



---

Rural Access Programme Phase 3  
Monitoring, Evaluation and Learning Component

# REVIEW OF RURAL ROADS MAINTENANCE PLANNING IN NEPAL

---

Date: November 2017

Submitted by Itad

---

## Table of Contents

Abbreviations .....	1
Executive Summary.....	2
Introduction .....	3
1. Background context of the LRN sector in Nepal.....	4
2. Review of the role of maintenance policies, institutions and donors.....	6
3. Critical factors for LRN maintenance and possible future scenarios.....	13
4. Conclusions and Recommendations.....	15
Annex 1: List of documents reviewed.....	17
Annex 2: List of people consulted.....	18

## Abbreviations

ARAMP	Annual Road Assets Management Plan
ARMP	Annual Road Maintenance Plan
DCC	District Coordination Committee
DDC	District Development Committee
DDP	Dhading Development Project
DoLIDAR	Department of Local Infrastructure Development and Agricultural Roads
DTMP	District Transport Master Plan
DRCN	District Road Core Network
DTO	District Technical Office
KHARDP	Koshi Hills Agricultural and Rural Development Project
LDCP	Local Development Construction Project
LRIP	Local Roads Improvement Project
LRN	Local Roads Network
MoFALD	Ministry for Federal Affairs and Local Development
MEL	Monitoring, Evaluation and Learning
NEA	Nepal Engineers Association
NRSAS	Nepal Road Sector Assessment Study
PDP	Palpa Development Project
PTMP	Provincial Transport Master Plan
PWD	Public Works Department
RAP3	Rural Access Programme 3
RBN	Roads Board Nepal
RIDP	Rapti Integrated Development Project
RMG	Road Maintenance Group
RTI/SWAP	Rural Transport Infrastructure/Sector wide Approach
SDC	Swiss Development Cooperation
SNRTP	Strengthening Nepal Rural Transport Project
SRN	Strategic Roads Network
VDC	Village Development Committee
VfM	Value for Money

## Executive Summary

This report by the independent Monitoring, Evaluation and Learning (MEL) component of the Rural Access Programme 3 (RAP3) presents a review of the current maintenance planning approaches used in the Local Roads Network (LRN) sector in Nepal. The review aims to shed light on differences and commonalities across stakeholders, with a particular focus on shedding light on how these systems could be adapted within the changed political and governance context in Nepal where there has been major governance restructuring and devolution of power towards a federal system. This review does not aim to provide direct solutions on how maintenance planning should be configured in the new federal setup. Instead it provides a timely and strategic input in order to inform future thinking by providing an overview of the problem and challenges and opportunities arising from this.

The historical legacy of the rapid unplanned growth of the LRN coupled with low prioritisation of the maintenance of existing road assets (and thus its rapid deterioration) was a major trigger for policy makers and donors to prioritise a 'maintenance first' approach in the LRN sector. This has led to better coordination and broader policy harmonisation amongst the donors under the stewardship of the Government of Nepal's Department of Local Infrastructure Development and Agricultural Roads (DoLIDAR) in the past two decades. Many of the policies and guidelines that exist within the sector, including the District Road Core Network (DRCN) as a guiding concept for the prioritisation of roads, and the District Transport Master Plan (DTMP) as a tool for prioritisation were designed with a focus on the district administrative structure as the unit for transport planning with the District Development Committee (DDC) as the executive governing agency. The DRCN approach has resulted in narrowing down the critical length of network for annual and periodic maintenance. The introduction of Annual Road Maintenance Planning (ARMP) process is another example of process innovation which for the first time provided local authorities the tools to plan for the maintenance of the entire network based on needs and available resources.

Under transitional governance structures, planning decisions will be made by local bodies (known as municipalities) and the DDC will be transformed into a District Coordination Committee (DCC) with no executive role. In 2018, a new set of second-tier administrative governance bodies above the level of municipalities will come into effect. The roles of institutions such as DoLIDAR and the Roads Board Nepal (RBN) which are critical from the perspective of financial support to the former districts and now to the new local bodies in Nepal is in question. DoLIDAR's role is likely to be redefined to cover policy issues with provincial level public works departments likely to lead implementation activities. The coordination between the RBN and DoLIDAR was found by the review team to be weak. Whilst the harmonisation of donors' approach in the sector has come a long way, there is one notable outstanding issues that needs to be harmonised – the classification of maintenance types. This requires extensive consultations amongst donors and policy makers and development projects.

The review has developed three scenarios for the LRN system in Nepal in the next 3 to 5 years based on the identification of three critical factors that will influence how LRN maintenance is developed, iterated on and mainstreamed going forward: 1) adherence to or deviation from the identified length of the core network and subsequent funding commitments from local and provincial bodies; 2) the enactment of necessary legislation to clarify the roles and responsibilities of provincial government; 3) the coordination between DoLIDAR and RBN and roles and responsibilities at the federal level. The review envisages Nepal's LRN sector's achievement in the next 3 to 5 years to be mixed progress. A list of recommendations has been presented in the final chapter. The major recommendations include DoLIDAR-led discussions to clarify issues related to maintenance classification, support to local bodies in the changed governance set-up, revisiting the roles of RBN and DoLIDAR and existing DTMPs.

