

Research Article

Perception based Assessment of the Opportunities and Challenges of DTMP of Rautahat District, Nepal

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A B S T R A C T

The District Transport Master Plan (DTMP) is prepared to provide single approach on planning, resource mobilization, implementation and monitoring for the sustainable development of rural roads. This paper aims to assess the Opportunities and challenges of DTMP in Rural road development of Rautahat district. It is a non-experimental, descriptive and analytical study.

After implementation of DTMP political leaders were aware about the importance of DTMP in effective and efficient planning, resource mobilization and implementation of rural roads development. Budget volume was increased day to day by attracting Donor as well as giving clear picture to center for allocation of sufficient central budget. It has prevented hazardous construction of new rural road and helps in environment protection. It helped to understand the importance of Maintenance in rural road serviceability and asset management. By use of Road Maintenance Groups, Employment is generated to marginalized people. Maintenance and Improvement were prioritized and Village Development Center was connected with all-weather road. Upgraded roads have decreased travel time, increased Safety and Comfort along with improved productivity of agricultural products, education, health services. Due to lesser number of projects also quality of work is increasing by regular supervision and application of Quality Assurance Plan (QAP). Reduction in number and length of rural roads but increase in budget, all engineering, social and environmental aspects have considered in rural road development. During implementation there are so many disputes due to unclear Right of Way, lack of availability of material in all seasons, non-availability of manpower and non-responsiveness of Contractor are major causes to delay of project which hinders the achievement of DTMP target.

Keywords: Perception, Budget, Employment, Projects

Introduction

Prior to 1999, rural road planning was based on Ad-hoc. Planning and prioritization in the road sector tend to be strongly influenced by political priorities rather than based on objective prioritization criteria and planning procedures. Funding is sprinkled over a large collection of small road projects, with these projects often continuing for several years in order for the works to be completed. This has reduced the effectiveness and efficiency of road sector investments.

After the commencement of Local Self Governance Act (LSGA, 1999) and its provision in clause No. 207 (1) (2) for National Planning Commission (NPC) and related ministry of Government of Nepal (GoN) to provide necessary instruction to District Development Committees (DDC) for preparation of District Development Plan (DDP) and its implementation. Different tool is used to prepare DDP. Among different tool that are used to prepare DDP, District Transport Master Plan (DTMP) is one of the tools for road sector planning.

An approach manual for the development of Agriculture and Rural Roads was prepared in 1999. This document provides a single approach for the development of rural and agricultural roads as envisaged by the National Strategy for Rural Infrastructure Development, which aims at developing basic rural infrastructure (with strong emphasis on rural and agricultural roads) country-wide in a planned and sustainable means by adopting the labor-based, local resource-oriented, environment-friendly and in accordance with the decentralized, participatory approach. At that time planning is mainly focused on new construction because of less existing road. During this period most of the Districts built numerous roads.

In a single Decade, we have constructed rural road network is about 50944 km (Do LIDAR, 2011/12 rural road inventory), the surface of LRN roads is 1576 km blacktop, 14602 km gravel and 34766 km earthen. Their sustainability and engineering aspects, however, remain under question. Most of these roads are impassable and non-engineered.

DTMP 2010 guideline is prepared in line with National transport policy of bringing the population within 2-hour walking distance in Terai, 4 hours in hills and 6 hours in mountain districts and to bring the impassable road to operational condition by maintenance and upgrading to improve the accessibility of the people. Planning process of this guideline select many roads in single VDC with high priority but still no road in other VDC. Which again causes numerous no of road in DTMP without coverage of all VDC of district and its implementation causes high funding gap. Thus, Guideline Further Revised as DTMP guideline 2012.

DTMP 2012 guideline is prepared based on principle of all-weather Core Road Network in each village connecting VDC Center with District head Quarter directly or indirectly through other roads. Based on Current DTMP guideline 2012, Rautahat District has revised its DTMP. The district inventory has identified 813.75 km of rural roads in Rautahat, having 31 No. of rural roads with a length of 248.4 km as District Road Core Network (DRCN) and the remaining 565.35 km as village roads. Of the 248.4 km DRCN roads, 21.09 km black top, 162.69 km gravel and rest 64.63 km are earthen fair-weather roads are managed by District level by DDC and other stakeholder and Village roads are managed by VDC level. The existing DRCN roads link up all VDC headquarters. Annual conservation costs are estimated at NPR 70.438 million based on the standard rate used in DTMP and will be updated in the ARAMP based on actual annual maintenance needs as determined in the annual road condition survey.

Research Objectives

The overall objective of the study is to assess the opportunities and challenges of DTMP of Rautahat District based on perception.

Study Area

The study area of the proposed research thesis chosen is Rautahat district as a whole, the district has been taken for the study purpose because it is one of the SNRTP project district. Which DTMP was prepared in 2013 under RAIDP and then it's DTMP is revised on the basis of DRCN concept (DTMP 2012) in 2016. The total area of the district is 1126 km². The district lies partly in the Chure-Hills and partly in the Terai region. There are 31 rural roads with a length of 248.40 km were identified as making up the District Road Core Network (DRCN) and the remaining 565.35 km were classified as village roads. The existing DRCN roads link up all VDC headquarters. Out of the 248.4 km DRCN roads, 21.09 km black top, 162.69 km gravel and rest 64.63 km are earthen fair-weather roads.

Interview with Planners

Interview was taken with district level planners about implementation of DTMP. District Level Planners were 5 personnel from DDC/DTO and 7 from political parties.

