SUDURPASHCHIM PROVINCIAL GOVERNMENT

MINISTRY OF PHYSICAL INFRASTRUCTURE DEVELOPMENT

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ROAD MAINTENANCE GROUPS (RMG)

GUIDELINES

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सुदूरपश्चिम प्रदेश सरकार
भौतिक पूर्वाधार विकास मन्त्रालय
धनगढी, कैलाली
२०७४

प्रदेश सचिव

Table of Contents`

LIST OF ANNEXES

Abbreviation / Acronyms

ARMP	:	Annual Road Maintenance Plan
CPCU	:	Central Program Coordination Unit
DRILP	:	Decentralized Rural Infrastructure and Livelihood Project
GON	:	Government of Nepal
Hr	:	Hour
IDO	:	Infrastructure Development Office
Km	:	Kilometer
LRIP	:	Local Roads Improvement Program
LRN	:	Local Roads Network
M^2	:	Square Meter
M^3	:	Cubic Meter
MoPID	:	Ministry of Physical Infrastructure Development
MTMP	:	Municipal Transport Management Plan
MYRMP	:	Multi-Year Road Maintenance Plan
OHS	:	Occupational Health and Safety
PLRIP	:	Provincial and Local Roads Improvement Program
PPE	:	Personal Protective Equipment
PPMU	:	Provincial Program Management Unit
PRN	:	Provincial Roads Network (PRN)
PTMP	:	Provincial Transport Management Plan
PTW	:	Permit to Work
RAIDP	:	Rural Access Improvement and Decentralized Program
RAP	:	Rural Access Program
RM	:	Rural Municipality
RMGs	:	Road Maintenance Groups
SEA/ SH	:	Sexual Exploitation & Abuse and Sexual Harassment
SNRTP	:	Strengthening the National Rural Transport Program
SPG	:	Sudurpashchim Provincial Government
TID	:	Transport Infrastructure Directorate
VAT	:	Value Added Tax

प्रदेश सचिव

1. INTRODUCTION

These guidelines describe the process of formation and contracting Road Maintenance Groups (RMGs) for the maintenance of the Provincial Roads Network (PRN) and Local Roads Network (LRN) in Sudurpashchim Province. The PRN and LRN are the set of main provincial highways and provincial feeder and local roads providing access within the province and local levels, and its maintenance is the responsibility of the provinces and local levels. The RMGs form an efficient and effective means of carrying out routine, recurrent and minor specific maintenance of the PRN and LRN, ensuring that the PRN and LRN roads stay pliable year round and that road deterioration is halted or slowed down. This document serves as a practical guide to the provincewide implementation of the RMG approach in the PRN and LRN, both under the provincial government and development partner funded programs.

These guidelines have been prepared on the basis of recent experiences of other projects and programs implementing the RMG approach such as Rural Access Program (RAP), Strengthening the National Rural Transport Program (SNRTP), Decentralized Rural Infrastructure and Livelihood Project (DRILP), Local Roads Improvement Program (LRIP) and Provincial and Local Road Improvement Project (PLRIP).

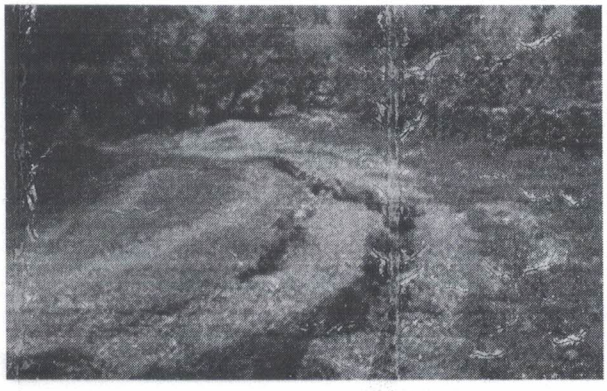
RMG members working for irrigation crossing

2. PROVINCIAL AND LOCAL ROADS MAINTENANCE

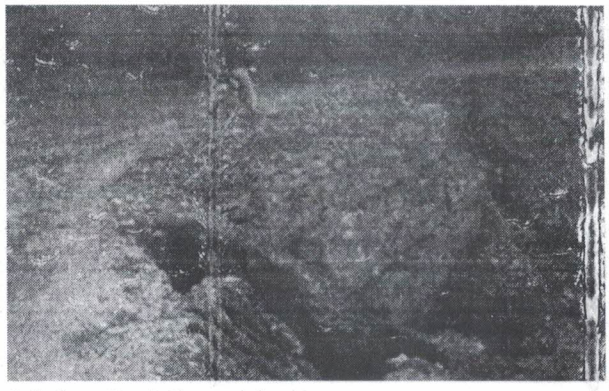
This chapter briefly explains the process of road deterioration and the role of maintenance as a cost effective means of slowing down and even stopping the deterioration process. This is followed by a description of the maintenance types distinguished in Nepal with their definitions and considerations.

2.1 ROAD DETERIORATION

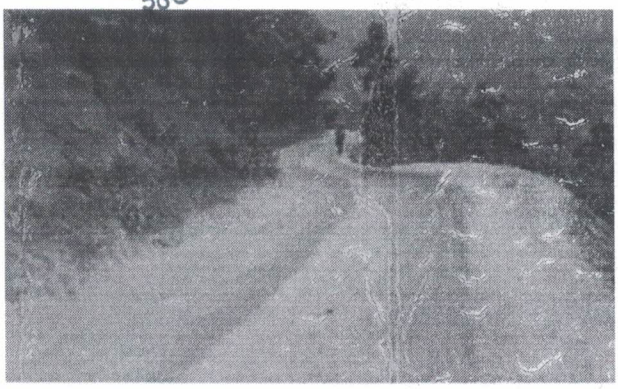
Roads deteriorate over time, mainly as a result of water and traffic. Water can cause deterioration of the road surface, shoulder and the road base, as well as damage to the physical road structures. This happens either through erosion, whereby the road material is washed away and physical structures are undermined, or through stagnation, whereby the road and the base of the physical structures are weakened under the influence of water. Traffic also causes deterioration of the road through the loss of surface material and the deformation of the road surface by vehicle tyres, resulting in the road base becoming exposed and leading to ruts, potholes and corrugations. These two causes of road deterioration tend to aggravate each other, as a road weakened by water is more susceptible to damage by vehicles, whilst road deformation by vehicles can prevent the water from flowing safely away from the road, resulting in increased erosion and water stagnation.



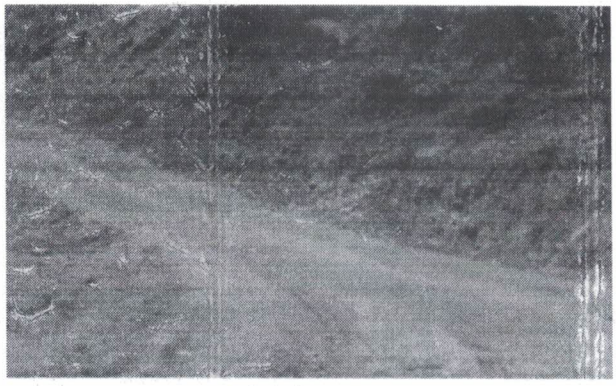
Erosion of the road surface



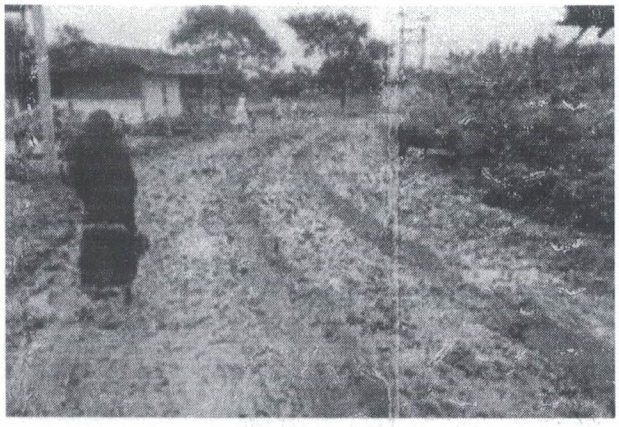
Gully formation in the road shoulder



Rut formation

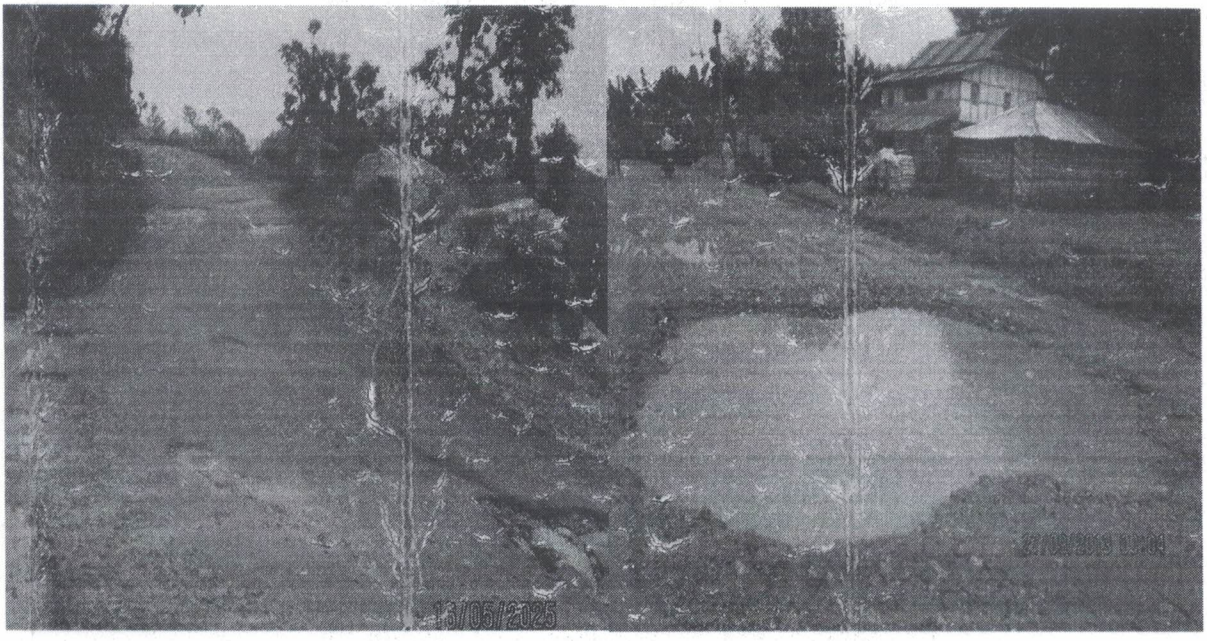


Pothole formation



Rut formation in waterlogged areas

Water stagnation in depressed road surface



Potholes in black top road (Photo by Ram Babu Paudyal)

Road deterioration is generally slow at first and not very visible, taking the form of wear and tear and minor damage to the road surface and the drainage system (this is indicated as phase A in Figure 1). Proper maintenance may not be carried out during this phase and as a result road starts to deteriorate from a very good to a fair condition. Once the road deteriorates to a fair condition, the deterioration tends to accelerate as the road base and the foundations of the physical road structures start to become affected (*phase B in Figure 1*). This is especially due to water, which no longer flows safely away from the road as a result of deformation of the road camber and damage to the drainage system. The water causes damage through erosion or remains on the road and weakens it, resulting in greater damage being caused by vehicles. During this phase, the damage to the road quickly spreads, causing longer travel times and more damage to vehicles, until the entire road can be said to be in poor condition. As the road condition becomes very poor, fewer and fewer vehicles use the road until traffic and transport cease altogether when the road is no longer motorable *(phase C in Figure 1).*

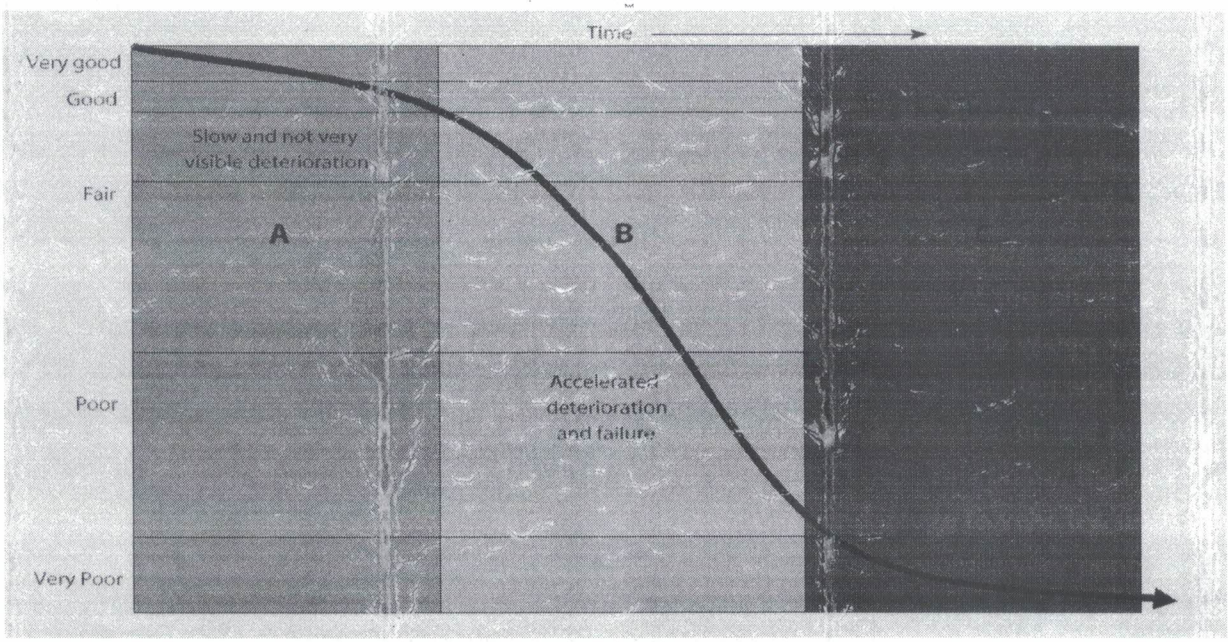


FIGURE 1: Road deterioration

2.2 ROAD MAINTENANCE

The condition of the road can be improved by carrying out corrective maintenance activities. Repairs are made to the road surface and shoulder, the drainage system and the other physical road structures. The improved road condition generally results in lower travel times and travel costs, and a decrease in the speed of road deterioration as the deterioration process starts from scratch. The more deteriorated the road is, the more intensive and costly the repairs will be. For

instance, corrective maintenance activities when the road is still in good or fair condition (*arrow 1 in Figure 2*) may entail patching potholes, grading of the road surface and minor repairs to the drainage system and other road structures, whereas corrective maintenance activities carried out once the road is already in poor condition (*arrow 2 in Figure 2*) are likely to entail complete reshaping and resurfacing of large stretches of road and possible replacement of drainage and other structures. The distance from the black line indicating the road condition, to the desired good or very good condition of the road is therefore indicative of the level of corrective maintenance activities required, and of the cost of such repairs. Corrective maintenance activities need to be carried out repeatedly. Although maintenance carried out when the road is still in good to fair condition will have to be repeated more frequently, this results in lower overall maintenance costs and better overall road conditions than waiting till the road has deteriorated to a poor condition.