## Introduction

This report sets out the findings of a review undertaken by the Monitoring, Evaluation and Learning (MEL) component of RAP3 to:

- 1) Review existing maintenance planning and prioritisation approaches adopted in the Local Roads Network (LRN) sector in Nepal to identify the similarities and differences in their approaches. The LRN refers specifically to rural roads throughout Nepal, and not major highways.
- 2) Identify critical issues that should be addressed to improve the efficiency of LRN maintenance, particularly in the context of the changing governance structures in Nepal.

The review was coordinated with DoLIDAR and RAP. It entailed a review of existing documents<sup>1</sup> and consultations with stakeholders at the central, district and municipal levels (Dhading, Kavre and Sindhupalchowk)<sup>2</sup>.

This report is divided into four sections as follows:

- Section 1: Provides some background and context to rural road maintenance in Nepal.
- Section 2: Analyses the role of policies, institutions and donor funded projects in the LRN sector.
- Section 3: Presents potential scenarios for the LRN maintenance system in the next 3-5 years.
- Section 4: Draws conclusions and recommended actions for the LRN sector.

---

<sup>1</sup> A list of documents reviewed is provided in Annex 1.

<sup>2</sup> A list of stakeholders consulted is provided in Annex 2.

## 1. Background context of the LRN sector in Nepal

### 1.1 The history of the rural road sector in Nepal

To provide context for the review of road maintenance policies and institutions, this section summarises the evolution of the national agenda for rural roads in recent decades. Nepal has one of the lowest road densities in Asia. Roads are in high demand and new road construction has consistently remained a focus for policy makers, politicians and local communities in Nepal, particularly in the mountain districts of the Mid and Far West, which are the least connected part of the country. As a result, the Government of Nepal, as well as some major bilateral and multilateral donors, have invested in the rural roads sector in Nepal for many decades.

The recent history of the development of rural roads in Nepal can be traced back to 1977 with the initiation of the Rural Access Programme through Local Development Construction Committees (LDCCs), which incentivised local roads construction in Nepal. The programme was renamed "*Goreto Ghodeto Aayojana* (Foot Trail Mule Trail Project) in 1989 and again renamed Local Development Construction Project (LDCP) in 1994. During the 1980s, some district and region-centred integrated rural development projects were initiated.<sup>3</sup> Although these projects were focussed on agriculture, they responded to the high demand from project beneficiaries for enhanced connectivity by integrating rural roads components into their design. The roads that were developed played a pioneering role in demonstrating the process and mechanisms for labour-based rural road construction in Nepal.

The introduction of a multi-party political system in the 1990s and the provision of direct fiscal transfers to local government bodies (DDCs and VDCs) led to them investing in the construction of local roads to fulfil unmet connectivity demands locally. This led to massive expansion of the rural roads network<sup>4</sup>. However, the roads built by the local bodies were not designed to properly meet engineering and environmental standards and the use of excavators was rampant.

By the mid-1990s, the Government of Nepal recognised that the proliferation of rural roads projects and the lack of standardisation of technical matters and planning was becoming problematic. More than two thirds of the local road networks were of earthen surface, of which more than 50 percent were fair weather and the remainder were unusable.<sup>5</sup> The cost of replacing existing roads where they had fallen into disrepair (often due to a lack of engineering and environment standards, as well as lack of maintenance) is many times the cost of the initial investment. This led stakeholders to slowly shift attention towards maintenance and adherence of standards.

In response to this, the Roads Board Nepal (RBN) was set up in 1994 to play a strategic role in roads maintenance, and a separate Department of Local Infrastructure Development and Agricultural Roads (DoLIDAR) was set up within the Ministry of Federal Affairs and Local Development (MoFALD) in 1997.

---

<sup>3</sup> For example, these included the Rapti Integrated Rural Development Project (RIDP supported by USAID), Koshi Hill Agricultural Rural Development Project (KHARDP, supported by UK), Palpa Development Project (PDP, supported by GTZ and SDC), Dhading Development Project (DDP, supported by GTZ).

<sup>4</sup> The practice of LRN inventory and regular updates is a new process which was initiated by 2013/2014. Hence data on the length of the LRN network in the early 1990s is difficult to obtain. According to Nepal LRN Statistics, the total the length of network was around 52,000 Km in 2016.

<sup>5</sup> Strengthening Nepal Rural Transport Project Implementation Guidelines (2014).

## 1.2 The state of rural roads planning today

In the last five years, the major donor-supported LRN programmes have adopted a ‘maintenance first’ approach in planning. A number of policy innovations in LRN planning have been developed and implemented, including:

- The prioritisation of investments in what has been identified as the District Core Road Network (DRCN). Roads selected for the DRCN include those that link VDC headquarters with either the district headquarters, the strategic road networks (SRN) or other VDCs. Municipal roads were categorised as ‘urban roads, and didn’t form a part of the DRCN.
- The development of the 5-year District Transport Master Plan (DTMPs) to identify and prioritise the core network within the DRCN for annual maintenance planning.
- Develop and implement district level Annual Road Assets Management Plans (ARAMPs) for annual LRN maintenance planning.
- Pilot and scale up labour based routine maintenance through Road Maintenance Groups.
- Development of GoN led and owned policies and guidelines (the Maintenance Directives and RMG Guidelines).

## 1.3 The emerging governance change in Nepal and the potential impact on planning

Nepal has come a long way from uncoordinated rural roads planning to the gradual development of a more coordinated and harmonised planning process. However, there is scope for existing policies and guidelines within the sector to be further rationalised and streamlined and for better donor coordination and harmonisation.