Interview with Users

The view of road users for vehicles was taken by interview method. During interview drivers of Bus, Truck, Mini-Bus, Mini-Truck, Jeep, Car, Motorbike and Bicycle were asked about the road uses. The number of trips in a day, origin and destination of their drive were asked. The working status of contactors was asked in terms of Quality, Social and environmental aspects as well as dispute at work site and satisfaction with work.

Data Analysis

The analyses of the collected data/ information were organized into their representative categories. Each category was analyzed separately based on the data collected by questionnaire, in-depth interview, field verification and FGD. Qualitative aspect of the research was analyzed based on participatory and bottom-up planning approach, steps made for preparation/ revision of DTMP and other implementation policies and guideline of DTMP and ARMP. For quantitative data analysis of the research, Table and statistical tools were used.

Methods of Research

Table 1, show the method of research which was used for the proposed work.

Result and Discussion

Performance of Rural Road as Per DTMP

The result is drawn on the basis of questionnaire survey and their view with local level planners DDC/ DTO and political parties as well as views of expert and road users.

DTMP of Rautahat

District Development Committee was prepared the DTMP of Rautahat district in year 2013 firstly based on DTMP guideline 2010. According to DTMP 2013 of Rautahat, total rural road length in the district is 821.89 km including highway and feeder roads, which consists of 87.83 km SRN, 584.96 km LRN (RRA and RRB) and remaining 149.10 km Village roads (DTMP-2013).

DTMP 2010 guideline is prepared in line with National transport policy of bringing the population within 2-hour walking distance in Terai, 4 hours in hills and 6 hours in mountain districts and to bring the impassable road to operational condition by maintenance and upgrading to improve the accessibility of the people. Planning process of this guideline select many roads in single VDC with high priority, but still chances of no any single road in other VDCs which again causes numerous numbers of roads in DTMP without coverage of all VDC of district and its implementation causes high funding gap. DTMP 2012 guideline is prepared based on principle of all-weather core network in each village connecting VDC Center with District head Quarter.

Major Changes in Current DTMP

According to DTMP 2013 of Rautahat, total rural road length in the district is 821.89 km including highway and feeder roads, which consists of 87.83 km SRN, 584.96 km LRN (RRA and RRB) and remaining 149.10 km Village roads (DTMP-2013). The Latest DTMP 2016 consists of 31 District Road Core Network (DRCN) with a total length of 248.4 km and 565.35 km village roads (DTMP-2016).

Hence, reduction in road length = $584.96 - 248.4 = 336.56$ km

The main principle of DTMP is to make direct or indirect connection of each & every VDC Centre with district headquarters through all-weather road. All VDC centre of Rautahat District Were Fair weather connectivity with District Head quarter but during Monsoon some VDC centre

Table 1. Methods of research

Objectives	Data type	Data collection	Data analysis
To analyze the resource planning for DTMP implementation.	Primary and secondary data	DTMP of the district, ARMP fiscal year wise, district development plan, annual progress report, questionnaire survey and other relevant documents related with the matter.	Quantitative analysis and suitable statistical tool
To analyze the Performance of DTMP in rural road development.	Primary and secondary data	Questionnaire survey and interview with local level planners from DDC/ DTO and Local political leaders. Separate in-depth interview with environmental safeguard consultant, social safeguard consultant and road users.	Descriptive, qualitative

It was found that some of the political leaders were unaware of initial DTMP preparation; however, they are familiar with Current DTMP.

Revision of DTMP with Causes

The DTMP of Rautahat district was revised in year 2016 due to new DTMP guideline 2012 (change in DTMP Guideline 2010). The Latest DTMP 2016 consists of 31 District Road Core Network (DRCN) with a total length of 248.4 km and 565.35 km village roads. The DRCN roads will be managed by DDC and village roads under the responsibility of the VDCs (DTMP-2016).

(Barharwa) were not access with district Head Quarter only due to lack of cross-drainage structure.

Compliance with Priority of District

DTMP couldn't satisfy all the needs and priority of district. DTMP lacks connection between Ward centers to VDC center. Most of the rural roads which were built earlier are avoided by DTMP, are also the assets and need to give attention for maintaining those roads. DTMP couldn't make tie up with current restructuring of country and local level.

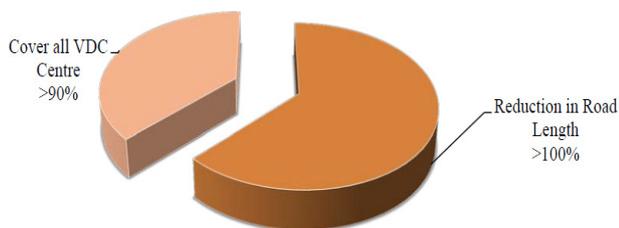


Figure 1. Major changes in current DTMP

Adoption of DTMP

The DTMP should be adopted during implementation phase to meet the target of conservation work, improvement work and new construction work set by DTMP. In Rautahat all VDC center were connected already so no need of new construction however from Nirwahan Purbadhar Bikash Karyakaram new construction were carried out of DTMP. Road sector central Budget, Road Project like SNRTP as well as Bridge Budget had condition to follow DTMP plan and Schedule.

Significance of DTMP

Utilization of Resources and Reduction of Political Influence as well as Duplication of Resources

DTMP helps in proper utilization of resources by preventing scattering of budget and managing the required technical manpower. Besides this, it reduces political interrupt through fair selection process because most of Road Sector Budget has conditional directive to follow DTMP. DTMP reduces Road Network drastically which help to manage these priority roads with our limited resources.

DTMP helps to avoid duplication in resource allocation because DTMP has defined the Road name and its code and easily available to all. However, some agency e.g. DoR as well as different NGOs perform works in small road sections without any co-ordination.