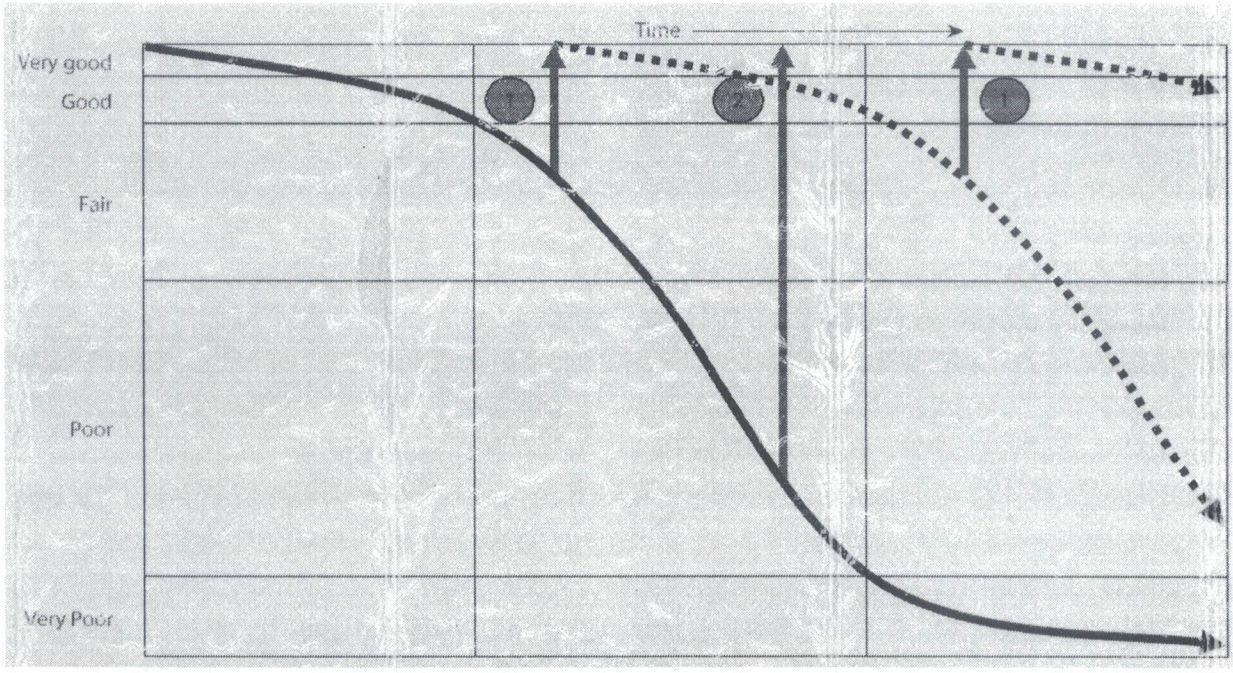


FIGURE 2: Corrective maintenance (Source....)

Apart from corrective maintenance activities once the road has already deteriorated, it is possible to carry out preventive maintenance activities aimed at slowing down the deterioration of the road. Such preventive maintenance activities are often carried out on a continuous basis and consist primarily of clearing activities aimed at preventing damage to the road but also include minor repairs to the road surface and road structures in order to prevent more serious damage from occurring. As a result of such preventive maintenance activities, the deterioration of the road is slowed down considerably, as can be seen in the following graph *(arrow 3 in Figure 3)*. Consequently, corrective maintenance activities are required less frequently *(arrow 1 in Figure 3)* leading to reduced overall maintenance costs. In addition, the road remains in better condition,

resulting in lower travel times and road user costs. The additional costs of such continuous preventive maintenance activities are more than compensated by the cost savings as a result of the decreased need for costly corrective maintenance activities.

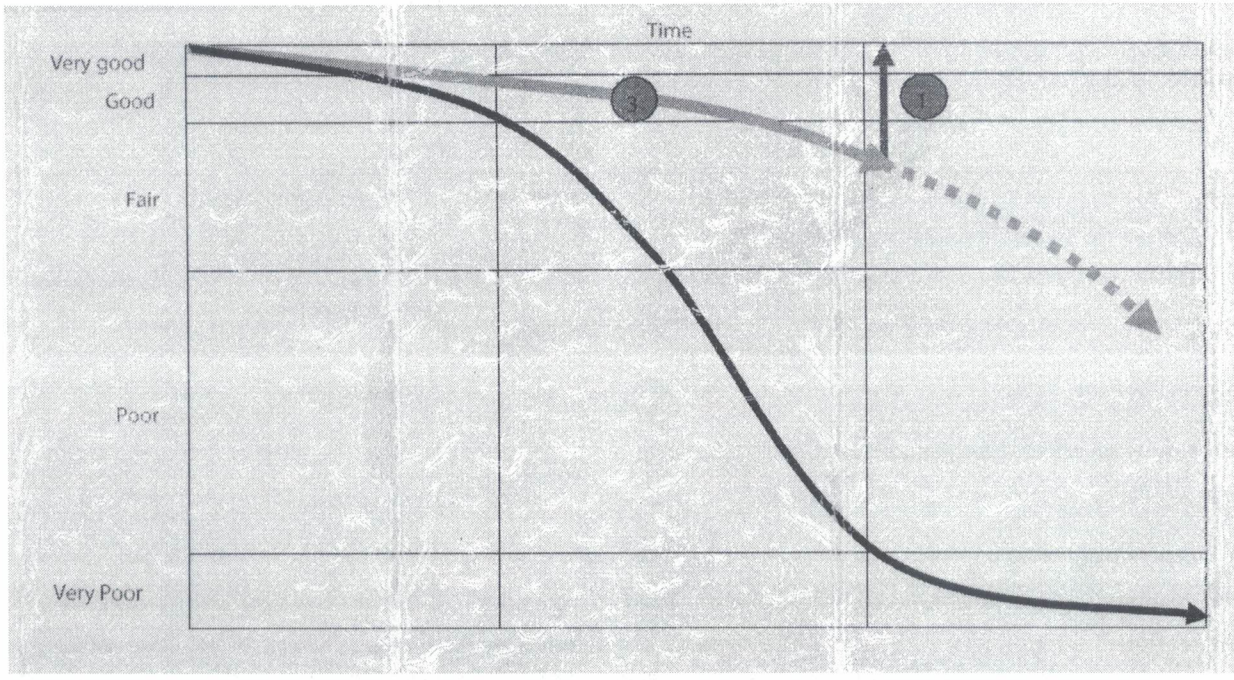


FIGURE 3: Preventive maintenance

There is a tendency to focus maintenance activities on those roads that are in poor condition, thus bringing them back to a better condition through periodical corrective maintenance, which reduces travel costs and time. It is often believed that this strategy will have the highest impact on the condition of the Provincial Road Network and Local Road Network, as those roads with major problems are being addressed. However, this point of view does not take into account that road conditions change over time, and that the higher investments required for roads in poor condition result in a shorter road length being attended. As a result of this limited maintenance coverage, the roads in good to fair condition remain unattended and deteriorate more rapidly. From an economic point of view, the best option is to prioritize investments in the maintenance of roads that are in good to fair condition, applying preventive maintenance activities and slowing down deterioration. This tends to involve less costly activities that allow a greater length of roads to be maintained, resulting in a larger length of roads being in good to fair condition at the end of the intervention. Any funds remaining after investing in the preservation of the roads in good to fair condition can be spent on repairing roads in poor condition, which can subsequently enter into the preventive maintenance system. This is the main distinction between reconstruction and maintenance, that whilst for reconstruction it makes sense to focus on roads in poor to very poor condition, for maintenance the focus should lie on the roads that have not yet deteriorated and are

still in maintainable condition.

2.3 MAINTENANCE TYPES IN NEPAL

Several types of maintenance are distinguished in Nepal. A definition of the different maintenance types is given below.

Routine maintenance refers to small maintenance works to be carried out in all seasons on all roads on a regular basis, comprising simple categories of maintenance works. Routine maintenance involves the cleaning and clearing of different road elements to ensure that they work properly and that damage to the road is avoided.

Recurrent maintenance refers to small maintenance works not falling under routine maintenance that are carried out a few times a year in all roads to repair minor damage resulting from traffic and rainfall. Recurrent maintenance involves minor repairs to the road surface and other road elements to bring them back to their proper condition.

Specific maintenance refers to all the spot improvements and repairs that do not occur every year or in every road, and which are very specific in nature and location. This involves localized repairs and improvements to the road to ensure the proper functioning of the different road elements and reduce the need for routine and recurrent maintenance.

Periodic maintenance refers to maintenance works that are to be carried out in intervals of years, that are of large-scale, and that are aimed at preserving the structural integrity of the road. This mainly involves activities aimed at rejuvenating the road surface and carrying out repairs over long stretches of road. The pavement comprises earthen, gravel and blacktopped surfaces. In earthen road periodic maintenance includes grading and reshaping of pavement with some localized repairs (retaining structures, pipe culvert and slab culvert, dry stone pitching, repair of drain, creation of earthen drain, traffic furniture) within interval of 2 to 3 years. Similarly, in gravel surface periodic maintenance includes re-gravelling with some localised repairs (retaining structures, pipe culvert and slab culvert, dry stone pitching, creation of drain, repair of drain, and traffic furniture within interval of 3 years. In case of black topped road, periodic maintenance includes surface dressing, Otta seal, patch repair with sand seal, asphalt overlays within interval of 5 to 7 years.

Emergency maintenance refers to works that are to be carried out due to unexpected and sudden blockage of roads due to natural disasters that stop vehicular movement. The aim of emergency maintenance is to quickly reopen the road, reinstate vehicular movement and protect the road from further damage. Reinstating the damaged road to its original condition after completion of emergency maintenance works is not included under emergency maintenance!

New construction, improvement, upgrading, and rehabilitation are not considered to be maintenance activities, and as such are not treated in these guidelines.

3. ROAD MAINTENANCE GROUPS

This chapter aims to introduce road maintenance groups (RMGs) as a simple and practical means of implementing preventive maintenance aimed at slowing down and even halting road deterioration. The concept of RMGs is explained, together with the maintenance activities they are responsible for, and the tools and equipment, occupational safety and health they require.

3.1 ROAD MAINTENANCE GROUPS (RMGs)

One very important characteristic of preventive maintenance is that it is continuous in nature. Damage cannot be prevented unless there is somebody to prevent it, and as it is not known exactly when the damage will occur, a more or less continued presence is required. Although certain countries have opted for a system where at particular times of the year maintenance workers are contracted to carry out preventive maintenance of the road, this still allows road deterioration to roam freely in the intermediate periods. Many countries, including Nepal, have therefore opted for a more continuous presence of maintenance workers, generally in smaller numbers than in the case of repetitive interventions. For the strategic road network in Nepal a system of preventive maintenance based on length workers already exists, whereby each individual worker is allocated a particular length of road that he or she has to maintain.

For the provincial roads network and local roads network, a variation of the length worker system is applied whereby the workers engaged on a particular road are grouped together and are responsible as a group for the maintenance of the entire road. This has the advantage that the administrative burden is decreased enormously, with contracting, supervision, planning and inspection taking place for the road as a whole rather than separately for each section. Also, the road maintenance groups are able to reallocate their members according to need, thus allowing them to allocate additional time to the more problematic road sections. An added benefit is that working in groups increases the motivation of the workers, as they have someone to interact during the work and the amount of work seems more achievable if done together with others.

These benefits are important in all types of provincial and local roads which are deteriorating with the absence of regular maintenance. Road maintenance through RMGs culture is preserving the road surface by spending small amount of money especially in paved surfaces. The program focuses specially on the paved provincial roads; whereas, important gavel and earthen roads of local levels are also considered. The local authorities responsible for these roads tend to lack sufficient human and financial resources to cope with the requirements of a length worker system.

MAINTENANCE ACTIVITIES OF THE RMGs

The RMGs are especially responsible for routine maintenance. In determining the activities of the RMGs, the criteria have not so much been assignation of any particular maintenance type, but rather the assignation of particular activities within the competence of the RMGs. The RMG maintenance activities have been determined based on the maintenance activities falling under each maintenance type, selecting those activities that can be carried out by unskilled workers (with

limited training) using basic hand tools. Activities related to routine maintenance of bridges and causeways have also been included to extend the benefits to these structures that are essential in providing all-season access in Nepal.

The main objective of the RMGs is to allow trouble-free use of the road and to reduce damage to the road by ensuring the proper working of the road protection measures, particularly the drainage system and support walls. This basically consists of the routine clearing and cleaning of the road surface, shoulder and physical road structures.

Activities in paved + unpaved roads

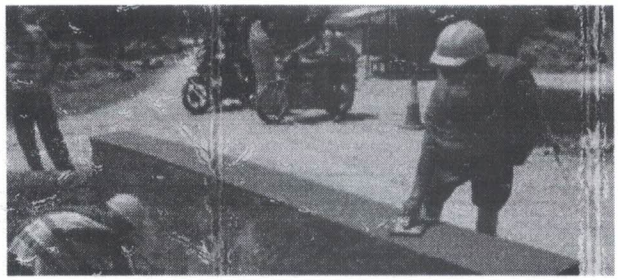
- Clearing of small landslides and other material on the road (<5m^3)
- Clearing of drains
- Clearing of culverts
- Clearing under bridges
- Cutting and clearing of vegetation
- Cleaning of traffic signs and road furniture
- Cleaning of weep holes in retaining walls
- Maintenance of bioengineering features

Activities in bridges and causeways

- Clearing surface of drifts/causeways
- Clearing bridge deck and railing (including footpaths)
- Removal of vegetation from all parts of bridge and causeway structures
- Clearing spouts and weep holes in bridges
- Cleaning of bearings and expansion joints in bridges

Note: Volumes in excess of those indicated above are not included under the responsibility of the RMGs and need to be reported to TID/IDO.

Clearing landslides



Clearing and repairing culvert

Clearing drainage ditches

Clearing and cutting vegetation

Apart from these purely routine maintenance activities aimed at ensuring the proper functioning

of the road and its physical structures, the RMGs are also responsible for recurrent, specific and emergency maintenance aimed at repairing minor damage in order to prevent the damage from becoming more serious. The RMGs are therefore also responsible for basic repairs to the road surface, shoulder and physical structures.

Activities in unpaved roads (gravel + earthen)

- Repairs of rills/gullies in the road surface
- Repairs of ruts in the road surface
- Repairs of potholes in the road surface
- Repairs of corrugation of the road surface in short length.
- Repairs of backfills over culverts
- Creation of diagonal water bars across the road surface to avoid water flowing over the road

Activities in paved roads (these will require specific training, materials and equipment)

- Repairs of potholes in the road pavement
- Repairs of edge break in the road pavement
- Sealing of cracks in the road pavement

Activities in paved + unpaved roads

- Repairs of cuts in the road shoulder
- Repairs of ruts in the road shoulder
- Repairs of potholes in the road shoulder
- Repairs of erosion in the drains
- Repairs of minor damage to retaining walls (e.g. replacing stones, fixing gabion wire)
- Repairs of minor damage to structures
- Repairs of erosion damage around structures
- Repairs and painting of traffic signs and road furniture

Activities in bridges

- Painting and repair of bridge railing and safety barriers
- Lubrication of bearings
- Repair of expansion joints in short length
- Sealing and pavement repairs in approach road and bridge deck
- Minor protection works to avoid damage to crossing structures

In Nepal, many roads in the Provincial Roads Network and Local Roads Network lack suitable drainage systems and physical support structures. The problem faced by the RMGs is therefore not so much the deterioration of the road protection measures, but the general lack of such measures. Without a proper drainage system to guide the water safely away from the road or physical support structures to protect slopes and shoulders from collapse, the required repairs quickly build up and become impossible for the RMGs to resolve. Although such medium to major repairs could of course be carried out on a periodical basis as part of other maintenance arrangements, the prevention of such damage in the first place will always be more cost-effective.
Note: The activities of RMGs in Nepal are responsible mainly Routine maintenance but extended to include minor specific maintenance aimed at creating basic road protection structures to prevent damage to the road. These structures are very simple in nature (e.g. earthen side drains, dry stone walls), allowing them to be created by unskilled labor using hand tools and local materials. Once created, they enter into the general system of clearing and minor repairs. Please note that larger specific maintenance does not fall under the responsibilities of the RMGs.