The ongoing governance reforms in the country are important contextually: many of the policies and guidelines that exist within the sector (including the DRCN and DTMP) were designed under previous governance arrangements, and are focused on the district administrative structure as the unit for transport planning with the DDC as the executive agency. Under transitional governance structures, planning decisions will be made by local bodies (known as municipalities) and the DDC will be transformed into a District Coordination Committee (DCC) with no executive role. In 2018, a new set of second-tier administrative governance bodies above the level of municipalities, termed provinces, will come into effect.

This review has therefore been conducted over a period where there is a lack of clarity over the way in which institutions and processes for LRN planning and management will be configured. Unless considered carefully, there is a risk that the gains that have been collectively realised by the GoN and development actors in promoting a ‘maintenance first’ policy towards LRN assets could be diluted. The next sections assess what policies and practices are currently used as well as the future potential scenarios in light of the governance transition.

## 2. Review of the role of maintenance policies, institutions and donors

This section is divided into three sub-sections:

- Section 2.1 reviews the policies and guidelines related to LRN maintenance planning.
- Section 2.2 examines the role of institutional actors within the LRN sector.
- Section 2.3 considers the maintenance planning approaches of three major donor funded LRN projects.

Together this provides a review of the policy-institutional framework that impacts on LRN maintenance in the country. This review is used to draw conclusions (set out in Section 4) around critical issues and recommendations for maintenance planning in the unfolding governance structure.

### 2.1 Review of maintenance planning policies

#### 2.1.1 District Road Core Network (DRCN) and the District Transport Master Plan (DTMP)

The District Road Core Network (DRCN) and the District Transport Master Plan (DTMP) are interrelated and hence they are discussed together here. The development of the DTMP follows a two-step process:

1. The first step involves developing an inventory of the local roads in the district and an identification of those that are 'critical' - what is dubbed the 'District Road Core Network' (DRCN).
2. The second step is to select roads within the DRCN for annual road maintenance investment – which is detailed in DTMPs. Roads are selected for annual road maintenance investment based on a post-monsoon survey every year. Priority is given to emergency maintenance followed by routine and other types of maintenance. A detailed Annual Road Maintenance Plan (ARMP) is developed by District Technical Offices (DTOs) in coordination with donor funded projects. In theory, the ARMP is designed as a 'single window' to plan and implement road maintenance and road construction, including through the special fund for maintenance. The ARMP process has been outlined in the Maintenance Directives (2008) which is reviewed below in section 2.1.2.

The development of DTMPs began in 2006. These were developed and revised by many districts and iterated on to develop a new generation of DTMPs. By the end of the 2017 fiscal year, all DDCs in the country had a DTMP. This process marks the first time that a guiding tool has been developed to objectively identify and prioritise road maintenance investment. It enables district authorities to prioritise road maintenance investments to a manageable and financially viable level. It has also guided donor funded LRN projects to identify the appropriate network for investment. Hence, it can be regarded as a process tool for harmonising maintenance funding at the local level.

#### Issues

- **Objective criteria for DRCN prioritisation are not always followed:** District stakeholders that were interviewed during the review termed the DRCN identification as a "*document of consensus amongst the local political interest groups rather than an objective process to identify the core and critical networks for the district*". Hence the identification of DRCN local networks has been influenced by the interests of local political elites, subverting the objectivity of the process. This means that the most strategic roads may not necessarily be the ones prioritised, leaving a sub-optimal classification of roads within the DRCN.
- **Actual investment in road maintenance is inconsistent with annual road maintenance planning**



**(ARMP), even in the districts with donor support:** Consultations with stakeholders and a review of the last fiscal year's ARMP for Sindhupalchowk against the actual DDC's expenditure in the road sector reveals that the ARMP process has not been fully institutionalised at the district level (see Table 1).

The review team also observed a mismatch between planning and actual expenditure as pointed out in the NRSAS from 2012. The ARMPs have not taken into account different funding sources for the road sector. For instance, the bulk of the resources which are invested through DDCs and central government sources in the area of road improvement and rehabilitation, which could be considered part of maintenance, are excluded from ARMPs. DTO chiefs in Sindhupalchowk and Dhading pointed towards this mismatch.

There is a divergence of view amongst donor funded projects whether improvements / rehabilitation falls under the ambit of roads maintenance. Proponents (SNRTP and SDC) argue that since the majority of the rural roads are not in a maintainable state, major investments are therefore required in terms of upgrading and rehabilitation in order to bring these roads to the maintainable level first. However, RAP believes that since upgrading and rehabilitation require significant resources and could divert the focus from other forms of maintenance, it should therefore not be included in the maintenance category. This requires further consultations amongst donors and the GoN in order to harmonise the issue and make further amendments on relevant policies/guidelines if needed.

**Table 1: Sources of estimated ARMP funding vs actual sources of funding in Sindhupalchowk district**

Source of funding as per ARMP 2016/2017		
Source of funding	Planned (NRs)	Remarks
RTI SWAP/RAP	32,000,000	Routine and recurrent maintenance
RBN	3,200,000	
DDC-Fund	0	
SNRTP	20,980,000	
Other Government Fund	1,000,000	
Sources of funding not mentioned in ARMP (from DDC, Sindhupalchowk Plan)		
DDC-Grant	4,700,000	80% on road related activities including specific maintenance and spot improvement
DDC-Internal resources	13,787,000	About 60% on road related activities including specific maintenance and spot improvement
Election Constituency Development Fund	28,450,000	About 50% on road related activities including specific maintenance and spot improvement
Two Economic Centres Connecting Roads	42,800,000	100% on road related activities including specific maintenance and spot improvement

- **Lower level of prioritisation for maintenance in non-donor supported districts:** Consultations suggest that districts which do not receive donor support for LRN maintenance have lower capacity to plan for LRN maintenance. They do not have the requisite dedicated human resources to plan, implement and monitor annual maintenance.
- **The process of DRCN identification and prioritisation needs a significant review but the picture will only become clearer after the election of the provincial assemblies in early 2018:** The use of the DRCN and DTMPs, and the annual maintenance planning that stems from these tools, was

formulated under a district centric approach. This was logical under the previous governance set-up; however, in the new (and still-evolving) set-up, this approach is now outdated.