Budget Allocation on Rural Road

Budget Allocation Process

80% respondents responded that annual budget is allocated on the basis of DTMP, while 20% respondents responded that decision of annual DDC council matters during budget allocation on rural road (Table 2).

Q. How annual budget on rural road is allocated?

Table 2. Budget allocation process

Response	Respondent (nos.)	Respondent (%)
As per decision of political parties	-	-
On the basis of DTMP	8	66.66
Decision of annual DDC council	4	33.33

There is mandatory provision on road budget title of road construction to follow DTMP. Road project document is coordinated with DTMP in practice.

It can be interpreted that annual budget allocation for rural road is to full fill target of DTMP which is decided by DDC council.

Budget Allocation Compliance with DTMP

Although All respondents responded that Budget allocation not complied with DTMP. At first year of DTMP implementation there were huge Fund Gap but after it became narrower which clearly indicates that Road Budget increased in district and allocated as per DTMP. From Gap analysis, fund gap for maintenance was 37.38% and improvement was 8.6%. Improvement gap is less due to DoR fund in rural road was also added. It can be concluded that there is more than 25% financial gap and must be narrow down or meet the gap to achieve the target.

Trend of Resources and Projects after DTMP Implementation

100% respondents responded that the trend of resources and projects have increased hugely after the implementation of DTMP (Table 3).

Q. Have you felt that after implementation of DTMP the trend of resources and projects have increased hugely?

Table 3. Trend of resources and projects

Response	Respondent (nos.)	Respondent (%)
Highly	9	75
Satisfactorily	3	25
Not significantly	-	-

There were few road projects in district prior to DTMP implementation and budget allocation for road projects was NRs 10 to 15 million annually in district. Although at First F/Y of DTMP implementation there were huge Fund Gap (50%-75%) but in succeeding F/Y it became very narrow.

Maintenance Budget

100% respondents responded that maintenance budget hugely increased in rural road maintenance after implementation of DTMP. Before DTMP implementation there were no culture of maintenance of roads only emergency maintenance were carried out. Mainly SNRTP projects were helped to meet the target of DTMP in maintenance. It covered more than 80% maintenance budget. Maintenance is the first priority of SNRTP project which complied with DTMP Priority. Fund gap was decreasing in succeeding year of DTMP implementation which will cover or may above the target of DTMP at the end. However, analysis indicate that few gaps as per DTMP but in actual the allocated budget is not maintaining the

road for smooth operation because most of rural roads were in rehabilitation condition, there were so many back logs in rural road which were required first to make maintainable.

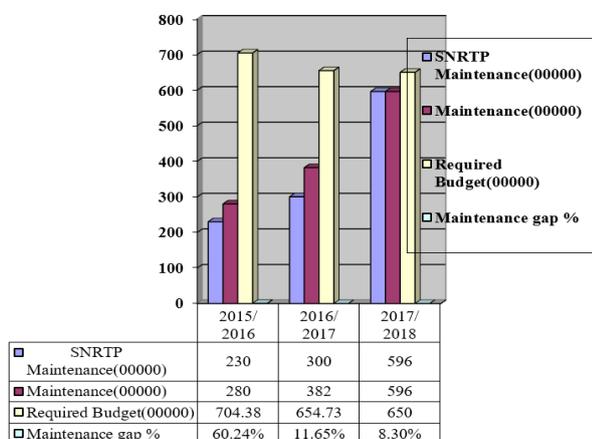


Figure 2. Allocation of maintenance budget

Budget Allocation in Up-gradation of Rural Road

Most of respondent responded that up gradation budget of rural road was not sufficient but as per DTMP target it was above. It indicates that the demand for upgrading is hugely increased as compared to budget allocation.

Budget Allocation in New Construction of Rural Road

75% respondents responded that up to 25% budget is allocated in new construction work (Table 4).

Q. What percentage of rural road budget allocated in new construction of rural road?

Table 4. Budget allocation in new construction of rural road

Response	Respondent (nos.)	Respondent (%)
Up to 25%	9	75
25% to 50%	3	25
50% to 75%	-	-
> 75%	-	-

One crore budget was allocated for new construction of rural road (not in DTMP road) from Nirwan Chhetra Purbadhar Bikash programme in fiscal year 2016/2017 i.e. about 9% budget was allocated for new construction of rural road.

Priority of Work

83.33% respondents responded that the maintenance of rural road is in top priority whereas only 16.66% respondents responded that up-gradation of rural road is in top priority (Table 5).

Q. In your opinion what is the priority of new construction, Upgrading and Maintenance in this District?

Table 5. Priority of work

Response	Respondent (nos.)	Respondent (%)
Maintenance >Upgrading >New construction	10	83.33
Up grading >Maintenance >New Construction	2	16.66
New Construction >Upgrading >Maintenance	-	-

SNRTP projects are working in maintenance of rural road which covers 168 km road length out of total target of DTMP i.e. 248.40 km and 56 km road length for up gradation work. The budget allocation is higher in up gradation of rural road than maintenance work, that's why 16.66% respondents might rank up grading in top with respect to maintenance.

It can be concluded that maintenance of rural road is in top priority, followed by up grading.

Capability of Human Resources

Only 25% respondents responded that the existing technical manpower is capable and motivated for road construction activities whereas 75% respondents didn't agree with this (Table 6).