Repairing ruts and potholes

Repairing the road shoulder

Repairing approach of culvert

Minor protection work

SPECIFIC MAINTENANCE IN PRONE AREA FOR PROTECTIVE MEASURES

Activities in unpaved roads

- Dry stone pitching of short section (<300 m2 per kilometer of road)
- Gravelling of short section (<300 m2 per kilometer of road)
- Application of Bioengineering features

Activities in paved roads

- Patch work of potholes of short section (<300 m2 per kilometer of road)
- Application of Bioengineering features

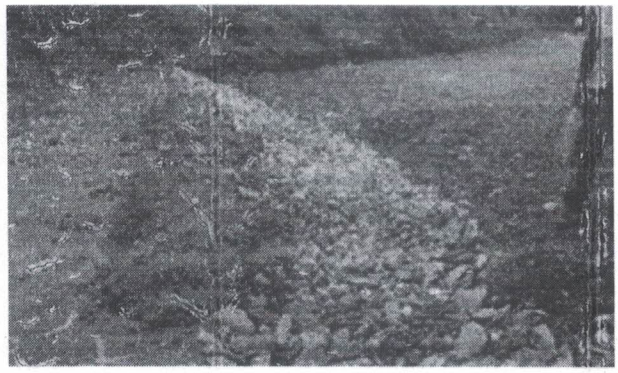
Activities in paved + unpaved roads

- Creation or repairs to dry-stone retaining wall (<5 m3 per wall)
- Creation or repairs to gabion retaining wall (<5 m3 per wall),
- Slope stabilization and bioengineering
- Removal of banks on shoulders
- Shoulder improvement
- Creation of earthen side drains
- Repairs to the existing drainage system (e.g. erosion)
- Creation of stone-paved drifts where water flows over road (<200 m2 per kilometer of road)
- Removal of hanging cliff/rocks (<10 m3 per kilometer of road)
- Maintaining side slopes by small back cutting.
- Signage and road furniture
- Application of Bioengineering features

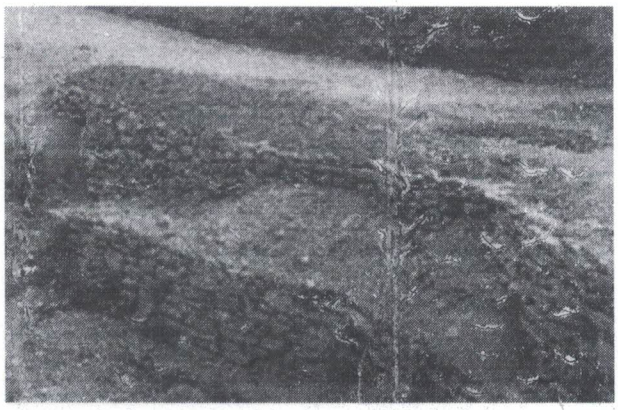
Note: Listed items above are the item considered under specific maintenance and need to select the work item for RMGs which are only unskilled in nature with workable volume. Volumes in excess of those indicated above are not included under the responsibility of the RMGs and need to be reported to the TID/IDO. Required tools & equipment's and locally unavailable construction materials shall be managed by the IDOs.

The maintenance activities of the RMGs encompass several of the maintenance types distinguished in Nepal. All routine maintenance activities are included, as are those recurrent and specific maintenance activities that do not require skilled labor, equipment or significant materials and that are not too large in scope. Emergency maintenance is only included where the required intervention is small in nature. Periodic maintenance activities are not included, however, due to the scope of the work required and the need for skilled labor and equipment.

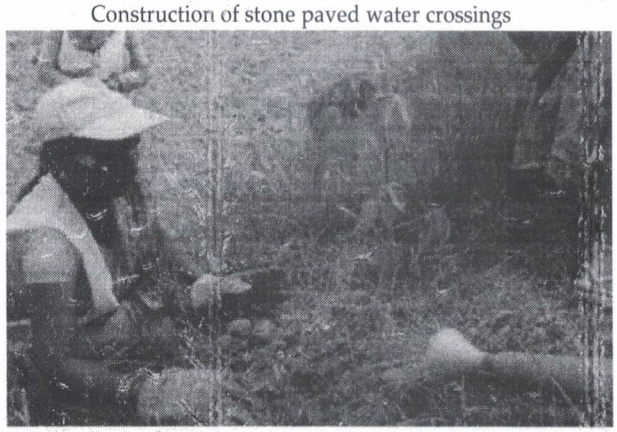
Construction of side drains



Construction of stone paved water crossings



Construction of dry stone retaining walls



Protection of slopes by planting vegetation

Emergency maintenance to allow traffic to pass critically problematic section of the road

The different maintenance activities to be carried out by the RMGs can also be grouped according

to the different road elements that they correspond to, resulting in the following list of RMG maintenance activities. A more detailed description of these maintenance activities can be found in **Annex- 1.**

ROAD ELEMENT	MAINTENANCE ACTIVITIES
Road	• Clearing landslides, materials and obstacles
Earthen or gravel surface	• Repairing ruts, rills, gullies, potholes, corrugations • Creating water bars • Creating dry stone pitching, stone-paved drifts • Graveling
Blacktop surface	• Repairing potholes and edge breaks • Repairing, raveling and stripping • Sealing cracks
Road shoulder	• Repairing ruts, rills, gullies, potholes • Repairing cuts and improving shoulder • Removing banks
Drains	• Clearing drains • Repairing erosion and other damage • Creating earthen drains
Culverts	• Clearing culverts • Repairing backfills over culverts
Bridges and causeways	• Clearing drifts and causeways • Clearing under bridges, bridge deck, bridge spouts, weep holes and vegetation • Cleaning expansion joints and lubricating bridge bearings • Cleaning, painting and repairing bridge railing and safety barriers • Repairing erosion damage and placing minor protection works
Vegetation	• Cutting and clearing vegetation • Planting suitable plants (saplings) at roadside • Protecting the plants • Watering the plants • Replacing the dried and dead saplings
Traffic signs and road furniture	• Cleaning signs and road furniture • Repairing and painting signs and road furniture • Installation of km posts and delineators
Retaining walls and structures	• Cleaning weep holes • Creating retaining walls • Repairing minor damage • Repairing erosion damage
Slopes	• Maintaining bioengineering features • Trimming side slopes • Planting bioengineering features (Turfing in road slope, Brush layering, Grass plantation, palisades, live check dams, Fascines and Tree planting etc)

3.1.1 Institutional Roles and Responsibilities

To improve coordination and clarity in the maintenance system, the following institutional roles are defined:

Provincial Government (MoPID / TID / IDO):

- Prepare and approve annual maintenance programs for Provincial Roads Network (PRN)
- Form, train and contract RMGs for PRN
- Manage budget allocation and ensure fund flow
- Provide tools, safety equipment, and construction materials
- Prepare monthly work plans and evaluate performance
- Maintain RMG records and contract documentation
- Coordinate with Local Governments for adjoining road maintenance

Local Governments (Rural/Municipalities):

- Support community mobilization and selection of RMG members
- Maintain Local Roads Network (LRN) using RMG or alternative mechanisms
- Coordinate in resolving land issues, drainage outlets, or slope management
- Participate in joint monitoring and certification when required

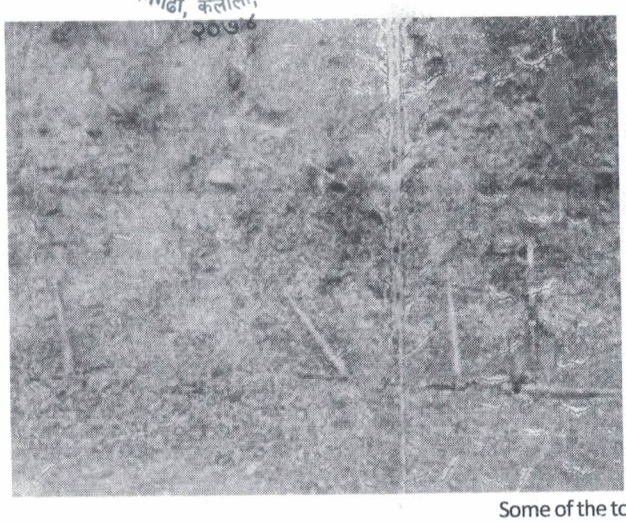
3.2 TOOLS, SAFETY EQUIPMENT AND MATERIALS

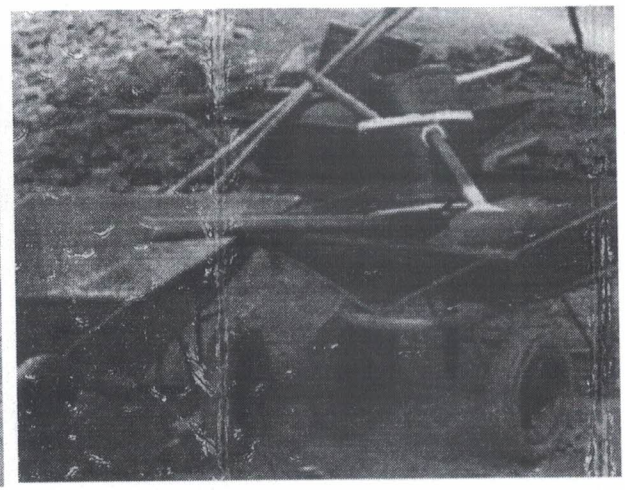
This section briefly describes the tools, safety equipment and materials required by the RMGs to carry out the road maintenance activities described above.

3.2.1 TOOLS

As mentioned earlier, one of the criteria used in determining the maintenance activities to be carried out by the RMGs was that these could be carried out using basic hand tools. The tools used by the RMGs are listed below, whereby certain tools are particular to the maintenance of roads in the Hills or Terai. **Annex- 2** contains a more detailed description of these tools, specifying the numbers of tools required. The set of tools may be adjusted to the requirements of a specific road or district. The RMGs should receive a small allowance for the maintenance of the tools (new handles, sharpening of edges, etc.) or these costs should be reimbursed.

TOOLS		
• Wheelbarrow / Doko	• Hoe / Faruwa / Kodalo	• Pickaxe
• Shovel	• Long handled shovel (for culvert cleaning)	• Rake
• Curved knife / Sickle	• Machete / Khukuri	• Hand rammer
• Large crowbar	• Hammer	• Chisel
• Pulling rope	• Foot pump	• Plastic tubs
• Watering can	• Handheld Emulsion sprayer	• Small gas heater
• Hot Bitumen pouring Kettle		



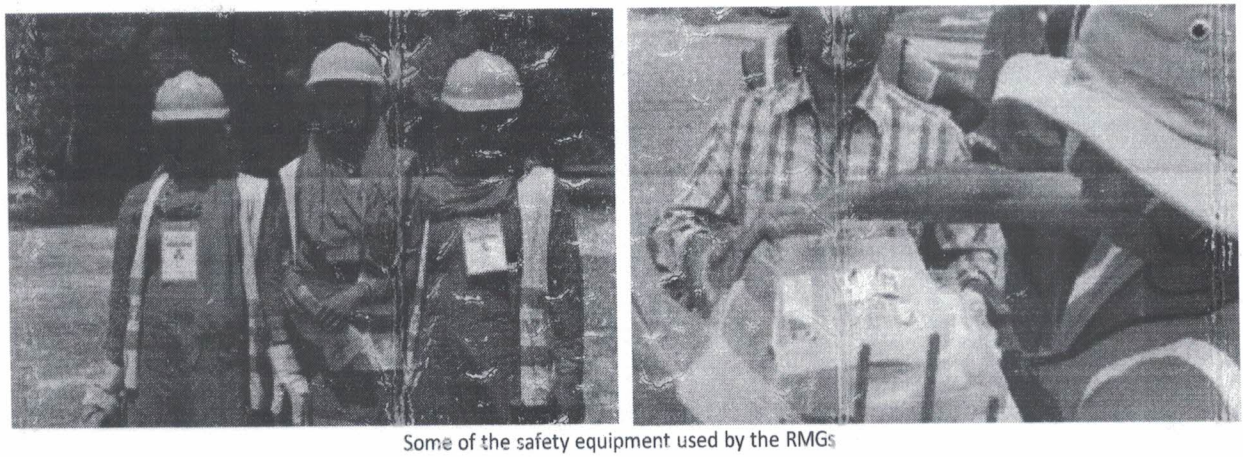


Some of the tools used by the RMGs

3.2.2 SAFETY EQUIPMENT

Apart from these hand tools, the RMGs also require basic safety equipment to avoid accidents and injuries as well as promoting Decent Job for Workers. These safety items are listed below, whilst **Annex- 3** provides more detail about the safety gears, types and requirements.

Objective	Occupational Hazards	PPE
Distinctly identify the road workers	Hit by the passing motorists	Brightly colored vests with reflective striping, High-visibility clothing
Eye and face protection	Flying particles, molten metal, liquid chemicals, gases or vapors, light radiation, splashes, toxic liquids, and burns, and intense light	Glasses, shields, protective shades, etc.
Head protection	Falling objects, inadequate height clearance, overhead power cords, electrical shock, and burns.	Helmets, Hard hats
Hearing protection	Noise, ultra-sound from construction activities, equipment sound.	Hearing protectors like Earplugs or earmuffs.
Foot protection	Falling or rolling objects, pointed objects, heavy machinery, Liquids and slippery surfaces and chemicals	Safety shoes and boots with good traction
Hand protection	Hazardous materials, cuts or lacerations, vibrations, extreme temperatures, accidental hit.	Gloves made of rubber or synthetic materials, leather, steel, insulating materials, etc as per nature of work.
Respiratory protection	Dust, fogs, fumes, mists, gases, smoke, vapors, oxygen deficiency.	Facemasks with appropriate filters for dust removal and air purification (chemicals and gases) or air supply
Body/leg protection	Extreme temperatures, hazardous materials, biological agents, cutting and laceration.	Insulating clothing, body suits, aprons etc. of appropriate materials.



Some of the safety equipment used by the RMGs

The tools and safety equipment should be purchased by the IDO or projects and provided to the RMGs at the beginning of the work, avoiding delays related to payment transfers and ensuring proper quality tools and equipment are procured. It is important to provide good quality tools in sufficient number, as this greatly influences the productivity of the RMGs. The costs of tools and equipment only form a minor part of the overall maintenance costs. The set OHS gears need to be replaced once useless duly certified by Engineers. The medicines in the First Aid boxes will be replaced and added by IDO periodically or provide a lump sum amount for replacement to RMG and evaluate at the time of monthly inspection. Typical contents of First Aid Kit are Triangular Bandage, First Aid Bandage, Instant cold pack, first aid burn cream, Fingertip bandage, wound dressing pack, Eye Wash fluid, antiseptic fluid/ Tincture Iodine, soap, thermometer.

3.2.3 MATERIALS

For specific maintenance activities, appropriate construction materials as required (Instant Road Repair Premix, aggregate, gravel, gabion crates and wire, etc.). In certain case these can be obtained locally, but in other cases these will have to be provided to the RMGs (this generally involves the transportation of materials from acceptable locations to the road sites). Instead of supplying bitumen to the RMG, it is more effective to provide instant road repair premix-an aggregate blend with polymer-modified bitumen-packed in 25 kg bags. This premix is easy to apply and particularly suitable for quick pothole repairs. It is recommended that these materials be provided directly by the IDO or road project on a case-by-case basis, to avoid problems in the estimation of the required materials at the beginning of the maintenance contract. It is important to stress, however, that the timely provision of such materials determines the effectiveness of the RMGs in carrying out the required repairs to the road surface, shoulders and physical structures.

प्रदेश सचिव

4. FORMATION OF THE ROAD MAINTENANCE GROUPS

Road maintenance groups can start carrying out the maintenance activities mentioned in the previous chapter after the formation of groups. Group based maintenance is found to be effective, efficient and self-motivated with good internal control mechanism.
This entails determining the required number of RMG members, selecting the RMG members, and recording the RMG with the IDO. This chapter deals with these three aspects of RMG formation.

4.1 SIZE OF THE RMG

Before starting with the selection of the RMG members, the size of the RMG should be determined. This is defined by the road length, the required work input (number of person- days required per kilometer of road per year) and the approximate number of person-days to be worked by an RMG member each year. The input level or number of person-days required per kilometer per year depends on the characteristics of the road, especially the road condition, topography, road surface type, traffic levels and existence of road protection structures. Roads in worse condition (with a maintenance backlog), located in steeper areas, with less durable road surfaces, with higher traffic levels or with fewer road protection measures in place, require a higher input level with more person-days per kilometer per year (there is a higher workload per kilometer). The input level may vary for different sections of the road if these have very differing characteristics. The input of RMGs per km per year are derived from the Norms for Rate Analysis of Road and Bridges Works, 2075 of the Department of Roads to keep the road pliable throughout the year including emergency maintenance as per requirement.

As an initial estimation it is recommended to use an input level of 91 person- days per kilometer per year for relatively fair or poor condition black top and gravel road in the Terai Region, whereas 138 person- days per kilometer per year for relatively fair or poor condition black top and gravel road in the Hilly Region. They need at least this level of input to slow down the deterioration process. Unfortunately, available budgets may prohibit the general use of such high input levels for extended periods of time. Where roads are in very poor condition and are not in a maintainable standard, it is more effective to rehabilitate these roads before placing them under maintenance by RMGs. The varying levels of input for different surface types and conditions of roads are given in the table below.

ROAD TYPE	APPROXIMATE INPUT LEVEL
(A) Blacktop / Gravel Road	
a) Road in fair/ poor condition throughout the year in the Terai Region	91 person-days per kilometer per year
b) Road in fair/ poor condition throughout the year in the Hilly Region	138 person-days per kilometer per year

Note: However IDO , program/project has to ensure that at least 80% of total allocated budget per km annually spent for RMGs in Black top and gravel surface respectively irrespective of defined condition above.

