Construction of Tendovaney and Tuerey farm road	2.33	8.17	(5.84)	-71.49%
Tsirang	Sergithang	Maintenance of fram road Sathmuley	0.46	0.50	(0.04)	-8.00%

## Comparison of cost estimates with approved budgets

Tsirang	Sergithang	Construction of fram road Sergithang toed	0.89	2.81	(1.93)	-68.45%
Tsirang	Sergithang	Construction of fram road Sergithang maed	1.47	2.56	(1.09)	-42.48%
Tsirang	Sergithang	construction of fram road at bulkey and Orc	1.65	4.18	(2.53)	-60.48%
Tsirang	Tsirangtoed	Impovement of Kabelshing farm road	0.98	1.00	(0.03)	-2.96%
Tsirang	Tsirangtoed	Construction of Kabrabotay fram road at Tsirangtoe	0.60	0.88	(0.28)	-32.20%
Tsirang	Tsirangtoed	Construction of Kabrabotay fram road at tsirangtoe	1.24	1.95	(0.71)	-36.29%
Haa	Gakiling	Construction of farm road from tanga to Rangtse putsena to Amochu and bridge	0.13	0.52	(0.39)	-74.73%
Haa	Issu	Maint of Goensakha farm road	0.50	0.51	(0.01)	-1.54%
Haa	Issu	Gabion wall construction at Kana	1.00	1.00	(0.00)	-0.27%
Haa	Dzongkhang Administration	Construction of permanent structure farm road from Girina to Sangkiri and Pajekha(sdp) 4km	5.00	5.04	(0.04)	-0.80%
Haa	Dzongkhang Administration	Construction of permanent structure farm road from Girina to Sangkiri and Pajekha(sdp) 4km	1.78	3.35	(11.56)	-86.65%
Haa	Samar	Consstruction of farm road from Jatsha- Jangu to Shari	1.14	1.17	(0.03)	-2.63%
Haa	Dzongkhang Administration	Improvement of farm roads under Sama gewog	3.96	4.21	(0.25)	-5.94%
Haa	Dzongkhang Administration	construction of permanent Structure for Kamina to Lumphakha farm road in Samer gewog SDP IV	5.57	12.71	(7.15)	-56.22%

## Plan activities dropped

### Farm Road Planning at Semjong Gewog

Semjong Gewog Administration is under Tsirang Dzongkhag. It has committed in the development of five year plan to construct 5 new farm covering the length of 8 km. It has also committed to maintain 5 existing farm roads covering 10 Km as projected in the table below:

Sl. No.	Indicators	Projected Annual Target.				
		2018-2019	2019-2020	2020-2021	2021-2022	2022-2023
1	Length of farm road constructed	3	2	2	1	0
2	No. of farm road constructed	2	1	1	1	0
3	Length of farm road maintained	3	2	2	2	1
4	No. of farm road maintained	1	1	1	1	1

However, when the yearly prioritization was done, it was seen that only one new farm road was constructed and one farm road was maintained as noted from their expenditure statement as on June 2019.

For the financial year 2019-2020 the Gewog Tshogdu endorsed the following farm road related proposed activities with the following allocated budget.

Sl. No.	Activities	Amount (Nu.)	Funding
1	Construction of Permanent structure in Gewog Center of Balukhop Farm Road	3.00 M	CMI
2	Construction of Permanent structure on Tashiling Toed to Sadhu goan Farm Road	0.960 M	CMI
3	<b>Construction of farm road from Sadhugoan to Neil Pokheri</b>	<b>0.900 M</b>	<b>RAF</b>
4	<b>Construction of farm road from lower Dzomling to Suberi goan</b>	<b>0.300M</b>	<b>RAF</b>
5	<b>Construction of Rato Pani Farm Road</b>	<b>0.800 M</b>	<b>RAF</b>
6	<b>Construction of Sallarey to Gopeni Dovan Farm Road</b>	<b>0.850 M</b>	<b>RAF</b>
7	<b>Construction of Permanent Structure on BHU approach Road</b>	<b>0.100 M</b>	<b>RAF</b>

Comparing the proposed activities against the activities undertaken following findings were noted. Of having 5 activities prioritized and proposed under RAF funding, with its respective allocated budget, only three activities were undertaken as proposed and two proposed activities were dropped. However another two new activities were prioritized in the following days and undertaken as shown in the table below:

## Plan activities dropped

Sl. No	Particulars	Budget Proposed (Nu)	Expenditure (Nu.)	Remarks
1	<b>Construction of farm road from Sadhugoan to Neil Pokheri</b>	<b>900000</b>	<b>1,284,000.00</b>	<b>Undertaken</b>
2	<i>Construction of farm road from lower Dzomling to Suberigoan</i>	<i>300000</i>	<i>Next Year</i>	<i>Dropped</i>
3	<b>Construction of Rato Pani Farm Road</b>	<b>800000</b>	<b>678,000.00</b>	<b>Undertaken</b>
4	<i>Construction of Sallarey to Gopeni Dovan Farm Road</i>	<i>850000</i>	<i>Next year</i>	<i>Dropped</i>
5	<b>Construction of Permanent Structure on BHU approach Road</b>	<b>100000</b>	<b>61,000</b>	<b>Undertaken</b>
6	<i>Manintenance of Dzomling Farm Road</i>	-	<i>111000</i>	<i>New</i>
7	<i>Construction of Farm Road from Bhalukhop to Neil Pokhrey</i>	-	<i>932,000.00</i>	<i>New</i>

- a. As apparent from the table above, the construction of farm road from Sadhugoan to Neil Pokheri was initially proposed at Nu. 900,000.00 for farm road construction of 3.229<sup>1</sup> km. This 900,000.00 was proposed in the GT minutes to be endorsed by the Dzongkhag Tshogdu.