Q. Do you feel that the existing technical manpower is capable and motivated for road construction activities?

Table 6. Capability of human resources

Response	Respondent (nos.)	Respondent (%)
Yes	3	25
No	9	75

Q. If no, what would be the possible solution?

Table 7. Solution for capability enhancement

Response	Respondent (nos.)	Respondent (%)
Organizing capacity development training	6	66.66
Providing incentive	2	22.22
Out sourcing	1	11.11
All of above	-	-

In past years, small projects were implemented by DDC and now the scenario is changed. Now, there are number of large and important projects in implementation phase which obviously increases the work load. There is lack of performance-based pay system, capacity development

training as well as refresher trainings for manpower i.e. causing decrease in capability of human resource.

It can be concluded from response shown that organizing capacity development training is best possible solution. Besides this, providing incentive and out sourcing also might be the solution for capacity enhancement, Skill transfer and motivation of workers (Table 7).

Challenges for Implementation of DTMP

All responded that DTMP guidelines not justifiable; 50% respondents responded inadequate financial resource as main challenge, 33.33% responded political influence as main challenge, 16.66% respondents responded that lack of skilled technical manpower is main challenge for implementation of DTMP (Table 8).

Q. In your opinion, what is the main challenge for implementation of DTMP?

Table 8.Challenges for DTMP implementation

Response	Respondent (nos.)	Respondent (%)
Lack of skilled technical manpower	2	16.66
Inadequate financial resource	6	50
Political influence	4	33.33
DTMP guidelines not justifiable	12	100
If any other, specify	-	-

It can be concluded that DTMP guidelines not justifiable, is the major challenge for DTMP implementation. The financial resource gap is higher and need to fill up. The capacity enhancement of available technical manpower is much necessary job and, last but not the least, political influence needs to be sidelined by electing local leader as soon as possible.

Necessity of DTMP

80% respondents responded that DTMP is highly necessary where as 16.66% respondents responded that DTMP is necessary (Table 9).

Q. What is your view regarding necessity of DTMP?

Table 9.Necessity of DTMP

Response	Respondent (nos.)	Respondent (%)
Highly necessary	10	83.33
Necessary	2	16.66
Not necessary	-	-

In past years, there was practice of road excavation by different agencies in haphazard way. There were various roads in district but not in pliable condition. So, this is the need of time to construct and manage road & road condition as per priority basis by avoiding resources scatterings and putting under one umbrella plan i.e. DTMP. Due to DTMP many more road project and donor fund have come for investment because plan only shows the necessity which gives DTMP.

Importance of DTMP

75% respondents responded that DTMP is important for rural road planning/ construction, effective utilization of resources, prevention of resource scattering trend where as 25% respondents responded that DTMP is important for effective utilization of resources (Table 10).

Q. DTMP is important for.

Table 10.Importance of DTMP

Response	Respondent (nos.)	Respondent (%)
Rural road planning/ construction	-	-
Effective utilization of resources	3	25
Prevention of resource scattering trend	-	-
All of above	9	75

It can be concluded that DTMP is important for rural road planning/ construction and priority-based resource allocation which results prevention of resource scattering trend as well as effective utilization of available resources ultimately.

Feedback of SNRTP Project

60% respondents responded that very much change in travel time, safety and comfort in rural road is observed after implementation of SNRTP where as 40% respondents responded that there is satisfactory change (Table 11).

Q. Is there any change in travel time, Safety, Comfort in Rural Road after implementation of SNRTP?

Table 11.Feedback of SNRTP

Response	Respondent (nos.)	Respondent (%)
Very much	7	58.33
Satisfactory	5	41.66
No significant	-	-

SNRTP projects covers 224 km of road length out of 248.4 km total road length. It can be concluded that there is appreciable change in travel time, safety and comfort in

rural road after the implementation of SNRTP projects adopting DTMP i.e. positive change in livelihood of local people.

Feedback of DTMP Implementation

75% respondents responded that they are highly satisfied with existing rural road planning/ construction practice using DTMP where as 25% respondents responded that they are satisfied (Table 12).

Q. Are you satisfied with the existing rural road planning/ construction practice using DTMP?

Table 12. Feedback of DTMP implementation

Response	Respondent (nos.)	Respondent (%)
Highly satisfied	3	25
Satisfied	9	75
Dissatisfied	-	-

It can be concluded that the current DTMP implementation is in right tract and might satisfy need of district. Most of VDCs center have all weather connectivity. But still many of ward centers are not connected with VDCs centre are not covered in DTMP.

Questionnaire for Local Political Leaders

Knowledge of DTMP

100% respondents responded that they are familiar with DTMP (Table 13).

Q. Do you know about DTMP?

Table 13. Knowledge of DTMP

Response	Respondent (nos.)	Respondent (%)
Yes	7	100
No	-	-

It can be concluded that all political leaders are familiar with DTMP in Rautahat district. This is very good sign which may ease in smooth implementation of DTMP.

Implementation of DTMP

57% respondents responded that DTMP has been implemented from 3-4 years ago whereas about 43% respondents responded that they don't know from when it has been implemented in district (Table 14).

Q. If yes, from when was it implemented in the district?

It is found that some of the political leaders are unaware of initial DTMP preparation, however, they are familiar with DTMP i.e. revised DTMP. It can be concluded that most of the political leaders are well known of DTMP and its implementation in recent days.

Table 14. Implementation of DTMP

Response	Respondent (nos.)	Respondent (%)
More than 5 years ago	-	-
3-4 years ago	4	57.14
1-2 years ago	-	-
Don't know	3	42.85

Practice of Rural Road Planning and Construction prior to DTMP

About 71% respondents responded that rural road planning & construction were done as per decision of DDC council prior to DTMP concept and about 29% respondents responded that rural road planning & construction were done on the basis of district development plan, decision of DDC council as well as interest of political leaders (Table 15).