Actual input levels may vary slightly depending on road condition, specific needs and funding sources. These input levels allow the RMGs to carry out routine cleaning and clearing works, recurrent minor repairs and minor specific maintenance aimed at creating basic road protection measures. When the road condition improves, the maintenance backlog is reduced and more and more road protection measures are created by the RMGs or by other actors. The input level may be gradually reduced.

The number of people required for the RMG will then depend on the length of the road concerned and the number of person-days that each RMG member will work in a year. Based on 6 days a week, there are approximately 312 workdays a year (excluding Saturdays, or any one day in a week). The RMGs may work half time or full time based as long as they achieve the allocated task in a month in accordance with monthly work plan. The half time and part time employment depends upon the program guideline or project operation manual and input required for maintenance.

The number of RMG members can be increased in Rainy Season (i.e. June to September) and can be reduced in Non-Rainy season (i.e. October to May) in such a way that the total Number of RMGs specified in above table shall not be increased in total.

Based on the total length of the road (section) to be maintained, the size of the RMG can be determined. The number of workers for the entire road length should of course be rounded up or down to result in a whole number. As a result, the RMG members in different roads will not always cover the same average length of road or work the same amount of days. What will be same is the number of person-days spent per kilometer of road (as long as the input levels are the same).

It is recommended that every road have its own RMG, thus facilitating the administration of the road maintenance works. However, where the road is very long (more than 10-15 km) and the RMG members would have to travel over long distances to carry out the maintenance, it is advisable to split the road into sections and create separate RMGs. Maximum travel times of RMG members should not exceed 1.5 hours. Distance to the road section will depend on topography and possible short cuts. Alternatively, where the road is very short and the RMG

प्रदेश सचिव

would be very small (less than 4 members), it is advisable to group a number of roads together and have an RMG cover different roads within the immediate vicinity of each other.

Based on the resulting road length of each contract, the IDO will estimate the number of full- time or half-time workers (deployed for the performance-based contract) required to form the RMG that will maintain the road (sections).

4.2 SELECTION OF RMG MEMBERS

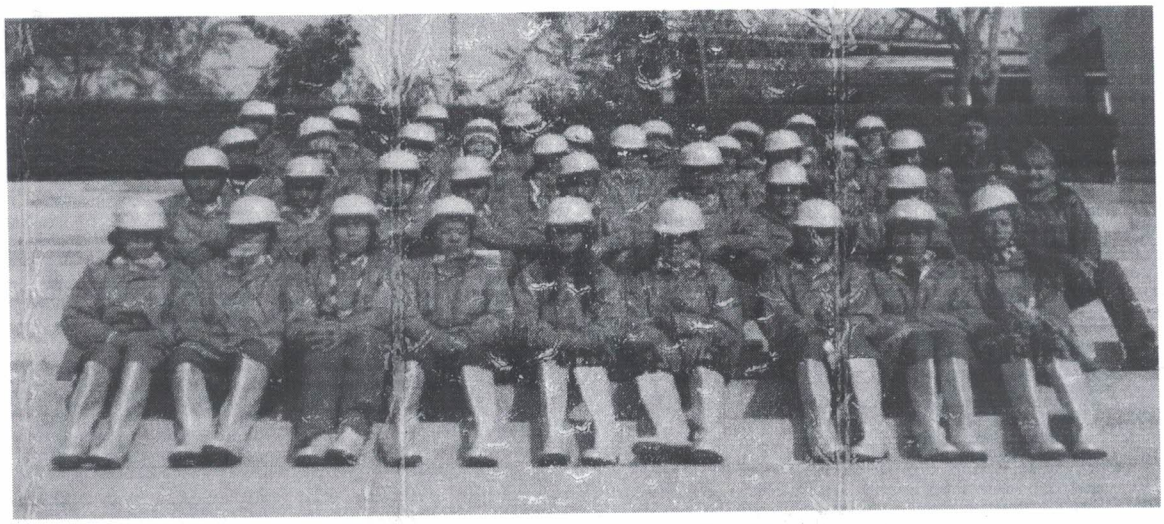
RMG members are selected from the communities situated along the road (sections) to be maintained or from those communities nearest to the road. For the selection of the RMG members approved selection criteria are used to ensure the objective choice of the most suitable candidates. Suitability in this sense refers to both the ability of the candidates to perform the job well (technical criteria) as well as to social objectives of providing jobs and income to vulnerable groups in society (social criteria). Before the start of the selection process, the MoPID will conduct a meeting and approve the selection criteria and selection modality. Further to create synergies among the RMGs, the MoPID may collaborate with the existing self-helped group formulated under any other federal/provincial/local government programs. It is recommended to use the following criteria, although these may be amended by the MoPID to attain particular objectives.

TECHNICAL CRITERIA

- The selected maintenance workers must be above 18 years of age
- The selected maintenance workers must be physically and mentally able to work on road maintenance
- The selected maintenance workers must live near the road to be maintained (reducing travel time). If **maintenance workers are not available near the road, they should be selected from the adjoining road section.**

SOCIAL CRITERIA

- The selected maintenance workers must be unemployed or employed less than 25% of their time
- The priority must be given to poorest and marginalized people of the R/Municipality
- Preference must be given to female candidates and where possible, all 100 % selected maintenance workers can be women but not less than 50% in any case.
- At least 40% of the maintenance workers must be from Disadvantaged Groups (Dalits, Janajati, other excluded and deprived groups.). If targeted groups are not available near the proposed road section in that case other poorest people will be given priority.



A group of Female RMG

Mainly two different methods are applied for the selection process (i) the Interview method or (ii) through a mass meeting. In both methods, information to be circulated will include the selection criteria, information on payments and working hours, and the means of applying for the positions (where and by when to apply). An example of a RMG Formation Notice required for an interview method is provided in **Annex 4.** Interested candidates will be required to fill in an RMG Application Form, providing information related to the selection criteria listed above. A sample RMG Application Form is provided in **Annex-5.** Once the application date has passed and the applications have been received, a selection is made using the selection criteria mentioned above.

IDO will publish a notice, which will be communicated to the concerned Ward and Rural/Municipalities. The notice will also be posted on the notice boards of the public places along the road section. Interested applicants shall submit their applications in the prescribed format to the respective IDO, along with recommendations from the concerned Ward /Municipalities. The IDO will then select the required number of maintenance workers from the highest ranked candidates in accordance with the established criteria (ANNEX-6).

It is recommended to subsequently confirm the interest of the selected candidates in order to ensure they are all aware of what is required of them and what they will receive in return (remuneration, insurance, etc.). Any candidates deciding, they do not wish to participate can then still be easily replaced. Once the list of selected candidates has been approved by the IDO, the list is sent to the R/Municipality to be posted on their noticeboard and the successful candidates are informed.

If RMG member need to replace, husband or wife or nearest family member will be given priority. IDO can also select the workers from previously approved list for replacement of RMG members or may re-start the process as per guideline depending on local situation.

प्रदेश सचिव

4.3 RECORD OF THE RMG

Once the selection of maintenance workers has been finalized, the RMG is recorded/registered with the IDO. This record also defines the name by which the RMG will be known. The RMG should also elect the representatives of the group. This generally includes a Chairperson and a Treasurer. The election of women into these functions should be promoted, and at least one of the representatives should be female.

Individual Bank accounts are opened for payments of wages to each individual member of the RMG. The IDO will be responsible for making payments to each individual RMG member based on their monthly performance and certification by technical team.

Alternatively, a bank account for RMG can be opened for payment of remuneration. The bank account will be on the name of at least two RMG members duly nominated by RMG members. This will prevent mismanagement of payments and secure timely payments to individual RMG members.

5. TRAINING OF THE RMGs

After recording the RMGs and opening the bank account(s), the group is ready to be contracted. Before they start work, however, they require training. This training should encompass the technical issues involved in the maintenance contract (how, when and where to implement the different maintenance activities), as well as the managerial aspects of the maintenance contract (how are the payments made, what documents need to be produced, etc.). The training on basic concepts of maintenance, typical maintenance activities, work methods, rules to be followed by the RMGs, methods of measurement and inspection and payment arrangements, OHS, importance and use of PPE, and First Aid, etc. can be given.

This training can easily be carried out in two days, one day covering the theoretical introduction to maintenance and group management, and one day on the practical implementation of the different maintenance activities. It is recommended to carry out the practical training on the road the RMG will be responsible for. The theoretical training requires a suitable classroom- type location and may be given to more than one RMG at once, although it is recommended to hold it as close as possible to the road(s) concerned.

5.1 THEORETICAL TRAINING

The theoretical training is aimed at providing the maintenance workers with an understanding of the causes of road deterioration, in order to ensure that they fully understand how to prevent these and the importance of the maintenance activities for which they are responsible. A better understanding of why a certain activity needs to be done leads to a better execution of that activity.

First of all, an introduction is given to the different road elements that make up a road. Attention is subsequently given to the effect of water and traffic in the deterioration of various road elements, and the resulting effects on the lifespan and use of the road. This is done using pictures depicting the different types of road deterioration, explaining the causes in each picture. This is followed by an explanation of the different maintenance activities and their role in slowing down or halting the road deterioration. For this purpose, pictures are again used to show how the different activities are carried out, as well as to show the required end result (pictures showing the situation before and after). Finally, the different tools are introduced, explaining their use. This part of the training will be complemented by the field training during which the participants are required to practice carrying out the different activities.

The second part of the theoretical training is aimed at the management of the RMG. First of all, the benefits of working as a group are explained to the participants, both the benefits for themselves as well as those for the MoPID. The organization of the different workers within the group is also

discussed for the different maintenance activities, explaining how some activities are best executed by having different group members execute particular tasks (e.g. one person loosening the soil with a pickaxe, the other excavating the soil into a wheelbarrow, and the third removing the excavated soil to another location), whilst other activities can be carried out individually and group members can work side by side (e.g. cutting vegetation), or even carry out different complementary activities (e.g. excavating side drains and using the excavated material to fill ruts and potholes). The proper organization of the workers and their tools is an important factor in increasing the productivity of the RMG, and sufficient attention should be paid to this.

The final part of the theoretical training deals with the supervision, planning, inspection and payments. This part is aimed at explaining how often the supervisor will visit the RMGs and what he or she will do, how the work plans are determined and agreed upon, when the inspections takes place and what is inspected, and how the payments are made based on these inspections. Important issues to be included in this part of the training are the work plan and its format, and the performance standards and how these feed into the inspection reports. Another important issue is the performance-based nature of the payments, whereby the exact payment amount depends on the inspection results rather than the number of days worked. These issues are explained in the next chapter.


Classroom training of RMG members

5.2 PRACTICAL TRAINING

The second day of training is aimed at providing the maintenance workers with practical experience regarding the execution of the different maintenance activities. This training does not necessarily have to be carried out the day after the theoretical training. The date can be set to best suit the RMG and trainer(s). The training is carried out on the road for which the RMG is responsible. It is possible to include different RMGs in the same training, although it is preferable to carry out different training sessions for each RMG and road. An important aspect of this training is that sufficient types and quantities of tools are available to allow the different RMG members to practice in their use. This training could therefore also be planned to coincide

with the handing over of the tools and safety equipment to the RMG.

For the practical training it is important that a suitable location be found in the road concerned, where most if not all the different maintenance activities can be demonstrated and practiced. This location should be identified beforehand and the RMG members should be asked to gather at this location in the morning. During the training, the different maintenance activities relevant to the road concerned are explained and demonstrated in detail, identifying the different tasks concerned. It is important that all RMG members practice in the implementation of the different activities. Attention should also be given to the use of the proper tools and the proper use of these tools.


Practical training of RMG members

5.3 ORGANISATION OF THE TRAINING

As mentioned before, the theoretical training requires a suitable location for the training, which should be identified and reserved beforehand. Also, the RMG members need to travel to this training location, for which it is recommended to provide them with a reasonably small transport allowance. In the case of practical training, the RMG members are expected to live close by to the road concerned and transport allowances are not required. Food and snacks should be provided for both training days, thus avoiding that much time is lost with the participants leaving for their homes or nearby shops during the meal break. Lastly, if the training is carried out before the start of the maintenance contract, the RMG members do not yet receive any remuneration for their time, and it should be considered whether they are paid for the time they spend in the training. This also depends on when the training is carried out, and whether it is likely that their participation in the training will cause them to miss other income generating opportunities. It is important to avoid a situation where RMG members do not participate in the training because of the costs involved in doing so.

The two training sessions should not be seen as the only capacity building for the maintenance

workers. The RMGs need continued support for at least the first 6 months, and it is recommendable to do this for the first year in order to cover all the different seasons. During this period the RMGs should be visited regularly to ensure they are implementing the different maintenance activities according to plan and in the right manner. These visits need to be more frequent with new RMGs or when new activities are planned but can become less frequent once the RMGs are working properly.

The training of the RMGs can be carried out by the IDO Engineers or road project staff, or otherwise by trainers contracted specifically for this purpose. The regular visits to the RMGs can be carried out by the same people that did the training, or otherwise technicians from the IDO can be made responsible. The important issue is that the personnel responsible have the time and transport facilities at hand to ensure timely and frequent visits.

6. CONTRACTING ARRANGEMENTS

Once the RMG has been recorded with the IDO, they can sign the maintenance contract, and if it has already received its training, it will be ready to start work. The payments for the maintenance activities will be made according to performance, based on the resulting conditions of the different road elements. However, because many Provincial Roads will be in poor condition at the start of the contract, and because the RMGs cannot fix all the defects at once, the performance-based system will need to be introduced in a phased manner. For this purpose, a work plan is prepared on a monthly basis to determine for which road elements and on which sections of the road the performance-based system will be applied. As road conditions improve, an increasing portion of the road elements and road length will be included in the work plan until the entire road is covered, at which time the work plan will no longer be necessary. Subsequent to carrying out the work plan, the work has to be inspected to ensure that the condition of the road elements and the road section included in the plan are appropriate. This inspection forms the basis of the payments to be made to the RMGs. This chapter will go into these different aspects of contracting RMGs, starting by explaining the concept of performance-based contracting.

6.1 PERFORMANCE-BASED CONTRACTING

The RMGs will be contracted on a performance basis, which means that the RMGs are paid based on compliance with a set of performance standards and not on the amount of work carried out or the amount of time spent on that work. For the IDO it results in a lower administrative burden, as it is not necessary to control the daily attendance and productivity of the maintenance workers, or to measure the exact volume of work completed. A simple inspection of the end result of the maintenance work is sufficient to determine if this is according to the agreement. For the RMG it has the advantage that it has greater freedom to decide what part of the day to work and whether or not to work extra hard and finish early, thus allowing them to arrange their time to best suit their other responsibilities.

In Nepal, the majority of Provincial and Local Roads are in fair to poor condition with large quantities of backlog. It is recommended to have RMG payment on performance basis by measuring the output in each month with respect to the corresponding work plan.

Performance-based contracting involves a set of performance standards that determine the required condition of the different road elements by defining the allowable defects (or defining the defects that are not allowed). The RMGs need to comply with these performance standards by ensuring that the defects to the different road elements do not exceed the allowances, fixing the defects where these exceed the allowances. A list of recommended performance standards for the

different road elements is given below. Note that the performance standards relate to the different road elements and not to the individual maintenance activities. Different maintenance activities may be required to fix the defects where these exceed the allowances defined in the performance standards. Due to the simple nature of the performance standards, their compliance can easily be monitored by the RMGs prior to inspection.