Under ongoing governance reforms, the role of the DDC will shift to acting as a coordinating committee (or DCC), but they will not have executive authority. Municipalities will take over responsibility for implementing the ARMP planning processes. Enabling them to do this effectively will require considerable resources and facilitation from development actors and the central government.

This shift presents both opportunities and poses challenges. Although the ownership and responsibility for the strategic road network is unlikely to change, the feeder roads, DRCN and local roads networks are likely to go through major reclassification and subsequent changes in institutional responsibilities. Devolution of basic administrative services such as registration of land deeds / land records and the majority of public service provision will now be in the hands of the local bodies, who are likely to have little incentive to invest in the network to link with previous DDC headquarters – i.e. following the established DRCN. **It is likely that the lateral or horizontal connectivity needs between and amongst local bodies will supplant the existing DRCN model of strengthening links to the district headquarters.** However, the body of work already conducted to identify a DRCN and the planning tools used for this can still be adapted to fit the new administrative structural arrangements. This will require concerted efforts from donors and stakeholders.

### 2.1.2 Road Maintenance Directives (2008) and Road Maintenance Groups (RMG) Guidelines

This section jointly reviews the Road Maintenance Directive (2008) and the RMG guidelines as these are interrelated. The Road Maintenance Directive (2008) sought to standardise and harmonise local roads maintenance across the country. The directive categorised maintenance into five major types<sup>6</sup> and provided a list of maintenance activities that fall under each category. Due to a huge maintenance backlog in the LRN, it is not possible to invest in all types of maintenance simultaneously. Hence the directive has sets out how maintenance activities should be prioritised depending on the urgency and financial feasibility in an order<sup>7</sup>.

The RMG Guidelines follow the Road Maintenance Directive (2008) and specify standardised approaches for RMGs. The practice of appointing local users to maintain local roads in the prioritised DRCNs was pioneered by the DFID funded Nepal Rural Access Programme (RAP) in 2012. RAP standardised the maintenance activities and annual labour requirements for regular maintenance such as clearing of roads and road side vegetation, filling potholes etc. The practice was an evolution of previously existing labour-based maintenance approaches (e.g. appointing local people to maintain specific lengths along the SRN, which is known as a ‘length-person’) and was subsequently adopted by the World Bank funded Strengthening Nepal Road Transport Programme (SNRTP). RAP and SNRTP worked jointly to standardise the functioning of the RMGs, which was mainstreamed by DoLIDAR in the form of the “Road Maintenance Group Guidelines”. The outcome of RMGs on improving road conditions and vehicle passage during the fair weather season has been commended by various studies<sup>8</sup>.

---

<sup>6</sup> The types of maintenance activities identified by the directive are Routine Maintenance, Recurrent Maintenance, Periodic Maintenance, Preventive Maintenance and Emergency Maintenance.

<sup>7</sup> i) Emergency Maintenance, ii) Routine Maintenance, iii) Recurrent Maintenance, and iv) Periodic Maintenance

<sup>8</sup> e.g. see the Review of LRN Approach (2015) conducted by RAP3’s MEL component.

## Issues

- **The existing classification of LRN maintenance needs revision:** The DTO chiefs consulted for the review in Sindhupalchowk and Dhading informed the team that that around 90% of the local roads network in the sampled districts were of earthen surface, excluding the urban/municipal roads. The type of maintenance inputs required to keep these networks open in all seasons depends on the surface of the road and related structures. Upgrading and rehabilitation (collectively termed 'improvements') could also be considered maintenance work but would consume a larger proportion of any maintenance budget due to the relatively higher cost of such activities versus other maintenance activities. There are conflicting views on whether improvements should classify as maintenance due to the larger structural needs of these types of improvements. The current classification adopted by DoLIDAR Maintenance Directive therefore needs to be reviewed.
- **The impact of RMGs on routine maintenance in earthen surface needs further review:** The DTO officials consulted for this review expressed the view that RMGs have improved connectivity during fair weather. However, the majority of DRCN roads were not properly engineered, which implies that these networks are not in a maintainable condition in the first place. Hence, it is advisable to review the impact of RMG-based regular and routine maintenance in rural roads (primarily earthen surface) before replicating the process across the country and informing the prioritisation of types of maintenance set out in the Maintenance Directive (2008).

## 2.2 Existing Institutions for LRN Maintenance Planning

### 2.2.1 Department of Local Infrastructure Development and Agriculture Roads (DoLIDAR)

The Department of Local Infrastructure Development and Agricultural Roads (DoLIDAR) was established in 1997 under the Ministry of Federal Affairs and Local Development (MoFoLD). DoLIDAR is responsible for policy harmonisation, development of guidelines, and monitoring and evaluation of the programmes under eight priority themes including local roads.