Q. Prior of DTMP concept, how rural road planning and construction were done?

Table 15. Practice of rural road planning & construction

Response	Respondent (nos.)	Respondent (%)
As per decision of DDC council	5	71.43
As per our interest	-	-
Above all	2	28.57
Don't know	-	-

It can be concluded that there was practice of rural road planning & construction, where decisions were made by DDC council on the basis of District Development Plan with influence of politics.

Involvement in DTMP Preparation

About 71% respondents responded that they are involved in DTMP preparation whereas about 29% have no involvement (Figure 3).

Q. Are you/ your party involved during preparation of DTMP?

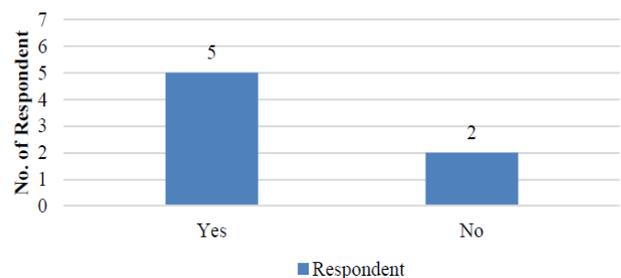


Figure 3. Involvement in DTMP preparation

Table 16, summarizes the reasons of not participating in DTMP preparation. 50% respondent responded that he/she was not informed whereas 50% respondent responded that he/she was informed but not get involved in DTMP preparation.

Q. If no, Why?

Table 16. Reasons of not participating in DTMP preparation

Response	Respondent (nos.)	Respondent (%)
We were not informed	1	50
We were informed but we did not get involved	1	50
We did not give interest on it	-	-

The DTMP preparation strongly advocates meaningful participation of all key stakeholders in the planning process to make DTMP more acceptable and ensure ownership. The preparation process goes through a series of technological activities that include consultation workshops and interactive meetings with stakeholders to increase participation of all stakeholders. These activities include District level workshop, DTICC meetings and cluster of Ilaka level workshops, formal/ informal meeting, focus group discussions and transit walk, etc. At every stage, to careful consideration is given to ensure access and high level of participation of representatives from line agencies, major political parties, social leaders, women organizations, Dalit and Janjati coordination committees, differently able people, chamber of commerce, transportation association etc.

It can be concluded that there is practice of ensuring political involvement in DTMP preparation but some of political leaders or party might not participated due to communication problem or their own negligence.

Adoption of DTMP

About 14% respondents responded that adoption of DTMP can be ensured by making it mandatory, about another 14% respondents responded that adoption of DTMP can be ensured by allocating the budget as per DTMP. About 72% respondents responded that political commitment and budget allocation as per DTMP as well as mandatory provision by DDC are essential for adoption of DTMP (Table 17).

Q. How adoption of DTMP during implementation can be ensured?

It can be concluded that District Development Committee should make DTMP mandatory firstly and then budget allocation must be as per DTMP and finally it needs political

commitment for ensuring the adoption of DTMP during implementation.

Table 17. Adoption of DTMP

Response	Respondent (nos.)	Respondent (%)
Political commitment	-	-
DDC should make it mandatory	1	14.29
Total requirement of budget as in DTMP should be allocated to the district	1	14.29
All of above	5	71.42

Effectiveness of DTMP

100% respondents responded that DTMP is an effective rural road planning document (Table 18).

Q. Is DTMP an effective rural road planning document?

Table 18. Effectiveness of DTMP

Response	Respondent (nos.)	Respondent (%)
Yes	7	100
No	-	-

14% respondents responded that DTMP helps in guided and targeted plan, avoid disputes in selection process, give clear picture to GoN/ Donor. About 58% respondents responded that DTMP is helpful in guided and targeted plan, avoid disputes in selection process, prevents scattering of budget, give clear picture to GoN/ Donor (Table 19).

Q. If yes, because DTMP helps.....?

Table 19. Effectiveness of DTMP

Response	Respondent (nos.)	Respondent (%)
Guided and targeted plan	1	14.29
Avoid disputes in selection process	1	14.29
Prevents scattering of budget	-	-
Give clear picture to GoN/Donor	1	14.29
All of above	4	57.13

It can be concluded that DTMP is effective rural road planning document which give clear picture to GoN/ donor, avoids disputes in selection process as well as prevents scattering of budget.

Knowledge of DRCN

About 86% respondents responded that they were familiar with District Road Core Network (DRCN) whereas about 14% respondents responded that they didn't know about DRCN (Figure 4).

Q. Do you know about DRCN (District Road Core Network) Road?

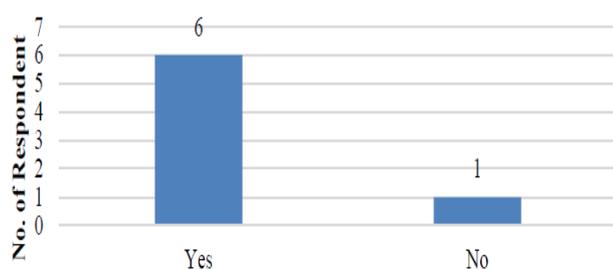


Figure 4. Knowledge of DRCN

It can be concluded that almost all political leaders are fully aware of District Road Core Network (DRCN) of Rautahat.

Coverage of DRCN

About 83% respondents responded that they are one DRCN in every village whereas about 17% respondents responded that they didn't know about number of DRCN roads in Rautahat district as summarized in Table 20.

Q. If yes, how many DRCN roads are in your District?

Table 20. Number of DRCN

Response	Respondent (nos.)	Respondent (%)
Don't know	1	16.67
One in every village	5	83.33
If known, specify	-	-

About 100% respondents responded that DRCN roads have covered all VDC linkage within the district (Table 21).