- **Road -** There are no small landslides (less than 5 cubic metres), materials or other obstacles on the road surface, road shoulder, or side drains. In the case of large landslides (more than 5 cubic metres), these have been reported to the IDO. Vehicles are able to pass and water does not flow over the road.
- **Earthen or gravel surface -** There are no remarkable potholes (>60 x15 cm), no ruts, rills or gullies (> 15 cm deep), and no corrugation (> 7 cm deep) which disturb the traffic movement. Repairs to gravel surfaces have been made using suitable gravel material. In areas subject to longitudinal erosion, diaSudurpashchim Provincial Governmental water bars have been created at regular intervals to guide the water away from the road. Where water crosses the road, stone-paved drifts have been created. In case of stone pitching, the stones are well anchored in the ground, do not stick out, and there are no missing stones. Water does not flow over or remain on the road.
- **Blacktop surface** - There are no remarkable potholes (>30 x 10 cm) which disturb the regular movement of traffic. The potholes can be repaired with locally available material. There is no significant edge break that reduces the width of the pavement. There are not any wide unsealed cracks existing in the maintained road Wider than 0.5 cm.
- **Road shoulder -** There are no remarkable potholes (> 30x10 cm) and no ruts or rills (> 10 cm deep). There are no uninterrupted banks on the road shoulder for more than 10 meters. The road shoulder is not more than 5 centimeters below the road pavement. Water does not remain on the road shoulder.
- **Drains -** Less than one-quarter of the cross section at any point in the side drain is blocked. The drain is at least 15 centimeters wide and 10 centimeters below the road surface. There are no sharp curves in the drain and the drain has a proper outlet. Water can flow freely through the side drain, and there is no erosion of the drains. Water does not flow over the road surface or shoulder.
- **Culverts** - Less than one-quarter of the culvert height at any point in the culvert is blocked, the inlet and outlet are clear, water can flow freely through the culvert, and there is no erosion at the inlet or outlet. The backfill over the culverts is at least one-quarter of the culvert diameter.
- **Causeways and Bridges** - Drifts and causeways are free of sedimentation and are able to drain freely. Less than one-tenth of the cross section of the bridge is blocked, and the areas 5 meters on either side of the bridge are clear of obstructions. Water can flow freely under the bridge. The bridge deck, spouts and weep holes are clean. There is no vegetation growing in the crossing structures. Bridge railings are clean and covered in paint. Bridge bearings are clean and lubricated. Bridge expansion joints are clear. There is no damage to the approach road and bridge deck and cracks are sealed. Minor erosion has been repaired and protection measures are in place. Large damage to or erosion of the bridge structure has been reported to IDO.
- **Vegetation** - Vegetation within 1 meter of the road is less than 30 centimeters high (except trees), vegetation protruding over the road is at least 2.50 meters above the road surface, and the flow of water away from the road is not restricted. Vegetation on slopes is not removed, only cut short.
- **Traffic signs and road furniture** - All traffic signs and road furniture are clean and legible (painted where necessary). Sign posts are straight and well anchored in the ground. Any damaged or missing signs have been reported to the IDO.
- **Retaining walls and structures** - The retaining walls and structures are in good condition and the area behind them is compacted. There are no loose stones or other damage to the retaining walls, and weep holes are clear. There is no damage by erosion undermining the retaining walls and structures. Large damage to retaining walls and structures has been reported to the IDO.
- **Slopes -** The slopes and road shoulders prone to erosion have been planted with vegetative material. The plants are not dried out and well anchored to the soil. There are no loose stones or other material on the slopes and road side slope should be in stable condition.
- **Road Side Plantation**: the success rate of the planted plants should be 80%. The dried and dead samplings should be

प्रदेश सचिव

replaced and replanted.

Note 1: These performance standards are for internal control mechanism, not fully comply in monsoon season and just basis for monitoring.

Note 2: Above performance standard can be considered as basis for monitoring as defined in note 1 only on last worked or maintained section of the road by RMGs not before than 1 month.

6.1.1 Measurable Performance Indicators

In addition to performance standards, the following measurable Key Performance Indicators (KPIs) shall be used to evaluate RMG performance:

1. **Drainage Functionality**
   - At least **90% of side drains** free of blockage during non-monsoon months
   - At least **75% of side drains free** during monsoon months
2. **Culvert Clearance**
   - Less than **25% blockage** at any point
3. **Pothole Repair/ Responsiveness**
   - Potholes in bituminous surface repaired/ responsiveness **within 15 days**
   - Potholes in gravel/earthen surface repaired **within 7 days**
4. **Vegetation Management**
   - Trimming of **Vegetation (<=0.3 m)** will be done 1 meter within both edge of Road
5. **Bridge/Causeway Cleanliness**
   - Debris clearance ensuring **uninterrupted water flow**
6. **Bioengineering Survival Rate**
   - Minimum **80% survival** of planted saplings

6.2 MAINTENANCE WORK PLAN

The performance standards need to be complied with for the entire road length under contract in performance-based maintenance systems. In Nepal, where most of the roads are not in very good condition and proper drainage and road protection structures are often lacking, the RMGs cannot be made responsible for bringing the entire road up to good condition at the start of their contract. In some cases, the road will be rehabilitated or improved through other means, allowing the RMGs to start with a road in good condition, but where this is not the case, a phased introduction of the performance standards is required. Certain road elements and certain road sections need to be prioritized, which requires the preparation of a work plan. This work plan defines the road elements and road sections where the performance standards will be applied – any road elements or road sections not included in the work plan will not need to comply with the performance standards and will be excluded from the inspection.

As the conditions of the road improve as a result of the work carried out by the RMGs or through complementary maintenance activities carried out through other means, the RMGs can be made responsible for an increasing portion of the road length and road elements. As such, the work plan will partly consist of activities aimed at preventing damage to road sections and road elements

repaired in previous months or through other means, and partly consist of activities aimed at repairing remaining damage in new road sections and road elements. Eventually, the entire road length under contract will be in compliance with the performance standards and the RMG will simply be responsible for ensuring that the road condition is maintained and that the performance standards continue to be complied with. At this stage a work plan is no longer required and the planning will become an internal matter of the RMGs, with the inspection covering the entire road length and all road elements. Thus, the work plan is only required for roads that do not comply with the performance standards at the start of the contract. Once sufficient repairs have been carried out and the road complies with (almost) all performance standards, the work plan is no longer needed and the performance standards will simply be applied to the entire road section and all road elements.

As mentioned above, the work plan defines for which road elements maintenance activities need to be undertaken and identifies the road sections in which these maintenance activities need to be carried out. As such it determines the quantity of work to be carried out. The work plans should be prepared on a monthly basis by the IDO in coordination with the RMGs. The RMG system assumes that the group members have to provide an average of 91 to 138 person-days per year per kilometer of road, working either full-time or half-time. These person-days do not necessarily need to be distributed evenly over the year, and generally more days are spent during the rainy season when the road is subject to damage by rainfall runoff, with fewer days spent during the dry season.

Taking into account the number of person-days available in a specific month for the RMG concerned, the work plan identifies a set of tasks to be carried out that can be completed within the available number of person-days. The supervisor (IDO or Consultant) is hereby guided by task-rates quoted in section 6.2.1, which define the volume of work that may be completed in one person-day. These task rates may be adjusted based on the observed ease with which the RMG achieves the workload (i.e. whether more or less than the expected person-days are required). The supervisor will set the work load to include only part of the allocated road sections or to include only certain road elements or maintenance activities. The resulting condition of the included road elements and road sections should comply with the performance standards, allowing the RMGs to become familiar with the approach of performance standards. The ambition is to eventually transition to a full performance-based approach where the whole road is kept in compliance with the performance standards.

To facilitate the planning, a simple work plan format should be used in which the maintenance activities and road sections to be covered can be easily indicated. A sample work plan template is given in **Annex- 7**. The work plan lists the different RMG maintenance activities for each of the road elements as discussed in Chapter 3, and covers the total road length divided into 500 metre

sections. The general location of the road sections to be worked on are indicated in the work plan, whereas the actual location will be indicated in the field (for instance a certain 500m section is identified for the cleaning of culverts, whereas the actual culverts will be located in particular locations within this 500 m section). It is important to include the location of identifying points in the work plan to assist both the IDO and the RMG members to locate themselves on the road and on the work plan. This may be further facilitated by painting chainage indications on rocks, trees and electricity poles along the road. Based on the monthly work plans, the RMGs will need to plan their work on a weekly and daily basis. The RMGs will likely require assistance at the start of their contract to train them in organizing their monthly workload.

6.2.1 TASK RATES

The amount of work an RMG is able to carry out in a month will depends on the number of available person-days and the amount of work that can be carried out per person-day (the task rate). In defining the maintenance activities and road sections to be included in the work plan, account should be taken of the task rates for the different activities planned, in order that the total estimated requirement of person-days is more or less equal to the available number of person-days from the RMG for the month concerned. As mentioned before, the number of person-days does not have to be the same each month, and may vary according to need, as long as the total number of person-days per year is equal to the input level (91 or 138 person-days per kilometer per year). The table below gives some initial indications of task rates for the different activities grouped by road element. These task rates are based on experiences from the ILO maintenance pilots and from the subsequent replication in the RAIDP, RAP and SNRTP projects and programs. To assist in the preparation of the work plan and the calculation of the workload each month and the related requirement in terms of person-days, a work volume calculation sheet is included in **Annex- 8**.

This should be filled in every month as a tool to calculate the expected requirement in terms of person-days for the month concerned. This sheet is only meant as an aid in preparing the work plan and should not be given to the RMG. The RMG only receives a copy of the approved work plan.

Road	•	Clearing landslides, materials and obstacles	3 - 4 m^3
Earthen or gravel	•	Repairing ruts, rills, gullies, potholes, corrugations	10 - 15 m^2
surface	•	Creating water bars	20 - 40 m
	•	Creating dry stone pitching, stone-paved drifts	2 - 3 m^2
	•	Graveling, preparing subgrade and gravel laying	6 -8 m^2
Paved surface	•	Repairing potholes or fixing edge break	5 - 10 m^2
	•	Sealing cracks	100-150 m
Road shoulder	•	Repairing ruts, rills, gullies, potholes	10 - 15 m^2
	•	Repairing cuts and improving shoulder	2 - 3 m^3
	•	Removing banks	3 - 4 m^3

Drains	•	Clearing drains	100 - 200 m
	•	Repairing erosion and other damage	2 - 4 m^3
	•	Creating earthen drains	20 - 40 m
Culverts	•	Clearing culverts	1 - 3 units
	•	Repairing backfill over culverts	2 - 3 m^3
Bridges and causeways	•	Clearing drifts and causeways	3 - 4 m^3
	•	Clearing under bridges, bridge deck, bridge spouts, weep holes and vegetation	½ - 1 bridges
			1 - 2 bridges
	•	Cleaning expansion joints and lubricating bridge bearings	¼ - ½ bridge
			2 - 4 m^3
	•	Cleaning, painting and repairing bridge railing and safety barriers	
	•	Repairing erosion damage and placing minor protection works	
Vegetation	•	Cutting and clearing vegetation	300-400 m^2
Traffic signs and road furniture	•	Cleaning signs and road furniture	10 units
	•	Repairing and painting signs and road furniture	5 units
Retaining walls and structures	•	Cleaning weep holes	50 units
	•	Creating retaining walls	1 - 1½ m^3
	•	Repairing minor damage	1 - 1½ m^3
	•	Repairing erosion damage	2 - 4 m^3
Slopes	•	Maintaining bioengineering features	50-100 m^2
	•	Planting bioengineering features	15-25 m^2
	•	Removing hanging rocks	2 - 3 m^2
	•	Small back cutting on side slopes	1.4 - 2 m^3
Road side plantation	•	Digging hole and Planting of saplings and backfilling	30-40 Nos.

It is important to realize that these task rates are average values and are not absolute. The actual productivity achieved depends on the soil type, climatic conditions, characteristics of the road elements, transport distances for the required materials, etc. The incorporation of all these variables requires a great effort and will not necessarily make the resulting work plan more accurate. It is therefore recommended to use the task rates mentioned above as initial estimates and to evaluate the performance of the RMGs compared to these rates. The task rates can subsequently be adjusted up or down. The work volume calculation sheet allows for adjustment of the task rates.

It is important that the work plan is treated with a certain flexibility, however, as inaccurate estimates of the amount of work or the task rates may have important effects on the number of person-days required for the completion of the work. In addition, it may be necessary to adapt the work plan during the month to unforeseen needs, such as the clearing of landslides. The principal issue is that the required workdays for the completion of the work are approximately equal to the available workdays from the RMGs for a specific month, whereby flexibility from both the RMGs and the IDO is required to ensure fairness in the consideration of the work plan at the time of inspection.

6.2.2 TIMING OF ACTIVITIES

In preparing the monthly work plan, account should be taken of the timing of activities throughout the year. Whereas in the rainy season the attention should be focused on the proper working of the drainage system, guiding water away from the road, removing landslides and avoiding erosion, in the dry season this is of less importance and attention can be given to other activities. Depending on the season, different maintenance activities should therefore be included in the work plan.

In the period before the rainy season, the maintenance activities focus on the preparation of the drainage system, slopes and road shoulders to allow the safe guidance of water away from the road and avoid erosion. This continues during the rainy season, during which additional (temporary) measures are taken to avoid erosion and water stagnation and keep the road open, removing landslides where these occur. After the rainy season, the moisture content of the road is very suitable for affecting repairs to the road surface and shoulder, and the focus of attention will be on these activities, as well as clearing remaining landslides and vegetation that form an obstacle for traffic. During the dry period, the work on the road surface and shoulder will continue and will be complemented by repairs to the physical road structures. Bioengineering activities are seasonal, they shall be applied in appropriate season (bioengineering planting for slope stabilization and plantation of rooted species are usually done before the monsoon season, in June. whereas the non-rooted clumps like brush layering can be done in winter season in December or January). The proposed priority of the different maintenance activities for the different times of the year is given in **Annex 9**.

6.2.2 Prioritization of Road Sections (Value for Money)

While preparing the monthly and annual work plans, the IDO shall prioritize road sections based on their socio-economic importance and value for money (VFM). Priority shall be given to:

- High-traffic and economically important corridors
- Roads providing access to education, health, agriculture and market centers
- Roads with high vulnerability to monsoon damage (waterlogging, landslides)
- Previously improved road sections requiring protection to prevent costlier rehabilitation
- Roads connecting multiple local levels or serving as emergency routes

6.3 INSPECTION OF THE MAINTENANCE WORK/SUPERVISION AND MONITORING

During the inspection, supervision and monitoring, both the scope and the quality of work are evaluated. The scope of work is defined in the work plan in terms of the road sections, road elements and maintenance activities to be covered, whereas the required quality of the work is defined by means of the performance standards.

The supervision and monitoring of the work will be carried out by assigned technicians or by the IDO Engineers of the projects and program on a weekly basis to supervise the quality and performance

of the RMGs as per agreed work plan. The non-compliance work performed by the RMGs need to be addressed in the instruction book and area of improvement shall be noted on the instruction book. Besides, supervision team need to ensure the OHS gears to RMGs as well as appropriate construction tools in the site. The supervision team needs to check the RMG daily attendance sheet and require certification of attendance in comparison to work performed on a weekly basis. The Engineers and sub engineers need to ensure the supply of required construction materials for the repair potholes, ruts and rills which are not available in sites.

The inspection is carried out on a monthly basis and coincides with the work plan period. At the same time that the inspection is carried out, the new work plan can also be discussed and agreed upon. The inspection should be carried out by the IDO Engineer or a trained technician. In the case of road projects, project staff may be involved in the inspections on behalf of the IDO and MoPID. All inspections should be carried out together with representatives of the RMG.

During the inspection, the road sections indicated in the work plan are inspected with respect to the road elements and maintenance activities indicated in the work plan, and the resulting road conditions are compared to the performance standards and allowable defects. The rest of the road sections and road elements that are not included in the work plan do not need to be inspected. However, a general inspection of the road is required to make sure that there are no major problems (especially blockages), and where these exist, that they are being resolved by the RMG or have been reported to the MoPID.

For the inspection, use a simple Inspection Form (an Inspection Form template is given in **Annex 10**), in which the (non-)compliance with the work plan and performance standards is indicated for each road element. Road elements that are not included in the work plan and have not been carried out are checked as being "not applicable". For the road elements that do not comply in quantity or quality with respect to the work plan and the performance standards, the nature of non-compliance should be described.

Based on the degree of non-compliance, it may be decided to apply a deduction to the monthly payment. It is recommended that a warning be given the first time, and that upon repetition a deduction may be applied. The deduction is applied to the payment for the entire RMG and should be based on the amount of work not completed satisfactorily, applying the task rates discussed earlier to determine the number of person-days payment to be deducted. Using the daily wage rate, this can be converted into a deduction amount.

The application of deductions can be unpleasant but may be necessary to ensure that the RMGs work according to standard. However, lack of compliance is not a result of overzealous work plans instead of underachievement by the RMGs that should be taken care off. In the case a deduction is applied, the amount is indicated in the Inspection Form, together with the final amount to be paid to the RMG. The results of the inspection as well as any deductions to be applied should be discussed with the RMG members, and the RMG chairperson and maintenance inspector are both required to sign the inspection report. Whenever practicable, it is recommended that a

photographic record before and after each month's maintenance work is recorded. This will help with verification of outputs.

The number of person-days spent by the RMG during the month concerned will also be recorded in the Inspection Form. This will have no effect on the payment and only serves for monitoring purposes to check whether the payments made on the different roads are appropriate, and to develop more appropriate payment categories based on road characteristics. For this purpose, the RMGs will be required to keep an Attendance Sheet of the number of person-days spent each month (daily record of the number of RMG members that worked). A template for an Attendance Sheet is provided in **Annex- 11**. The RMG Chairperson should use the Attendance Sheet to record every day how many hours each RMG member worked.