Since its inception, DoLIDAR, with support from several donors, has initiated policy and framework harmonisation on the LRN sector amongst donors funded projects. In addition, it has led the implementation of the Rural Transport Infrastructure (RTI) Sector Wide Approach (SWAP) for the rural roads sector since 2009. In the reformed governance set-up, the roles and responsibilities of DoLIDAR at the centre and District Technical Offices (DTOs) at the district levels are likely to change, though at the time of writing it is still unclear what role it may take and this is likely to take significant time to resolve.

## Issues

- **Non-executive role of the District Coordination Committee and confusion in the role of the District Technical Office:** The DDCs have been transformed into DCCs without any executive authority. Before the election of local bodies in May 2017, District Technical Offices used to oversee LRN activities in the districts as a specialised arm of DDCs. Hence, there is a confusion as to what roles, responsibilities and authority DTOs will have to plan for the ARMP for 2017/2018. During the time of the field visit in July 2017, DTOs had not started the ARMP process for 2017/2018, whilst the donor projects were projecting their maintenance support based on the previous year's plan. Similarly, the DCCs have not started functioning and there is widespread confusion amongst the stakeholders regarding the coordinating roles of DCCs amongst elected local bodies within the district.
- **Confusion regarding the central level coordination agency for rural infrastructure:** The governance restructuring could result in the reconfiguration of existing central level ministries and departments including DoLIDAR. It is not yet clear and seemingly unlikely to be clear in the near

future what role, if any, DoLIDAR would have in the potential ministerial/department restructuring at the central level. Subsequently it is not clear how existing policies/guidelines and activities implemented by DoLIDAR will be taken forward. This is equally a matter of concern for the donor community since the investment made on promoting 'maintenance first' in terms of policies/guidelines could be neglected and overlooked in this process.

- **Lack of clarity on the provincial level coordination agency for rural infrastructure:** Associated with the above issue is the governance set-up at the provincial level to oversee local infrastructure development, including LRN construction and planning. It is currently understood that every province will have one Public Works Department (PWD) to plan and coordinate local infrastructure development, which will have vertical linkage with the relevant ministry/department at the central level (though this may be subject to change). Even with this provision, the gap between local bodies and provinces would exist with the disbanding of DTOs at the district level.

### 2.2.2 The Roads Board Nepal (RBN)

The Roads Board Nepal (RBN) has often been considered as a peripheral entity for LRN maintenance given that its core focus is on the SRN. However, the RBN is likely to be retained in the new governance restructuring – in part because it is established through an act of parliament, and therefore difficult to dismantle.

The annual maintenance budget of the RBN was NPR 4 billion for the Nepali fiscal year 2073/2074 (2016/2017), of which 70% is allocated to strategic roads and 30% to local (including municipal) roads. ARMPs were introduced by the RBN, and have been followed by the Department of Roads for the planning of strategic road networks and the District Development Committees (DDC) for the local road networks. Elaborate ARMP guidelines and planning templates have been developed by the RBN and adopted and adapted by different LRN projects.

#### Issues

- **Fund allocation criteria of 70:30 for SRN and LRN does not address huge maintenance backlog in the LRN sector:** DoLIDAR and LRN experts view the current budget allocation ratio of 70:30 to SRN and LRN as inadequate to address huge maintenance backlog in the LRN.
- **The fund approval process is complex:** As a matter of principle, ARMPs provide the basis for RBN funding allocations. However, the ARMP process has evolved over time in the RBN. Initially, RBN trained the engineers from DDCs to develop ARMPs and RBN would review and approve ARMP funding in consultation with local bodies. This practice was terminated after a few years because the local bodies found the process unnecessarily complex.
- **Annual fund allocation for district LRN maintenance is not objectively informed:** The RBN changed its annual fund allocation process for the LRN sector after the local bodies found the process unnecessarily complex. Currently, the annual funding ceiling to local bodies is based on pro-rata distribution of resources available for the LRN sector. The RBN officials consulted for this study accept that this means that RBN investments in routine LRN maintenance have not been well-targeted.
- **Coordination with DoLIDAR and local bodies has been weak:** DDCs are responsible for the implementation of maintenance activities funded through the RBN. DoLIDAR's role is limited to monitoring RBN-funded maintenance which, according to DoLIDAR officials, has not been very effective. The review observed that DoLIDAR has a limited role in planning and monitoring of the RBN maintenance funding to (formerly) DDCs and the coordination between RBN and DoLIDAR is weak in terms of LRN maintenance funding.

### 2.3 Donor-funded LRN Projects

For this review, three major donor funded LRN projects (under the purview of DoLIDAR) were assessed to compare maintenance approaches. The projects reviewed are the World Bank funded Strengthening Nepal Rural Transport Programme (SNRTP)<sup>9</sup>, the DFID funded Nepal Rural Access Programme (RAP3)<sup>10</sup> and the SDC funded Local Roads Improvement Programme (LRIP)<sup>11</sup>. These three projects collectively cover a significant proportion of the DRCN in 55 districts (out of 75 districts in Nepal). The review was based on discussions with project officials and discussions with stakeholders in Sindhupalchowk and Dhading. It has identified commonalities and differences in the maintenance approach which need further discussions amongst stakeholders to develop common understanding on the approaches and the areas that needs to be incorporated in the relevant policies, directives and guidelines of the GoN<sup>12</sup>. The review of these projects are presented in a comparative table in the next page (Table 2).