When the activities gets endorsed, the Dzongkhag engineer section is invited to do the initial survey for the road based on the allocated budget. The Dzongkhag engineer sector based on the available and allocated budget limit its estimation only to the following works:

Sl. No	Description of Items	Qty	Unit	Rate	Amount
1	Clearing Jungle including uprooting of vegetation & tree of girth <300 mm & disposal within 50 m of the site	17759.5	Sq.m	9.1	161,611.45
2	Excavation of Road formation/trace/box cutting with excavator including separate deposition of soil, rocks and stones within 50m for reuse. All types of slopes				
a	All Types of soil	19188.74	Cu.M	65.91	1,264,729.85
b	All types of Rock	775.46	Cu.M	236.1	183,086.11
3	Felling of Trees including cutting of trunks and Branches, removal of roots, stacking of serviceable materials and disposal of rubbish within 50m lead				
a	Girth 300 to 600 mm	60	each	84.94	5,096.40
b	Girth 600 to 1200 mm	25	each	383.13	9,578.25
	Providing and Laying NP2 class RC pipes, including collars, jointing in cement mortar 1:2 including testing of Joints etc.. Complete. 750mm dia	15	m	2613.09	39,196.35
	Total				1,663,298.41
	Adding 7.29% cost index				2,857.41
	<b>Grand Total</b>				<b>1,666,156.00</b>

Ref: BSR/2018/Gelephu Rate, adding 7.29% of cost index

As obvious from the estimate sheet conducted by the engineers estimate limits its scope of works only to excavation of the roads and the estimates ascertained by the engineers

<sup>1</sup> From Engineers' estimates



**Plan activities dropped**

is more than the proposed budget. Thus the proposed budget was revised to 1.284 million just to excavate the roads.

- b. Similarly, the construction of Dzomling to Suberigoan farm road was proposed with allocated budget of 0.3 million. However, the engineers estimate to excavate road of 1.5 km was ascertained at Nu. 914,949.00. Since the estimated amount was more than the proposed budget, the activity was dropped in the 2019-2020 to be prioritized in next financial year.

Thus it may be noted that, the prioritization of the gewog administration may be after the ascertainment of the engineer's estimates, the gewog administration makes the necessary changes in the prioritized activities that were endorsed in the Gewog Tshogde.

- c. The second reason the priorities of the Gewog administration is changed is because when the gewog administration fails to obtain any of the clearance that are necessary to construct the farm roads. For Instance, the construction of the Sallery to Gopeni Dovan Farm road was dropped in the year 2019-2020 for unable to obtain the forest and environment clearance and was constructed in the next financial year when it was possible to obtain the forest/environment clearance for having made changes in the road alignment and other corrections as recommended.

## Prescribed format for social screening

**Annexure C(IV):MoU for Voluntary Land Donations- SAMPLE FORM**

The following agreement has been made on 12 day of December 2007 between Mr/Mrs/Kinlay Wangmoage 70years, resident of Chapa village Gewog Chapcha Dzongkhag Chukha the son/grandson/daughter/grand daughter of Mr.Begopa.

1. The land with certificate no ..... (insertthram no.) is a part of 5 acres (give the total land holding figure under the above thram no.)is surrounded by wetland (wetland/dry land/orchard/forest/tseri)on the eastern side, by dryland on the western side, by tseri on the northern side, and by forest in the southern side.
2. The owner holds the transferable right of 0.10 acres of land (land/structure/asset)
3. The owner testifies that the land/structure is free of squatters of encroaches and not subject to any other claims.
4. The owner hereby grants this asset to the Geog Administration, Chapcha for Construction of Zomtho-Komo farm road for the benefit of the community.
5. The owner will not claim any compensation against the grant of this asset nor obstruct the construction of the road.
6. The GT/DT agrees to accept this grant of asset for the purposes mentioned.
7. The GT/DT of Chapcha Gewog (in case of GYT) shall construct and develop the road and take all possible precautions to avoid damage to adjacent land /structure /other assets.
8. Both the parties agree that the infrastructure so constructed shall be community premises.
9. The provisions of this agreement will come into force from the date of signing of this deed.

\_\_\_\_\_  
Signature of the Owner

\_\_\_\_\_  
Signature of GT Chairman

\_\_\_\_\_  
Signature of Tshogpa

\_\_\_\_\_  
Witness :



AIN: PAD-2021-287