During the inspection, the total number of person-days spent by the RMG members in the month concerned is calculated and copied into the Inspection Form. Possible deductions together with the approved monthly payment are in turn copied from the Inspection Form to the Attendance Sheet. Based on the approved payment and the number of days worked by the different RMG members, the distribution of the approved monthly payment amongst the RMG members is calculated and entered into the Attendance Sheet. Where the monthly payment is made into a joint bank account for the RMG as a whole, the Attendance Sheet with the calculated payment distribution is left with the RMG as the basis for distributing the monthly payment amongst the RMG members. Where individual payments are made, a copy of the Attendance Sheet is made and taken to the IDO as the basis for making the individual payments. This ensures transparency regarding the approved monthly payment and its distribution amongst the different RMG members.

Besides the regular monitoring and supervision from the IDO team, monitoring from the Transport Infrastructure Directorate will also be applicable. During such visits and monitoring, a standard OHS inspection checklist as per **Annex- 12** will be used.

6.4 PAYMENTS

The payments to be made to the RMGs consist of wage payments for the maintenance workers and in some cases also allowances. Accidental insurance is also provided for the RMG members by the IDO or road project. Before payment procedure, the supervisor team shall monitor the OHS compliance of the RMG as per **Annex- 13**.

6.4.1 MONTHLY WAGE PAYMENTS

For the wage payment, it is recommended to use the updated district rate for unskilled labor multiplied by the input level (number of person-days per kilometer per year), multiplied by the road length. This annual wage payment is then divided into fixed equal monthly wage payments. These monthly wage payments should be paid out at the end of each month after inspection of the work, and any deductions should be applied only to these monthly wage payments.

The timeliness of these wage payments is very important, as these are used by the group members

to cover the costs of living for themselves and their families. Delays in receiving these payments may force them to leave the RMGs in search of other income opportunities to allow them to purchase their daily needs. Due to the administrative processes generally required for these payments, which can only be started once the payment amount has been approved in the inspection report, delays in transferring these payments on a monthly basis are difficult to avoid, and it is therefore necessary to ensure that the payment procedures are simplified and streamlined as much as possible. IDO will ensure the RMG monthly payment within 1st Week of next month after completion of the work of previous month. Example: Payment of RMG for month of Mangshir should not later than 1st week of Poush. The province will manage the counterpart fund.

Wage payments may be made on an individual basis through bank account. This requires each individual RMG member to have a bank account. The IDO or road project are then responsible for determining the distribution of the monthly wage payment (after possible deductions) amongst the different RMG members based on the number of days worked by each member as recorded in the Attendance Sheet.

In the case of payments to group bank accounts for the RMG as a whole, the distribution of the wage payments amongst the individual members is the responsibility of the RMG members and should be based on the Attendance Sheet. The proper distribution of wage payments based on the Attendance Sheet should be monitored regularly by the IDO or road project staff to avoid misuse of funds by certain RMG members. The RMGs may also be required to present their accounts for public audit.

6.4.2 ALLOWANCES

In some cases, it may be decided to also provide the RMGs with monthly allowances. One of the possible allowances to be included is the tool maintenance allowance. Considering that the tools and safety equipment will be provided by the IDO, this allowance need only cover the maintenance of the tools and safety equipment. This can be used for sharpening of tools, replacement of wheelbarrow spare parts and replacement of handle. This allowance is set according to established norms. It is recommended to have 1% of wage payments.

A second possible allowance is the transport allowance, which serves to cover the costs of transport of the Chairperson and Treasurer or other members of the RMG to the IDO office and the local bank. This allowance is especially important in cases where the costs of travelling to the IDO office are very high. The level of the transport allowance will vary per RMG, depending on the distance to be travelled.

A third possible allowance is an admin allowance, which covers miscellaneous costs such as the costs of notebooks, pens and bags and mobile phone costs. This admin allowance is generally a small amount per month (a few hundred rupees).

The allowances are generally paid in fixed monthly instalments together with the wage payments (the allowances are, however, not susceptible to deductions). The allowances are paid,

irrespective of whether they are used or not (although RMGs can be required to ensure tools are properly maintained, are replaced, etc.).

These allowances ensure that RMGs are not made responsible for costs related to their work, but they do introduce an additional administrative burden and cost. Alternatively, it may be decided not to apply for such allowances, and to instead provide direct support (e.g. in the sharpening of tools) or to reimburse the RMGs on a case-by-case basis. The RAP project has applied monthly allowances in its contracts with RMGs, while the SNRTP program has provided direct support or reimbursed costs on a case-by-case basis. The important issue is to avoid that the performance of the RMG is negatively affected by issues related to tool maintenance, transport or administration of the RMGs. The costs involved are relatively small compared to the wages and should therefore not have a significant effect on the RMG productivity. Allowances will be applied as defined in project specific operational manual.

6.4.3 ACCIDENT INSURANCE

To ensure that any work-related injuries incurred by the RMG members can be suitably treated by a doctor or nurse, RMG members as well as associated technicians should be covered by job accident insurance. RMG members can make use of this insurance to cover any medical bills they have that are related to work injuries. This will require an insurance company which allows changes of maintenance workers (RMG members may change and allow replacement as defined in project specific operational manual) and pays out promptly. These should be clearly mentioned the amount for the coverage of loss of life, permanent disablement, temporary disablement and medical treatment cost. Alternatively, an insurance fund may be created at MOPID level to cover the costs related to such work accidents.

6.5 MAINTENANCE CONTRACT

The maintenance contract stipulates the roles and responsibilities of both the RMGs and the IDO, as well as any other partners (for instance, the Local Road Users' Committee, road project). It defines the activities the RMGs will be responsible for, the performance standards they have to comply with, the remuneration they will receive in return, how the planning and inspections will be carried out, and the tools and safety equipment the RMGs will receive. This document should contain sufficient detail to ensure that all roles and responsibilities are well defined, whilst at the same time remaining simple enough for the RMG members to easily understand.

It is important to remember that the contract is a legal agreement, and that the content should be understood and agreed upon by both parties. Such a legal document provides the IDO with security regarding the work to be undertaken by the RMG and the payments to be made to it, but at the same time that any changes to the work and payments may require an addendum to the contract which has to be agreed to by both parties.

Given the importance of the contract document, time and effort should be given to the preparation of a contract template suitable to the district and type of roads in question, and

possibly certain changes need to be made for roads with particular characteristics or requirements. A sample contract template is provided in **Annex 14**.

Upon signing the road maintenance contract, each RMG member will receive an Identity Card to identify them as a road maintenance worker. Experience has shown that this also helps them to receive discounts in the use of public transport to and from their work site, but each RMG member has to submit their identity card at the time of receiving final payment. To clarify that this job is temporary in nature and RMG are not considered government employees in future, a note should be written on identity card. Note may be such as 'Identity card is issued based on contract signed for a fixed duration of time. It does not give any entitlement to extension or renewal of the contract beyond the stipulated duration. Under this contract, the RMG is considered to be a service provider. RMG members are not considered government employees, nor do they qualify for any entitlements related to government employees.

7. OHS GUIDANCE TO RMGs

The purpose of this guiding note is to provide guidance on Occupational Health and Safety of RMGs of all road and bridge projects of provincial and local roads with basic principles for working safely on road works. The Guidelines identify safe work practices in line with statutory contract requirements in undertaking maintenance works. It provides handy references of good practices for frontline management teams. These Guidelines will be applicable to all projects and programmes under provincial maintenance programme through RMGs.

When considering occupational health and safety in road maintenance, key aspects include managing traffic hazards, preventing slips and trips on uneven surfaces, exposure to noise and dust, vehicle and machinery safety, proper use of personal protective equipment (PPE), hazard identification and assessment, training for workers, and ensuring safe work practices around heavy equipment. Road workers should also be trained in equipment, safety, and traffic control.

1. **Risk assessment and mitigation:**

- Identify and list all the potential threats that influence people's health, environment, economy, and society related to construction, demolition and maintenance of road infrastructures before work begins.
- Pre-work planning (develop site specific risk mitigation plan including applicable tools and techniques)
- Controlling risk associated with slippery surfaces, uneven terrain, excavations, chemical exposure, electricity, hand tools, dust pollution, noise, access and others
- All employees shall be communicated and must be aware of such potential hazards
- Develop a mechanism for recording and reporting of emergencies protocols / accidents

- Regular monitoring and review of safety practices.
- Follow Permit to Work (PTW) in terms of all types of work.

2. **Work Zone Safety and Traffic Management**

- Provision and arrangement for safety of both workers and road users
- Smooth movement of traffic in work zones.
- Installation of warning signs, clear signage and cones to demarcate work zones, use of barrier systems to protect workers from passing vehicles, appropriate lane closures and diversions.

3. **Tools and Equipment safety:**

- Regular maintenance and inspection of tools and machinery
- Maintaining and replacing tools and machines regularly
- Guards on moving parts of machinery.
- Safe lifting practices when handling heavy materials.

4. **Personal protective equipment (PPE):**

- Identify and provide appropriate Personal Protective Equipment (PPE) that will offer adequate protection to the RMGs.
- Actively enforce use of PPE
- The IDO shall ensure that PPE is cleaned, properly maintained and replaced when damaged or worn out.
- Proper use of PPE shall be a part of the training programs for RMGs

5. **First Aid**

- Ensure that adequate first-aid kit is always provided to RMGs.
- Appropriately equipped first-aid kit are always available at the work place.

6. **Insurance of the workers**

- Accidental insurance shall be provided for the RMG members. These should be clearly mentioned the amount for the coverage of loss of life, permanent disablement, temporary disablement and medical treatment cost.

7. **Provision of Safety Officer**

- The RMG Site In-charge will function as the Safety Officer for assessing the safety of RMGs ensuring compliance with the OHS Guidelines.

8. **Restrictions on Employment**

- No person under the age of 18 will be a member of RMG

9. **Training and awareness:**

IDO should provide training to RMG on the following topics.

- Regular safety training on site hazards and its proper procedures.
- "Emergency response" training to RMGs
- Awareness on traffic control measures and work zone safety
- First Aid training to RMG and select one person as "First Aid In-charge"

प्रदेश सचि


First Aid Training to RMG


Awareness on First Aids and Safety

10. Welfare facilities for workers at the worksite:

Manage the minimum requirement for workers' welfare to comply with the provisions mentioned in Labor law as follows:

a) Ensure the updated list of applicable contact number of Ambulance, Hospital, health post, health professionals etc.
b) Carry out preliminary health check-up before commencing to job and periodic health check-up at least one year for all RMG members
c) Arrangement of rehabilitation for the employees those under Sudurpashchim Provincial Government for the longer period of treatment.
d) Maintain the records of all medical reports and fitness certificates for each employee and provide them to IDO and OHS committee upon their request. The grievance of the RMG members can be lounged directly to RMG in-charge from the IDO or can be recorded by the RMG group leader. The RMG leader should immediately transfer the grievance to RMG in-charge for redressal.

11. Incident/Accident/Injury Records and Reporting

All the incidents/accidents/injuries cases related to project which has, or is likely to have a significant adverse effects on the environment, the affected communities, the public or workers, including, inter alia, cases of sexual exploitation and abuse (SEA), Sexual Harassment (SH), and

प्रदेश सचि

accidents that result in death, serious or multiple injury should be recorded and reported to the IDO/Project offices and TID within 24 hours and to Development Partner if applicable within 48 hours. For all incidents except SEA/SH related, provide sufficient detail regarding the scope, severity, and possibility causes of the incident or accident, indicating immediate measures taken or that are planned to be taken to address it. Refer **Annex- 15** for the injury/incident/accident report.

The following are incident types to be reported using the incident response process:

a. **Fatality:** Death of a person(s) that occurs within one year of an accident/incident, including from occupational disease/illness (e.g., from exposure to chemicals/toxins).

b. **Lost Time Injury:** Injury or occupational disease/illness (e.g., from exposure to chemicals/toxins) that results in a worker requiring three (3) or more days off work, or an injury or release of substance (e.g., chemicals/toxins) that results in a member of the community needing medical treatment.

c. **Acts of Violence/Protest:** Any intentional use of physical force, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, deprivation to workers or project beneficiaries, or negatively affects the safe operation of a project worksite.

d. **Disease Outbreaks:** The occurrence of a disease more than normal expectancy of number of cases. Disease may be communicable or may be the result of unknown etiology.

e. **Child Labor:** An incident of child labor occurs: (i) when a child under the age of 16 (or a higher age for employment specified by national law) is employed or engaged in connection with a project, and/or (ii) when a child over the minimum age specified in (i) and under the age of 18 is employed or engaged in connection with a project in a manner that is likely to be hazardous or interfere with the child's education or be harmful to the child's health or physical, mental, spiritual, moral or social development.

f. **Forced Labor:** An incident of forced labor occurs when any work or service not voluntarily performed is exacted by an individual under threat of force or penalty in connection with a project, including any kind of involuntary or compulsory labor, such as indentured labor, bonded labor, or similar labor-contracting arrangements. This also includes incidents when trafficked persons are employed in connection with a project.

g. **Other:** Any other incident or accident that may have a significant adverse effect on the environment, the affected communities, the public, or the workers, irrespective of whether harm occurred on that occasion. Any repeated non-compliance or recurrent minor incidents which suggest systematic failures that the task team deems needing the attention of Bank management.

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8. COSTS AND FINANCING OF THE RMGs

An important aspect of maintenance is the cost, as well as how this cost should be covered from available funding. This chapter will briefly go into the cost of RMGs, followed by an identification of possible funding sources available to MoPID's for financing the maintenance of Provincial and Local Roads.

8.1 COSTS OF RMGs

The costs of RMGs include the wage payments, but also other costs such as the costs of tools and equipment to be provided to the RMGs, the monthly allowances (or the direct costs of tool maintenance, sign boards, etc.), the costs of materials for road repairs and the costs of accident insurance.

The main costs are the wage payments to the RMGs. As mentioned, these are based on the district wage rates and the number of person-days per kilometer, multiplied by the road length and divided into equal monthly payments. The wage costs depend on the wage rate for the particular district concerned and the input level for the particular road concerned. These costs tend to make up 80%-90% of the total costs of the RMGs.

The cost of the tools and safety equipment, the different allowances and the accident insurance can be estimated to form approximately 10%-20% of the wage costs. The costs of tools and safety equipment will be higher during the first year, but these may be used for several years (although some will need to be replaced). It must be repeated, however, that the tools and equipment form only a fraction of the total cost, and as such cost savings on tools and equipment as a result of purchasing smaller amounts, lower quality, or not replacing worn tools, will have little effect on the overall costs, whilst having a significant negative impact on the productivity of the RMGs and thus on the effectiveness of the investment.

Additional costs may consist of the provision of materials for road repairs. These costs mainly involve transport costs and will vary according to the type of materials and transport distances.

Example: The annual wage payment for a specific RMG is NPR 565,000 per year. The IDO spends NPR 55,000 on the purchase of tools, safety equipment and accident insurance. An additional NPR 50,000 is spent by the IDO on purchasing and transporting materials to the road site. The total cost for the first year of operation of the RMG comes to NPR 670,000, equivalent to NPR 59,300 per kilometer per year.

8.2 ROAD MAINTENANCE FUND

The crucial issue in road maintenance is securing the funding necessary to cover the maintenance costs. MoPID in coordination with IDO allocates the budget to cover all the maintenance intervention envisaged and routine maintenance in all PRN and LRN as per PTMP, MTMP and Multi-Year Road Maintenance Plan (MYRMP) or on the basis of past years annual road maintenance plan (ARMP) as Provincial and Local Road Maintenance Fund.

The required maintenance budget can be obtained from the following sources which are as follows.

- Block grants to MoPID - This is the most important funding source MoPID received from Government of Nepal. The allocated maintenance fund is expected to be reflected in the Annual Road Maintenance Plan (ARMP).
- Province Internal Revenue: Some parts of the fund must need to allocate in maintenance to fulfil the funding gap in Annual Road Maintenance Plan (ARMP).
- Road projects and programs – The Development Partner financed road projects are increasingly giving attention to road maintenance. Several road projects and programs currently support the contracting of RMGs. As such, these projects will form a significant source of funding for RMGs in Nepal in the medium term.

There exists large number of non-maintainable condition roads and MoPID's prime responsibility is to conserve the roads under PRN and LRN pliable throughout the year. Hence, the identified sources are sustainable funding sources that allow full coverage of the entire PRN and LRN by RMGs as well as regular specific periodic maintenance (after few years) and emergency maintenance every year.