#### Issues:

- **Low level of policy harmonisation amongst donor funded projects:** Even amongst donor funded LRN projects, there is a low level of harmonisation when it comes to maintenance planning. The terminology used for annual maintenance varies between projects. For instance, RAP3 priorities maintenance plans for the entire road assets in the DRCN (commonly referred to as ARAMP – Annual Road Assets Management Plan), whilst other LRN projects simply plan for annual road maintenance (Annual Road Maintenance Plan).
- **The classification used for maintenance also varies** (as illustrated in Table 2). Stakeholders should develop a common classification of maintenance in order to harmonise regular reporting to DoLIDAR which can be developed into periodic Value for Money (VfM) analysis for policy decisions. This has already been undertaken by MEL and should be taken up further by stakeholders.
- **Low level of coordination amongst donor funded projects:** Operational coordination between donor funded projects operating in the same districts is low. This was evident from the ARMP planning for Sindhupalchowk for 2016/2017 which was facilitated by SNRTP but was not coordinated with RAP3 during its preparation. According to the RAP3 DTO in Sindhupalchowk, the plan did not take into account the specific budgetary outlay from RAP for the year and instead assigned an unrealistic ballpark figure as the potential contribution from RAP.

---

<sup>9</sup> World Bank funded programme active in 45 districts focusing on i) road maintenance and ii) rehabilitation and upgrade.

<sup>10</sup> DFID funded programme with maintenance funding in 11 districts.

<sup>11</sup> SDC funded programme which phased out in 31 July 2017, covering three district focusing on i) road maintenance and ii) rehabilitation and upgrade.

<sup>12</sup> The institutional arrangement for managing the roads network at central, provincial and local levels in the changed administrative structure had not been clear by the time of writing this report. However, the review team expects central government to make the necessary institutional framework for the smooth implementation of the policies, directives and guidelines and ongoing programmes that are being implemented by DoLIDAR.

**Table 2: Comparative Matrix of Maintenance Approaches of Major LRN Projects**

Areas	Development Projects		
	RAP (DFID funded)	SNRTP (World Bank funded)	LRIP (SDC funded)
<b>Annual planning</b>	Focuses on Annual Road Assets management Plan (ARAMP) (focus on roads as assets that require maintenance)	ARMP	ARMP
<b>Selection of road</b>	DRCN priority	DRCN priority Road priority can be changed based on requirement	DRCN priority
<b>Maintenance classification</b>	<ul style="list-style-type: none"> <li>• Routine</li> <li>• Recurrent</li> <li>• Emergency</li> <li>• Periodic</li> <li>• Improvement</li> </ul>	<ul style="list-style-type: none"> <li>• Routine</li> <li>• Recurrent</li> <li>• Periodic Specific Maintenance'</li> <li>• Specific</li> </ul>	<ul style="list-style-type: none"> <li>• Routine</li> <li>• Upgrading and Rehabilitation</li> </ul>
<b>Planning process</b>	Detailed assessment of available and potential resources including GoN funding (rapid condition survey after monsoon to determine road condition)	Detailed assessment of available and potential resources including GoN funding (rapid condition survey after monsoon to determine road condition)	Detailed assessment of available and potential resources including GoN funding (rapid condition survey after monsoon to determine road condition)
<b>Planning process</b>	Detailed assessment of available and potential resources including GoN funding	Detailed assessment of available and potential resources including GoN funding	Detailed assessment of available and potential resources including GoN funding
<b>Implementation</b>	RMG	RMG	Length person for routine maintenance
<b>Input<sup>13</sup></b>	1.5 km/104 days per person per year	2 km/156 days per person per year (26 days per month)	<ul style="list-style-type: none"> <li>• Heavy input since focus is on road improvement and road rehabilitation</li> <li>• Routine maintenance input could not be ascertained</li> </ul>
<b>Work division</b>	Against agreed work plan with RMG	Against agreed work plan with RMGs	N/A
<b>Work supervision</b>	Supervision consultant (RAP3 staff) against agreed monthly work plan	SNRTP team against agreed monthly work plan	N/A
<b>Payment</b>	Individual (Sindhupalchowk) monthly wages deposited in RMGs personal account	Performance based payment into individual accounts	N/A
<b>Insurance of workers</b>	Accidental insurance of RMG	Accidental insurance of RMG	N/A

<sup>13</sup> The RMG Guidelines provides flexibility for the input which is 104 to 156 person days per year. Both RAP and SNRTP operates within this range.

### 3. Critical factors for LRN maintenance and possible future scenarios

The review team has identified three critical factors that will influence how LRN maintenance is developed, iterated on and mainstreamed going forward. These factors take into account the institutional history of the LRN sector, current systems and practices in place, the nature of the evolving political context and extensive discussions with stakeholders around all of these areas.

These factors are:

1. Adherence to or deviation from the identified length of the core network and subsequent funding commitments from local and provincial bodies.
2. The enactment of necessary legislation to clarify the roles and responsibilities of provincial government (e.g. authority to raise and spend taxation based on province level autonomy).
3. The coordination between DoLIDAR and RBN and roles and responsibilities at the federal level.

These factors are not intended to be exhaustive or final given the complexity of the context of unprecedented rapid state level structural reforms. However, they do provide a useful starting point for prioritising efforts as each factor is critical in its own right and will affect how LRN maintenance is prioritised in the new governance context.

The review envisages three different scenarios over the medium term timeframe of 3 to 5 years based on the interplay of these factors and presents these in Table 3. This period of time is used as a rough timeframe for the transition to a functioning governance structure.