Q. Are DRCN roads covered all VDC linkage in your District?

Table 21. Coverage of DRCN

Response	Respondent (nos.)	Respondent (%)
Yes	6	100
No	-	-

It can be concluded that DRCN roads have covered all VDC linkage in Rautahat district and there is one DRCN in every village.

Accessibility to VDC

About 100% respondents responded that rural roads give access to all VDC of district and replied positively.

Q. Are the rural roads give access to all VDC of District?

It can be concluded that all VDC have rural road access within the district.

Implementation of DTMP

Table 22, summarizes the result of whether DTMP is implementing as per its plan/ projections or not. About 29% respondents responded that DTMP is implementing as per its plan/ projections whereas about 71% responded reverse.

Q. Is DTMP implementing as per its plan/ Projections?

Table 22. Implementation of DTMP

Response	Respondent (nos.)	Respondent (%)
Yes	2	28.58
No	5	71.42

Table 23, summarizes the reasons behind DTMP is not implementing as per its plan/projections. About 80% respondents responded that DDC don't receive total budget as set in DTMP whereas about 20% responded that they are made forced by local community to allocate budget avoiding DTMP.

Q. If No, why?

Table 23. Reasons behind lag in implementation of DTMP

Response	Respondent (nos.)	Respondent (%)
DDC do not receive total budget as set in DTMP	4	80
We neglect DTMP	-	-
We are made forced by our community to allocate budget avoiding DTMP	1	20
If any, specify	-	-

It can be concluded that DTMP is not being implemented as per its plan/ projections and the reasons behind lag in implementation of DTMP are deficiency of budget i.e. not as set in DTMP as well as local political pressure on budget allocation avoiding DTMP in non-conditional budget.

Table 24. Annual budget allocation (before DTMP)

Response	Respondent (nos.)	Respondent (%)
25% to 50%	6	85.71
50% to 75%	1	14.29
75% to 100%	-	-

Budget Allocation Prior to DTMP

Table 24, shows the result of annual budget allocation on rural road sector, before implementation of DTMP. About

86% respondents responded that DDC receives 25% to 50% of annual budget on rural road sector whereas about 14% respondents responded that 50% to 75% of annual budget on rural road sector, before implementation of DTMP.

Q. In your opinion, what percentage of annual budget does the DDC receives on rural road sector, before implementation of DTMP?

Table 25, shows the result of annual budget allocation on rural road sector, based on the annual targeted budget set on DTMP. About 86% respondents responded that DDC receives 50% to 75% of annual budget on rural road sector whereas about 14% respondents responded that 25% to 50% of annual budget on rural road sector, based on the annual targeted budget set on DTMP.

Q. In your opinion, what percentage of annual budget do the DDC receives on rural road sector, based on the

Table 25. Annual budget allocation (as per target of DTMP)

Response	Respondent (nos.)	Respondent (%)
25% to 50%	-	-
50% to 75%	7	100
75% to 100%	-	-

annual targeted budget set on DTMP?

It can be concluded that annual budget allocation for rural road is hugely increased after the implementation of DTMP, but still need to fill up the financial gap.

Budget Allocation Process

All respondents responded that budget in rural road is allocated as decided by annual DDC council after the DTMP is implemented in the district (Table 26).

Q. After the DTMP is implemented in the district, how budget in rural road is allocated?

Table 26. Annual budget allocation process (after DTMP)

Response	Respondent (nos.)	Respondent (%)
In proportionate as set in DTMP	-	-
As decided by annual DDC council as per DTMP projections	7	100
As per decision of political parties		
Decision of LDO/DDC		

It can be concluded that budget allocation for rural road is made as per decision of annual DDC council as per DTMP after implementation of DTMP in the district.

Increase of Projects after DTMP Implementation

About 86% respondents agreed that many more projects are being implemented in district only after implementation of DTMP to achieve its targets and about 14% respondents disagreed on that (Table 27).

Q. Do you agree that many more projects implemented in your district only after implementation of DTMP to achieve its targets?

Table 27. Increase of projects after DTMP implementation

Response	Respondent (nos.)	Respondent (%)
Agreed	6	85.71
Not agreed	1	14.29

It can be concluded that many more projects are being implemented within the district after implementation of DTMP to achieve its targets. Some of political leaders have denied, that might be due to communication gap or lack of their attention.

Status of SNRTP Project

All respondents responded that they know SNRTP projects are working in Rautahat district (Table 28).

Q. Do you Know SNRTP projects working in your district?

All respondents responded that SNRTP project works in DRCN road of rural road (Table 29).

Table 28. Familiarization with SNRTP

Response	Respondent (nos.)	Respondent (%)
Yes	7	100
No	-	-

Q. What is the working modality of this project?

Table 29. Working sector of SNRTP

Response	Respondent (nos.)	Respondent (%)
Rural road	-	-
DRCN road of rural road	7	100

Q. In which sector it works?

All respondents responded that the working modality of this project is both maintenance as well as upgrading of rural road (Table 30).

Table 30. Working modality of SNRTP

Response	Respondent (nos.)	Respondent (%)
Maintenance	-	-
Upgrading	-	-
Both	7	100

It can be concluded that almost all political leaders are fully aware of SNRTP projects, working in the district; they know the working sector of SNRTP as DRCN road of rural road; they have knowledge on working modality of this project i.e. both maintenance as well as upgrading of rural roads within the district.

Implementation Challenges of DTMP

About 29% respondents responded that lack of everybody's commitment is major challenge in implementation of DTMP. About 14% responded that lack of technical manpower as well as lack of budget is implementation challenges whereas about 43% respondents responded that all above are the challenge in implementation of DTMP (Table 31).