8.3 Medium-Term Expenditure Framework (MTEF) Alignment

To ensure predictable and adequate financing of routine, recurrent and minor specific maintenance through RMGs, annual RMG budget allocation shall be aligned with the Medium-Term Expenditure Framework (MTEF) of Sudurpashchim Province. The IDO, TID and MoPID shall:

1. Estimate annual and three-year rolling maintenance needs/Plan based on:
    - Road inventory and condition assessment
    - Required person-days per kilometer
    - Annual Road Maintenance Plan (ARMP)
2. Integrate these needs into the Provincial MTEF ceiling to ensure continuity of RMG operations Ensure that:
    - Budget commitments for RMGs remain predictable for at least three fiscal years
    - RMG contracts are not disrupted due to budget shortfalls
    - Maintenance is protected as a priority recurrent expenditure

8.4 Minimum Annual Maintenance Allocation (MAMA)

To safeguard basic maintenance needs and serviceability of Provincial and Local Roads, the annual budget allocation for RMG-based maintenance shall not be less than the Minimum Annual Maintenance Allocation (MAMA) prescribed for respective road categories.

The IDO, TID and MoPID must ensure:

- Each contracted road receives annual funding at or above the required MAMA benchmark
- Allocation is protected even during fiscal constraints
- Roads below MAMA funding are prioritized for corrective budget adjustment

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ANNEXES

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ANNEX 1: RMG MAINTENANCE ACTIVITIES

ROAD ELEMENT	RMG MAINTENANCE ACTIVITIES
Road	• Clearing landslides and obstacles - Clearing of obstacles, materials and landslides up to 5m3 from the road surface, shoulder and the drainage system in order to allow normal vehicle transit and proper drainage of runoff water.
Earthen or gravel surface	• Repairing ruts, rills, gullies, potholes, corrugations - Filling ruts and potholes formed by traffic as well as rills and gullies formed by water erosion with compacted earth, stones and gravel (where applicable), and restoring the uniform road surface in order to allow normal vehicle transit and avoid damage to the road base. This includes basic reshaping of the road to ensure a proper camber to drain water away from the road surface. • Creating water bars - Creation of simple diagonal ditches to catch any water flowing over the road and guide this to the downhill side of the road. These measures are often temporary in nature, and created only for the rainy period. • Creating dry stone pitching - Placement of paving stones on a short section of the road surface to provide better grip and carrying capacity in muddy areas or steep slopes. • Creating stone-paved drifts - Creation of small drifts (dips in the road) to safely guide water from one side of the road to the other, with stone paving to protect against damage by traffic and water. • Graveling - Placement of a gravel layer on a short section of road to provide better grip and carrying capacity where the road surface material is slippery or muddy.
Blacktop surface	• Repairing potholes and edge breaks - Removing loose material and creating vertical edges, filling and compacting the underlying base course up to the bottom of the pavement to provide proper support for the pavement, placing and compacting **Instant Road repair Premix** to repair the pavement, filling and compacting the road shoulder to the level of the pavement to avoid new edge breaks. • Sealing cracks - Removing any loose material from the cracks, filling the cracks with bitumen or sealant to avoid water penetrating into the pavement and weakening it.
Road shoulder	• Repairing ruts, rills, gullies, potholes - Filling ruts and potholes formed by traffic and rills and gullies formed by water erosion with compacted earth, stone and gravel (where applicable) in order to restore a uniform surface. Filling up the road shoulder to the level of the pavement (where applicable). • Repairing cuts and improving shoulders - Filling and compacting cuts or depressions in the road shoulders to ensure that the road is not undermined. This is often complemented by the creation of basic dry stone retaining walls or the planting of vegetation to avoid damage from happening again. • Removing banks - Removal of raised road shoulders where these restrict runoff water from flowing away from the road.
Drains	• Clearing drains - Clearing the side drains and other drainage ditches of sediment and other material that may obstruct the free flow of water, in order to ensure proper drainage and the protection of the road. • Repairing erosion and other damage - Affecting minor repairs to the drainage system to ensure their continued and proper working, including the placement of scour checks and the filling of areas undermined by erosion. • Creating earthen drains – Excavating basic side drains in areas prone to erosion or the stemming of water, in order to guide water safely away from the road surface and avoid undermining of the road.
Culverts	• Clearing culverts - Clearing rocks, branches, sediment and other debris that may obstruct the free flow of water in the culverts, in order to ensure proper drainage and the protection of the road. • Repairing backfills over culverts - Placement of additional soil and/or gravel on the road surface over

प्रदेश सचिव

ROAD ELEMENT	RMG MAINTENANCE ACTIVITIES
	existing culvert pipes where these are close to the surface, in order to avoid them becoming damaged by traffic.
Bridges and causeways	• Clearing drifts and causeways - Removing material on the drift or causeway as well as any blockages at the inlet or outlet to ensure water can flow freely over the causeway and away from the road. • Clearing bridges - Clearing rocks, branches, sediment and other material that may obstruct the free flow of water below the bridges, in order to ensure proper drainage and the protection of the road and bridge. Clearing the bridge deck to allow traffic to pass unobstructed. Cleaning spouts and weep holes to allow water to drain away freely. Removing vegetation from the bridge structure to avoid causing damage. • Maintaining expansion joints and bearings - Cleaning any material from expansion joints to ensure these can work properly. Cleaning bearings and lubricating them to ensure they do not become jammed. • Maintaining railings and safety barriers - Cleaning, painting and repairing bridge railings and safety barriers to ensure these are easily visible and protect pedestrians and vehicles from falling off the bridge. • Repairing erosion damage - Repairing damage and placing minor protection works to avoid bridge structures being undermined.
Vegetation	• Cutting and clearing vegetation - Cutting and removing vegetation that grows in the road reserve, shoulders or surface and which impedes visibility, restricts normal traffic, restricts the flow of runoff water away from the road, or is damaging the road, drainage system or other road elements
Traffic signs and road furniture	• Cleaning signs and road furniture - Cleaning existing signs and other road furniture so that they are legible and ensuring that signposts are straight and properly anchored in the ground. • Repairing and painting signs and road furniture - Repairing or painting signs and other road furniture, ensuring that signposts are properly anchored in the ground and are easily legible. • Installation of kilometer (km) posts and delineators- Installation of km posts and delineators gives the drivers and pedestrians the information and confidence.
Retaining walls and structures	• Cleaning weep holes - Clearing any material in the weep holes of retaining walls so that water behind the wall can drain out and does not cause damage to the wall. • Creating retaining walls - Installing basic dry stone walls or gabions against slopes to avoid cuts in road shoulders and landslides. Such walls may complement existing retaining walls. • Repairing minor damage - Replacement of loose stones and/or repair of gabion wiring in retaining walls, and small repairs to other structures. • Repairing erosion damage - Placement of rocks and compacted earth where retaining walls and other structures are undermined by erosion to avoid them from collapsing. This is often complemented by the planting of vegetation to avoid damage from happening again.
Slopes	• Maintaining bioengineering features - Providing water to recently planted vegetative material and ensuring that it is properly rooted in the soil. • Planting bioengineering features - Placing grass turf, grass planting, brush layering, fascines, live check dams, palisades and tree planting or other vegetative material obtained from areas close to the road on the shoulders and slopes of the road in order to avoid erosion and stabilize the soil. • Removing hanging rocks - Removal of loose stones and soil from slopes above the road to avoid that these fall onto the road or result in landslides. • Trimming side slopes – Trimming of sharp vertical slopes and irregular shaped bends in order to create a smooth and stable slope.

प्रदेश सचिव

Annex 2: TOOLS for RMG

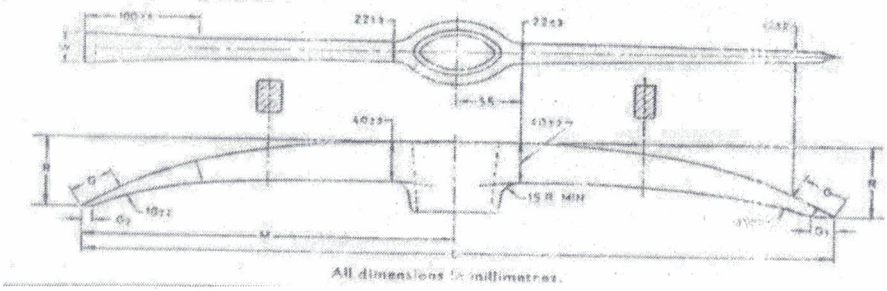
TOOLS	PURPOSE	# WORKERS SHARING	
		TERAI	HILLS
Wheelbarrow / Doko	Transporting material to and from the worksite	2-4	2-4
Hoe / Faruwa / Kodalo	Excavating loose or soft soil or gravel	2-3	2-3
Pickaxe	Loosening hard soil	3-5	2-3
Shovel	Loading and throwing loose soil or gravel	1	1
Long handled shovel	Cleaning culverts	1 per RMG	1 per RMG
Rake	Spreading material	2-3	2-3
Curved knife / Sickle	Cutting vegetation	2-3	2-3
Machete / Khukuri	Cutting thick vegetation	2-3	2-3
Hand rammer	Compacting soil, gravel and minor pothole maintenance	1 per RMG	1 per RMG
Large crowbar	Loosening, breaking or moving larger rocks	1 per RMG	1 per RMG
Large Hammer + Chisel	Breaking larger rocks	-	1 per RMG
Pulling rope	Assisting the worker with the shovel	1 kg per RMG	1 kg per RMG
Foot pump	Pumping wheelbarrow tyre	1 per RMG	1 per RMG
Plastic tubs	Removing water	2-3	-
Watering can	Carrying and spreading water	1 per RMG	1 per RMG
Handheld emulsion sprayer	Sand seal and fog seal	1 per RMG	1 per RMG
Small gas heater	Boil bitumen for patch repair	1 per RMG	1 per RMG
Kettle	To pour hot bitumen into potholes/cracks	1 per RMG	1 per RMG

1. Specification of Chisel

Name of the Product.	Flat Cold Chisel
Confirming Standard	NA
Material specification	High carbon with EN9 or equivalent grade, **or at least equivalent to king pin type.**
Workmanship and Finish:	Good finish without any imperfections like Cracks, Burrs, Pits, Scales etc. and such other physical defects.
Size and Weight	35 mm × 225 mm (± 10%) ,Round Made, 1.5 kg (±5%)
Test	Must compliance the Flaw test without standard equipment method: Clause 7.1, IS 402. Performance test: clause 7.2, IS 402-1974

2. Pick

Name of the Product	Picks, chisel (wide and point ends), without handle.
Confirming Standard	IS 273 - 1973 (2nd Revision with amendments on July 1975 and September 1976)
Material specification:	T60 grade steel with Phosphorus = 0.05 % max, Sulphur = 0.05 % max. The supplier shall provide the evidence of the specification of material from the manufacturer or the pick must be at least equivalent to TATA.
Hardness	315 to 415 HV tested at point ends
Workmanship and Finish	Good finish without any imperfections like Cracks, Burrs, Pits, Scales etc. and such other physical defects
Weight	2.5 kg (-2.5% and +7.5%)
Tentative sketch	As provided below
Test	Must compliance Drop test: clause 8.1, IS 273-1973



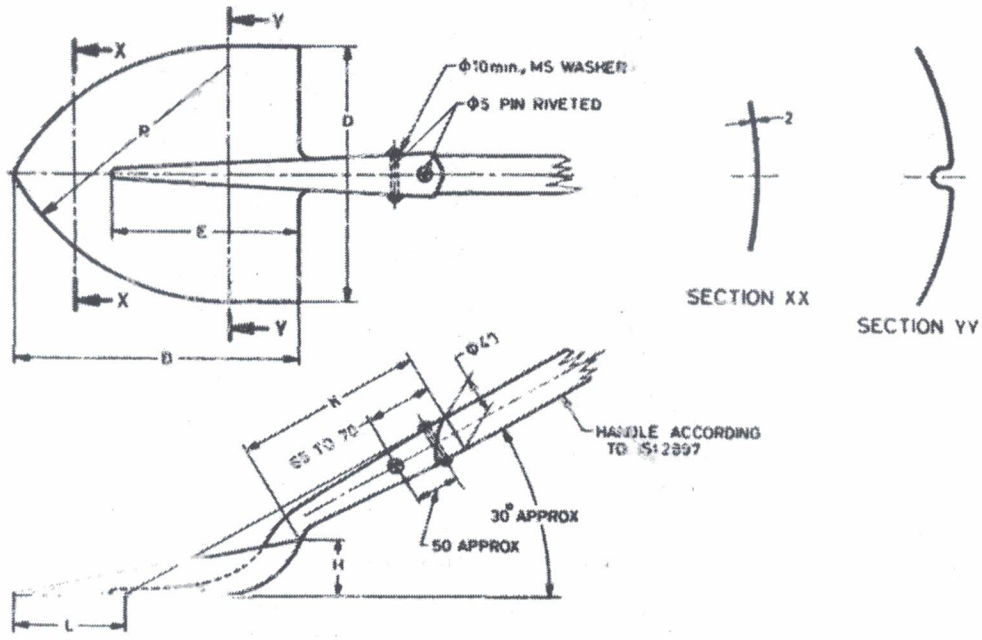
Nominal Mass in kg +7.5% -2.5%	Overall Length L ± 13	Half Length M ± 6	Rise of point & chisel R ± 6	Width of Chisel W ± 6	Ground Portion		
					G ± 6	G1 ± 3	G2 ± 3
2.5	560	280	70	55	40	20	10

3. Shovel

Name of the Product	General Purpose Round Nose Shovel with wooden handle
Confirming Standard	IS 274 (Part 1) - 1966 (2nd Revision with amendments on July 1975 and September 1976)
Material specification	Carbon = 0.45 ~ 0.65%, Manganese = 0.55 ~ 0.75 %, Phosphorus = 0.06 % max, Sulphur = 0.06 % max. The supplier shall provide the evidence of the specification of material from the manufacturer **or shovel must be at least equivalent to TATA.**
Workmanship and Finish	Good finish without any imperfections like Cracks, Burrs, Pits, Scales etc. and such other physical defects
Weight	1.6 kg (-3% and +7%25%)
Handles	Appropriate wooden handles as shown in figure.
Tentative sketch	As provided below
Test	Must compliance Bending test: clause 14.2,IS 274(1)-1966. Flexing test: clause 14.3,IS 274(1)-1966

प्रदेश सचि

All dimensions in millimetres.

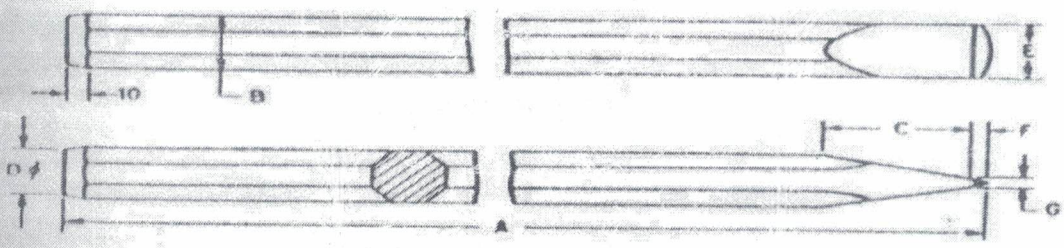


B ±6	D ±6	E (Nom)	H (Nom)	K +6 −0	L (Nom)	R (Nom)	Nominal Mass of Blade kg
330	275	200	60	200	155	255	1·6

4. Large Crowbar:

Name of the Product	Octagonal crowbars with chisel and hammer ends
Confirming Standard	IS 704 - 1968 (1st Revision)
Material specification	T60 grade steel with Phosphorus = 0.05 % max, Sulphur = 0.05 % max. The supplier shall provide the evidence of the specification of material from the manufacturer, **or the crowbar must be at least equivalent to TATA** .
Hardness	320 to 400 HV tested anywhere of the working end
Workmanship and Finish	Good finish without any imperfections like Cracks, Burrs, Pits, Scales etc. and such other physical defects.
Size and Weight	25×1650 × 7 kg (-3%) and dimension must be as shown in attached figure sheet.
Tentative sketch	Referred attached sheet

All dimensions in millimetres.