1. The first scenario envisages a well-managed maintenance system established across the local bodies that requires coordinated and well-planned expansion to the DRCN primarily to meet existing gaps in DRCN connectivity. The reviews rates this as a low probability.
2. The second scenario expects a mixed scenario in LRN maintenance but with a positive trajectory. This scenario envisages greater expansion to the existing DRCN network but continued funding to RMG-led maintenance by the local bodies. The review rates this as a medium probability.
3. The third scenario envisages a downward trajectory in coordination of the existing LRN maintenance system and priority on new construction/up-gradation. Ongoing donor funded projects will likely continue to support local and provincial governments to plan and invest in the maintenance systems. However, the review rates this scenario as a low probability.

The review envisages scenario 2 to be the most likely outcome given the current state of LRN maintenance practice and policy in Nepal, the positive work achieved in the area as well as the challenges that are recognised.

**Table 3: Scenarios for LRN system in Nepal**

Scenario I: Well managed maintenance system in place	
<p><b>Length of the network and funding:</b></p> <ul style="list-style-type: none"> <li>• 25% additional rural roads added to the existing DRCN and 15% new construction/upgrading.</li> <li>• Federal, provincial and local governments allocate adequate resources (human and funds) for LRN maintenance.</li> <li>• Clarity on the roles and responsibilities of feeder road management between federal and provincial governments</li> </ul> <p><b>Necessary legal and policy frameworks:</b></p> <ul style="list-style-type: none"> <li>• Necessary legislation enacted to clarify the roles, responsibilities and authorities of federal and provincial government including public finance management roles of federal and provincial governments.</li> <li>• RBN and DoLIDAR provide technical backstopping to the provincial and local governments to implement LRN maintenance in a coordinated manner</li> </ul>	Low Probability
Scenario: II Mixed results in LRN maintenance systems	
<p><b>Length of the network and funding:</b></p> <ul style="list-style-type: none"> <li>• More than 25% existing rural roads added to the existing DRCN and construction/up-gradation exceed more than 15% of the existing DRCN</li> <li>• Local governments' prioritizes new construction/up-gradation and show willingness to pilot RMG led maintenance approach.</li> <li>• Federal and provincial governments could not reach an agreement over responsibilities of feeder road.</li> <li>• RMG based maintenance approach implemented in donors funded local bodies.</li> </ul> <p><b>Necessary legal and policy framework:</b></p> <ul style="list-style-type: none"> <li>• Protracted political negotiation to draft and enact roles, responsibilities and authorities of federal and provincial government including public finance management roles of federal and provincial governments.</li> <li>• RBN and DoLIDAR provide technical backstopping to the provincial and local governments to implement LRN maintenance</li> </ul>	Medium Probability
Scenario III: Deterioration of existing LRN maintenance systems	
<p><b>Length of the network and funding:</b></p> <ul style="list-style-type: none"> <li>• More than 50% existing rural roads added to the existing DRCN and construction/up-gradation exceed more than 30% of the existing DRCN</li> <li>• Local governments prioritize new construction/up-gradation and little or no fund allocation towards routine and recurrent maintenance.</li> <li>• Federal and provincial governments could not reach an agreement over responsibilities of feeder road that defines the provincial core network.</li> <li>• RMG based maintenance approach implemented in donors funded local bodies and other non-projects local bodies do not implement the RMG led maintenance approach.</li> <li>• RBN and DoLIDAR do not agree on their respective roles and responsibilities.</li> </ul> <p><b>Necessary legal and policy framework:</b></p> <ul style="list-style-type: none"> <li>• Federal parliament do not agree on the act to define roles, responsibilities and authorities of federal and provincial government including public finance management roles of federal and provincial governments.</li> <li>• RBN and DoLIDAR could not agree on their respective roles and responsibilities but realize the need for better coordination and their system work in parallel without any coordination.</li> </ul>	Low Probability



## 4. Conclusions and Recommendations

As highlighted in section 2, the LRN sector is undergoing complex and multifaceted institutional change. It is important that this does not disrupt progress made towards a coordinated and harmonised approach towards the 'maintenance first' agenda. The donor community has an important role to play in this regard, particularly during the period of governance transition in Nepal, and this presents both challenges as well as opportunities.

We have identified issues throughout the review and provide below a number of headline recommendations which we believe, are important for the smooth transition to LRN maintenance planning in the new federal governance structure. We are mindful that if accepted, each recommendation requires separate detailed analysis and planning.

- **ARMP planning.** The DCCs, as a replacement to DDCs, could serve as a forum for ARMP planning as a *transitional* measure. However, the executive role of the DTOs remains unclear<sup>14</sup>. The review assumes that ARMP planning through elected local bodies might be different and challenging for two reasons. First the elected local bodies will lack knowledge and understanding of the how the DRCN was prioritised as this has occurred under the old governance structure. Secondly, the priority of the elected representatives for the LRN sector may differ from established DRCN priorities. ARMP planning is therefore likely to benefit initially from facilitation support from senior technical personnel from the donor funded projects.
- **LRN maintenance policies and guidelines.** The GoN and donor funded projects need to develop a shared understanding on maintenance typologies, and the Maintenance Directive (2008) should be amended to reflect this. It is also recommended that all existing LRN maintenance related policies and guidelines be consolidated under the Maintenance Directive. This would enable a more accessible and user friendly guiding document for the local bodies to refer and adhere to. We recommend that this activity be jointly undertaken by DoLIDAR and LRN donors through a Technical Committee<sup>15</sup>.
- **Transport Master Plans.** The preparation of the DTMPs and subsequent DRCN was a lengthy and resource intensive process. At this point of time, the review team envisages the need for a Provincial Transport Master Plan (PTMP) and Municipal Transport Master Plan (MTMP) to identify and prioritise core networks for each level respectively. As with the DTMPs, this is likely to be resource intensive and to require technical support. A pool of donors' funds could be created to facilitate to pay for the transport master plans revision.