Q. In your opinion, what is the challenge in implementation of DTMP?

Table 31. Implementation challenges of DTMP

Response	Respondent (nos.)	Respondent (%)
Lack of everybody's commitment	2	28.59
Lack of technical manpower	1	14.28
Lack of budget	1	14.28
All of above	3	42.85

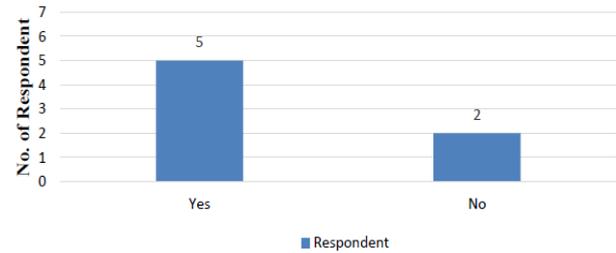
It can be concluded that ensuring the stakeholders' commitment as well as cooperation & coordination among them are major challenges for implementation of DTMP. Besides this, efficient management of technical manpower and required budget might also be the challenges, need to be coped.

Feedback of DTMP

About 71% responded that they are satisfied with the present DTMP of the district where as about 29% responded reverse (Figure 5).

Q. Are you satisfied with the present DTMP of the district?

It can be concluded that current DTMP may meet the need of district since most of the political leaders are satisfied with the present DTMP of district.

Feedback of DTMP**Figure 5. Feedback of DTMP**

Interview/ Discussion with LDO and DTO Chief

A set of subjective questions was prepared for Local Development Officer of District Development Committee and Chief of District Technical Office, Rautahat.

Q. What opportunities do you think there are due to adoption of DTMP?

From the discussion with Local Development Officer of District Development Committee and chief of District Technical Office, Rautahat; followings are the opportunities due to adoption of DTMP:

- Avoids political disputes in budget allocation and road construction.
- Helps in sustainable development of rural road in a planned and priority based.
- Prevents scattering of budget and avoids duplication of budget.
- People's participation and ownership development.
- Give clear picture to donor/government for allocation of sufficient budget.
- Helps to develop culture of maintenance and increases life of road with greater degree of serviceability condition and reduces back log of road.
- Ensures lifestyle of rural people by increasing reliable transport facility and socioeconomic development.
- Helps to make all weather road provides easy link to education, health and market.
- Guiding document for planning, monitoring and controlling.

Q. What are the challenges and your suggestions so as to ensure adoption of DTMP in future?

From the discussion with Local Development Officer of District Development Committee and chief of District Technical Office, Rautahat; followings are the challenges and suggestions so as to ensure adoption of DTMP in future:

- Everybody's commitment.
- Allocation of sufficient budget to meet the DTMP projections.

- Considerations of environmental aspect.
- Revision of DTMP based on present need/scenario of district.
- Periodic review, monitoring & controlling and coordination among stakeholders.
- Considerations of land acquisitions as per Land Acquisition Act.
- Considerations of Re-location of public utility.
- Considerations of social aspect.
- Strengthening technical manpower.

Q. What is the implementation status of DTMP?

From the discussion with Local Development Officer of District Development Committee and chief of District Technical Office, Rautahat; followings are the implementation status of DTMP:

- Politically committed for implementation.
- Government/ Donor/ Local bodies have allocated sufficient budget.
- Most of roads are in graveled and black top condition, providing all weather services.
- People have taken ownership of road and happy for their socio-economic development.
- SNRTP project funding huge investment for rural road development.
- SNRTP projects cover 90% DRCN road (56 km upgrading, 160 km routine and 18 km periodic maintenance and 56 km upgrading).
- SNRTP/RBN projects create culture of road maintenance by RMG and giving employment to hundreds of poor and marginalized people basically women.
- SNRTP projects develop social and environmental considerations.
- SNRTP projects help in adoption of OSH during construction for safety of worker.
- SNRTP projects develop quality culture in rural road development.

Interview/ Discussion with Social Safeguard Consultant (SSC) and Environmental Safeguard Consultant (ESC)

Interview/ Discussion with Environment Safeguard Consultant (ESC)

From the discussion with ESC, following are the findings: Contractors are not very much familiar with Environmental Safeguard issues due to lack of environmental consideration in most of our projects are the major challenges during the implementation of Environmental safeguard of SNRTP project in Rautahat district.

Avoidance, minimization and mitigation of loss in the sectors e.g. wildlife, forest, water resource, pollution, community structure, labor camps, erosion control & bioengineering

etc. are the environmental considerations in SNRTP project.

Interview/ Discussion with Social Safeguard Consultant (SSC)

From the discussion with SSC, following are the findings:

Social issues, lack of budgeting in safeguard management i.e. not consideration of land acquisition act, Contractors are not very much familiar with social issues are the major challenges during the implementation safeguard of SNRTP project in Rautahat district. Dispute management during widening of road in settlement is the major challenges during the implementation of SNRTP project in Rautahat district.

OSH (Occupational Safety and Health) is in progress but it needs some training to worker to aware its important and for them.

Interview/ Discussion with Chairman/ Members of LRUC/ VRCC

LRUC/ VRCC members were asked for works will be completed in the time stated with accordance with the plan and schedules or not. Out of them, around 87 percent respondents mentioned that the projects were not completed within the initial plan and schedule.

Very few i.e. 39 percent of them mentioned that the projects were completed within the initial plan and schedule. Their views are tabulated in Table 32.

Table 32. Views of respondents on incompleteness of projects in time

%	Respondents = 15 (nos.)	Causes
87	13	Lack of punishment and award system
13	2	Small project and some contractors/ officials who are aware about their profession.