**There could be demands for new lengths of DRCN by municipalities to be included in the DRCN.** Political decision making on what DRCN roads are important

- **Role of RBN.** The role of the RBN in LRN maintenance planning needs to be reconsidered. The situation could be improved by building mechanisms to coordinate LRN maintenance funding between the RBN and the provincial and the local governments. This may help address coordination issues that currently exist whereby the RBN implements LRN maintenance activities in parallel to donor and DoLIDAR systems for LRN maintenance planning. DFID Nepal's ongoing institutional development support to RBN could be leveraged to assess the feasibility for improving coordination between RBN and different tiers of governments.

---

<sup>14</sup> On 22 September 2019, GoN has delegated DTOs the authority to make financial decisions for the rural infrastructure sector, including rural roads for this fiscal year.

<sup>15</sup> This is assumed that DoLIDAR will continue to exist and lead in the LRN sector, at least in a transitional period.

- **Future role of DoLIDAR.** The role of DoLIDAR in the central ministerial/departmental restructuring in the near future is currently unclear. The donor community could inform the restructuring process by lobbying the GoN that a central focal agency be appointed to ensure smooth management and oversight of LRN activities and policies/guidelines etc. – essentially taking on the mandate that DoLIDAR currently has in the LRN sector.
- The review team envisages the need for a concentrated effort from the central government and development partners to ensure the effective implementation of LRN maintenance planning within the newly formed local bodies. We suggest that the following capacity building activities should be considered to help facilitate this:
  - **Orientation to LRN maintenance approaches and management processes for newly elected office-bearers.**
  - **Recruitment and capacity building of technical human resources.** At the time of writing this report, the review team had learnt that one engineer will be transferred from the central government pool to each local body. Given the significant resource demand for LRN activities, the review team believes that donor funded projects could further support the local bodies through cost effective measures such as the ‘Graduate Engineers Programme’ implemented by RAP. These graduates could be placed within the local bodies’ structure with regular backstopping from donor funded projects and a pool of experts at the central level.
  - **Provision of equipment and logistics support to local bodies.** Experience from RAP3 has demonstrated that regular monitoring and feedback to RMGs can improve their efficiency and effectiveness. Hence, consideration should be made for capacity building support to local bodies to include necessary equipment and logistics (for e.g. motorbikes) for personnel involved in supervising maintenance activities.
  - **Backstopping support to local bodies could emerge as ‘maintenance champions’.** A flexible mechanism could be useful to incentivise local bodies to pilot innovative LRN maintenance approaches. Through this, effective approaches could be supported and championed. Donors could take a lead in this by creating ‘LRN maintenance innovation fund’ and associated technical backstopping. The review team expects resourceful and progressive local bodies such as Dhulikhel, Pokhara and Chitwan to be receptive to pilot innovative ideas.

## Annex 1: List of documents reviewed

The Maintenance Directive (2008)

The Road Maintenance Group (RMG) Guidelines

Annual Road Assets Management Plan (RAP3)

Nepal Road Sector Assessment Study

Funding Guidelines of the RBN

Operational Guidelines of SNRTP

LRN Review Report

Annual Reports of the RBN

## Annex 2: List of people consulted

Aman Jonchhe, Infrastructure Coordinator, SDC  
Amrita K. C, Engineer, SNRTP/ILO, Dhading  
Arjun Paudel, Deputy Programme Manager, RAP3  
Ashok K. Byanju, Mayor, Dhulikhel Municipality  
Bharat Arya, DTO Chief, Dhading  
Bill Seal, Engineering Team Leader, RAP3  
Dilli Prakash Situala, Deputy Programme Manager, RAP3  
Dr. Suman Baidya, Infrastructure Advisor, DFID  
Elsa Pradhan, Engineer, SNRTP/ILO, Dhading  
Ganga B. Basnet, Senior Divisional Engineer, Coordinator-RTI/SWAP, DoLIDAR  
Jeevan Guragain, Senior Divisional Engineer, Coordinator-LRIP, DoLIDAR  
Jeevan Kumar Shrestha, Director General, DoLIDAR  
Krishna S. Basnet, Executive Director, Roads Board Nepal  
Laxman Bhakta Dahai Shrestha, GIS Engineer, RAP3  
Madhab Jung Karki, DTO, Sindhupalchowk  
Manoj Shrestha, LRN Assets Management Specialist, RAP3  
Michael Green, Programme Manager, RAP3  
Punya Ram Sulu, DTO Engineer, Sindhupalchowk  
Rajendra Bhandari, Engineer SNRTP, Dhading  
Ram Chandra Shrestha, Deputy Director General, DoLIDAR  
Ram Singh Bohora, RAP3, Sindupalchowk  
Sagar Gyawali, Technical Director, RBN  
Shristi Maharajan, Graduate Engineer, Sindupalchowk/RAP3  
Sujan Bhandari, DTO Engineer, Sindhupalchowk  
Sujata Dhakal, Engineer, SNRTP/ILO, Sindhupalchowk