Among 15 members of LRUC/ VRCC, who respondent that Projects will not be complete on time and schedule have asked their view (Table 32).

Q. Causes of non-completion of projects on time

Contractors are awarded without consideration of their bid capacity so most of them are over loaded and also mostly awarded to low bidder where contractor does not get profit as per their wish and then tried to give low priority for this work.

There is no any construction industry private or Government which provide equipment on lease also there is very few or not to provide training to prepare workmanship and also there is no clear policy or attention from government side for availability of suitable material any time to Contractor.

Table 33. Views of respondents on non-completion of projects in time

Causes	Respondents (N=13)	%
Contractors are over loaded, low bidding and non-responsive	10	66.66 %
Non availability of material, machine and worker	3	20 %
Dispute, festival, monsoon, some unplanned occasion	2	13.33%

Due to unclear policy about rural road construction regarding land acquisition act application there are so many dispute and court cases which hinders project progress.

For the assurance of quality of the construction works, LID policy has provisioned that DDC should prepare QAP. Regardless of this provision, DDC has not a trend to prepare it. However, the DTO technicians said that the quality of construction work is mainly controlled by site Engineer/ sub-engineers and assistant sub-engineers on their personal institution but in SNRTP projects QAP has prepared and implemented in field.

Q. What is your opinion/ view about quality control in SNRTP road projects?

Table 34. Quality of work as viewed by respondents

Views	Number (N=15)	%
In SNRTP projects road there is regular supervision from bottom to top management. Quality of work is controlled through control of material and workmanship then also tested for result verification.	14	93 %
Although quality of work is better than others projects however due to lack of skilled person and tendency of contractor quality is needed to further improve.	1	7 %

Source: Interview, 2017.

Table 34, shows that 93% Respondents has view that the Quality of SNRTP projects roads are better, it is due to implementation of QAP and Regular supervision which is monitored at centre by RuTIMS (internet-based monitoring Software).

7% respondents have view that it further needs to improve quality which focus that due to lack of Workmanship and suitable material. From Government side, there is low priority to make/product skilled person for required work, most of skilled person has no any training they work as they know so workmanship is very weak and they are not any code of conduct and legacy with his duty also. There is no any Government mechanism to control material at site thus help to provide availability of suitable material at any times.

Interview/ Discussion with Occupational Safety and Health (OSH)

Occupational Safety and Health (OSH) is very important tool for construction work what are your view regarding use of OSH gears at site.

Table 35. Occupational safety and health as viewed by respondents

%	Respondents = 15 (nos.)	View
93%	14	In SNRTP projects OSH gears have used. It clear indicates who are worker/ Supervisor and what are their level, also it protects from accident as well as from short/ long term diseases.
7%	1	Although it is needed but does not matter in plain areas.

Source: Interview, 2017.

Table 35, shows that 93% Respondents has view that the OSH is very important at construction site it protects from accident and diseases and also help to recognize at site.

7% respondents have view that it is needed but not required in plain areas. It is because of lack of awareness and

unknown about accidental cases occurred at construction site. There are also variety of OSH used at different terrain and climate.

Conclusion

Performance of DTMP in Rural Roads Development

After implementation of DTMP political leaders were aware about its importance in planning of rural roads. Budget volume was increased day to day by attracting donor as well as giving clear picture to center for allocation of sufficient central budget. It was prevented hazardous construction of new rural road and helps in environment protection. It helped to understand importance of maintenance in rural road serviceability and asset management. By use of RMGs in maintenance there were employment

generations to marginalized people. RMG works in group gives confidence and tendency to work each member because work was assigned for group. Maintenance and improvement were got priority due to this most of VDC center were connected with all-weather road. Most of roads have upgraded or going to be upgraded, which has given smooth serviceability to users by decreasing travel time, increasing safety and comfort. Due to smooth operation of rural roads helped in increasing productivity of agricultural products, education and health services. Latest DTMP reduced the rural road connectivity hugely which help us to better management of resources and thus no fund gap in recent F/Y. Due to lesser number of projects also quality of work is increasing by regular supervision and application of Quality Assurance Plan (QAP). Due to increase in budget in rural roads all engineering, social and environmental aspect have considered in rural road project.

Recommendations

On the basis of this study, it is recommended that the enforcement of law for infrastructure development should be mandatory. Construction supervision should be done to meet the required technical standards. The maintenance cost should be allocated as per necessity and rural road maintenance norms should be revised accordingly. While planning for new construction, it should be given more priority to construct Black topped roads rather than graveled road and DTMP should be intensely followed and the required budget should be allocated according to the plan.

RoW for Rural roads should be acquired as per Land Acquisition Act as well as enforcement of law for infrastructure development should be mandatory. Minimum Traffic sign and Safety should be provided in each rural road whatever be the condition of roads. Construction supervision should be done to meet the required technical standards. Upgrading of Rural roads should be at least DBST and at settlements it should be rigid. Most of rural roads are not in maintainable condition due to large back log so the standard of routine maintenance is not sufficient to give better serviceability in rural roads. There is lack of emergency fund in district which causes blockage of rural roads during any disaster cases. Environmental issues, social issues and Quality issues should be strictly followed from planning stage. For timely construction of Projects Provision of Bid capacity for contract evaluation should be strictly applied, Provision of punishment along with awards should be strictly followed. In severe condition of non-timely completion of project by contractor should be Suspended up to non-completion of that project instead of blacklisting process.

Recommendation for Future Study

The study for effectiveness of RMG in Rural road maintenance

in SNRTP project is recommended to study for future.

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