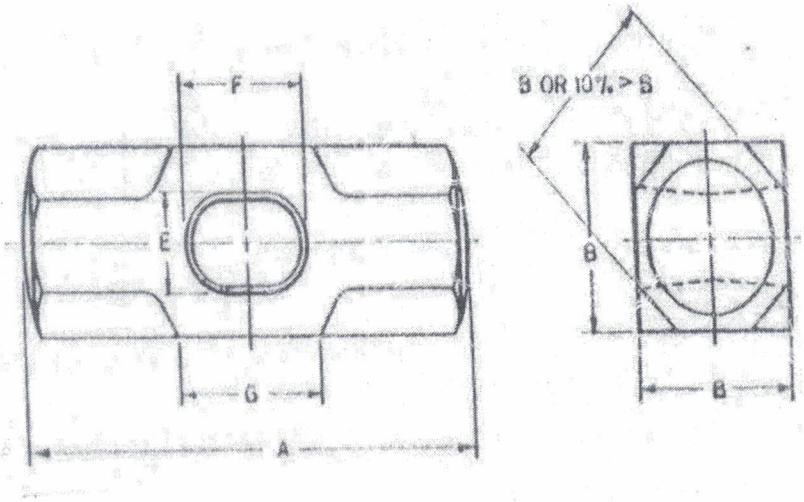
Nominal Weight kg	Length A ±25	Width Across Flats B	Length of Chisel End C	Diameter of Hammer End D	Ground Portion			Static Load Test	
					Width E	Cutting Edge F	Thickness at Start of Cutting Edge G	Distance Between Grip and Loading Point P*	Load W* kg
3	1 000	22	65	20	22	6	5	710	68
4	1 000	25	70	22	25	6	5	720	91
5	1 000	30	70	25	30	8	6	760	136
6	1 000	32	75	30	32	8	6	770	181
5	1 650	22	65	20	22	6	5	1 450	31
7	1 650	25	70	22	25	6	5	1 470	45
9	1 650	30	70	25	30	8	6	1 490	68
11	1 650	32	75	30	32	8	6	1 510	91

Octagonal Crowbar, ordinary, ref: IS 704

प्रदेश सचिव

5. Double Face Sledge Hammer

Name of the Product.	Double face sledge hammer, without handle.
Confirming Standard	IS 841 - 1968 (1st Revision)
Material specification	Carbon = 0.45 ~ 0.65%, Manganese = 0.55 ~ 0.75 %, Phosphorus = 0.06 % max, Sulphur = 0.06 % max, Silicon = 0.35 % max. The supplier shall provide the evidence of the specification of material from the manufacturer, **or the hammer must be at least equivalent to TATA.**
Hardness	520 to 640 HV tested at striking face and peins only
Workmanship and Finish	Good finish without any imperfections like Cracks, Burrs, Pits, Scales etc. and such other physical defects. The striking face and peins shall be slightly convex and chamfered at app. 45°.
Weight	4 kg (-3% and +12.5%) and dimension must be as shown in attached figure sheet.
Tentative sketch	Referred to attached sheet.
Test	Must compliance Striking test: clause 15.1 and 15.2, IS 841-1968



Normal Weight Kg	A	E	F	G	B
4.0	170	30	45	50	60
6.0	210	30	45	52	68

प्रदेश सचिव

6. Iron Rammer

Name of the Product.	Iron Rammer
Material specification	Cast Iron
Workmanship and Finish	Good finish without any imperfections like crack, burrs, pits, and scale and physical defects.
Size and Weight	5" diameter and 5 kg weight.

7. Pulling Rope:

Name of the Product	Pulling Rope
Size & weight	6 mm diameter of Nylon, 1.5 kg per coil.
Workmanship and Finish	Good finish without any imperfections.

8. Hoe (Faruwa)

Name of the Product	Hoe (Faruwa).
Material specification	High carbon with EN9 or equivalent grade, **or at least equivalent to TATA** .
Workmanship and Finish	Good finish without any imperfections like Cracks, Burrs, Pits, Scales etc. and such other physical defects
Weight	1.8 kg (- 5%)
Thickness	Joint thickness 4 mm , and thickness of other part 3 mm.
Test	Must compliance practical and performance test.

9. Curved Knife or Hansiya

Name of the Product	Curved Knife or Hansiya
Material specification	Mild Steel
Workmanship and Finish	Good finish without any imperfections like Cracks, Burrs, Pits, Scales etc. and such other physical defects
Weight	400 gm (±5%)
Thickness	Minimum thickness 3 to 4 mm
Tentative sketch	Refer Figure below

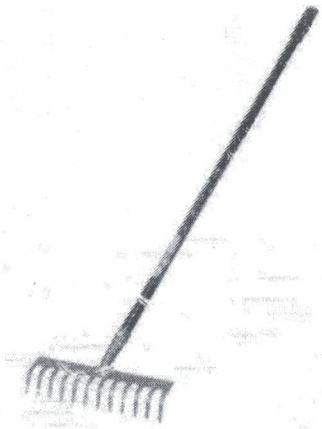
प्रदेश सचिव

10. Machete(khukuri)

Name of the Product	Machete or Khukuri
Material specification	High Carbon steel
Workmanship and Finish	Good finish without any imperfections like Cracks, Burrs, Pits, Scales etc. and such other physical defects
Weight	800 gm (±5%)
Thickness	Minimum thickness 3 to 4 mm

11. Rake

Name of the Product	Rake
Material specification	High Carbon steel
Workmanship and Finish	12 tooth head with epoxy coated head securely fixed to tabular steel handle with Black plastic hand grip with hang hole. Must be sturdy and durable. Good finish without any imperfections like Cracks, Burrs, Pits, Scales etc. and such other physical defects
Size	Head Width 300 mm Handle length 1220 mm
Tentative sketch	Refer figure below.



18. Wheelbarrow

Must Perform

i. Carry any materials (particularly stone and soil) from one place to another.
ii. Must be able to withstand the exerting force.
iii. Must be able to carry the minimum load of 200 Kg.
iv. Must be easy to operate- it is expected that the user age group will range from 18 years young men or women to adults.
v. Must be easy to operate in rough landscape.
vi. When the device is in use, it should be easy to load and unload.
vii. Resistance to adverse weather: The device will normally be exposed on the outside of the store or building, then it must be able to withstand all extreme weather conditions.
viii. Corrosion Resistance: The unit should be resistant to corrosion.
ix. Dust and dirt: Components that would be inhabited from operation by dust or dirt should be protected (i.e. sealed bearings).
x. The total weight of the device, including fittings, should no greater than 33 kg.

Materials

i. Bowl should be made of 2mm (14 gauge) Steel Sheet.
ii. Steel handle should be made of 14-gauge steel tube 1" diameter.
iii. Leg should be made of the 6x40 mm M.S flat.
iv. Bowl supports should be made of from 40 x 40 x 3.5 mm Angle.
v. Bowl should be reinforced by iron rod 12 mm diameter with proper welding.
vi. Bearing should be Z-Z (two sides sealed).
vii. Nuts, bolts and washers should be ISI standard.

viii. Bowl leg must be reinforced with FL1, FL2 MS angle.

ix. The rim of wheel should be 1.8 kg min, excluding bearings and nuts and must be dia 350 mm, heavy duty.

x. Tyre should be of good quality brand new 8 ply tyre.

xi. Tube should be of good quality brand new and heavy duty, which should meet at least ISI standard.

xii. There must be cushion of a layer of rubber on inner side of disc, which prevents tube from direct contact of disc.

Ergonomics

i. Height, length and diameter of handle should be easy to handle and operate.

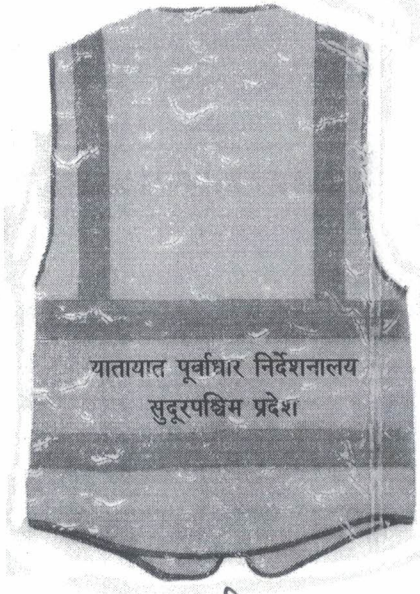
ii. No sharp edges will be exposed.

Size & Shape

As shown in attached drawing.

Note: For RMG Personnel, the safety jacket & helmet must be bright Yellow in Colour.

The backside of the safety jacket should have "यातायात पूर्वाधार निर्देशनालय, सुदूरपश्चिम प्रदेश" written in two separate lines using Nepali character with Kalimati font black bold in colour. Representative sample of the safety vest is shown in figure.

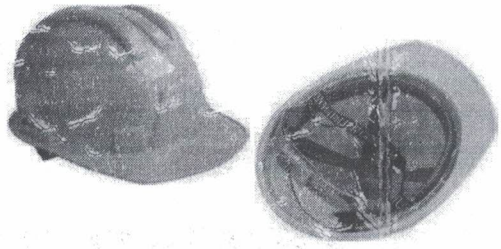


प्रदेश सचिव

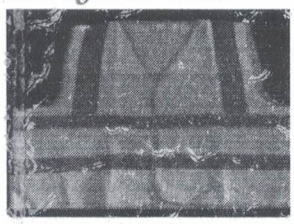
ANNEX 3: SAFETY EQUIPMENTS (Personal Protective Equipments) for RMGs

SAFETY EQUIPMENT		WORKERS SHARING	
		TERAI	Hill
Warning flags and safety cones	Indicating the presence of workers ahead	1 set per RMG (1 set=2 flags and 2 cone)	1 set per RMG (1 set=2 flags and 2 cone)
Safety vest	Identifying workers as RMG members	1	1
Hat / Cap	Protecting against the sun	1	1
Safety helmet	Protecting against head injuries	1	1
Gloves	Protecting hands against cuts & injuries	1	1
Safety goggles	Protecting eyes from dust and injuries	1	1
Mask	Protecting against dust	2	2
Boots / Shoes	Protecting against sharp objects	1	1
Raincoat	Protecting against rain	1	1
Ear Plugs	Protects ears from hearing loss	1	1
First-aid kit	Treating injuries	1 set per RMG	1 set per RMG

Safety Helmet

Name of the Product	Safety Helmet
Material specification	Equivalent to IS 2925-1984 or at least equivalent to Guard Company.
Workmanship and Finish	Must have triple corrugation on the shell to offer stronger surface strength for added safety. The strap must be made of l.d.t.e.. Good finish without any imperfections like Cracks, Burrs, Pits, Scales etc. and such other physical defects
Colour	Yellow
Tentative sketch	Refer figure below. 

Safety Vest:

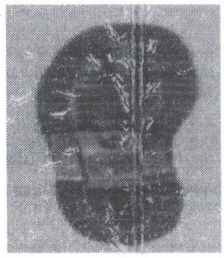
Name	Safety Vest
Workmanship	Good Finish without any physical defects
Colour	As provided in figure
Material	Mostly polyester with high reflective polyester tape as per figure
Figure	Refer figure for colour 

Safety Gumboot:

Name of product	Safety Gumboot (Steel toe-cap)
Confirming standard	Should have acquired by the national standard of manufactured country
Size	a. 4 to 5 (UK) b. Full size Safety Gumboot with **steel toe cap** for safety.
Height of Boot	350 ± 5 mm
Reinforcement body thickness	Complete body shall be reinforced with heavy-duty textile lining –cotton, which acts as a sweat absorbent. a. Toe : 4.0 mm b. Vamp (head support) : 2.5 mm c. Counter (heel support) : 4.0 mm d. Leg / Ankle : 1.5 mm
Base Thickness (min)	a. Sole (overall) : 12.5 mm b. Heel (overall) : 28.0 mm
Colour	Yellow or Black
Material (for Sole)	Polyvinyl Chloride (Hard)- Gumboot sole shall be made of Polyvinyl chloride of hard type, which confirm the requirement of hardness of Sole/Heel is 60 ± 5^0 A and Flexing Endurance (min) 50,000 cycles (Ross) **or at least equivalent to a product 'Tarzan'**
Material (for upper part)	Gumboot upper part shall be made of polyvinyl chloride of soft type, which confirm the flexing endurance (min) 1,50,000 cycles (De Matin) **or at least equivalent to a product 'Tarzan'**
Other requirements	i. Leak proof: There shall be no leakage when air with pressure of 0.15 Kg forced into the Boots. ii. Embedded steel toe cap: Steel toe cap shall be completely embedded by PVC lining to provide more room and comfort to the toe. iii. Sole Design: Sole design shall be cleated anti-skid sole.
Application	General Purpose construction industrial (not food industry) boot
Marking	All piece of Gumboot shall be clearly marked manufacture's name or trademark.
Quality assurance	A manufacture's certificate that the product was manufactured tested and supplied in accordance with this specification, together with a report of test results. Each certificate so furnished shall be signed by a person authorized by the manufacturer.

प्रदेश सचिव

Gumboot

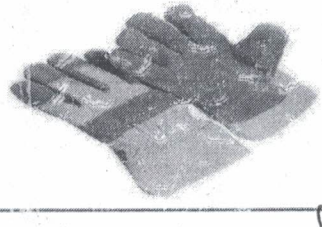


Anti-skid sole

Raincoat

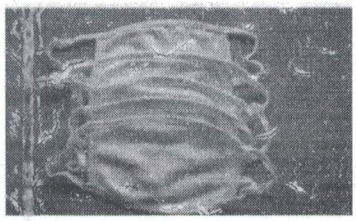
Name of the Product	Raincoat
Material specification	PVC coated
Workmanship and Finish	It should be 100% water proof, The Raincoat should be less in weight, easy to wear, durable and it should not restrict the movement of any person wearing. Air penetrable, self-draining, easy to fold and light weight.
Size	Must be suitable to adult size
Colour	Blue
Tentative sketch	Refer figure below. 

Safety Gloves

Name of the Product.	Safety Gloves
Material specification	Good quality leather.
Workmanship and Finish:	Good finish without any imperfections like tears and such other physical defects.
Size	Should be general size
Test	Must comply with Performance test
Figure	As per given below. 

प्रदेश सचिव

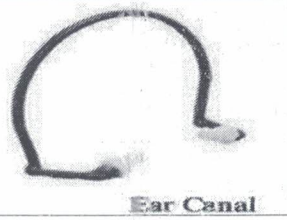
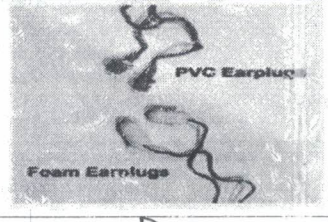
Cotton Mask

Name of Product	Cotton Mask
Material Specification	Cotton mask with thin layer of sponge and strap made up of elastic.
Workmanship and finish	Good finish without any imperfections like tear, lose stiching, and such other physical defects
Colour	Any
Test	20% of batch to be inspected for quality as above, if defective mask found, batch should be sorted out and only mask satisfying the quality should be selected. 

Safety Glass

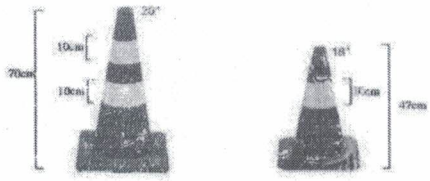
Name of the Product.	Safety glass
Lens Features	▪ Clear lens. ▪ Material – Poly carbonate ▪ Hard – coated lens for scratch resistance ▪ Lens scale number: 2 –1.2
Special Features	▪ Temple grips equipped soft cushioning pads ▪ Adjustable temple length to customize the fit on the user head. Length adjustable within a range of 13 mm. ▪ Temple / side arms capable of tilting within a wide-angle range (upto 60°). ▪ The product is at least equivalent to ES-002 (Clear) of KARAM
Workmanship and Finish	Good finish without any physical defects.
Size	Should be general size
Figure	As per given below. 

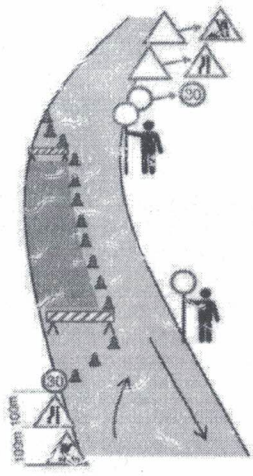
Hearing protection:

Name of the Product	Hearing Protection Device (Ear plugs, Ear Muffs or Ear Canal)
Material specification	Made of foam, rubber or plastic Either one-size-fits all or in sizes small, medium and luge. Lightweight, and require no maintenance. Some are disposable, some are reusable Conform to the international standards (British, European and American standards).
Features	Protect the ear from hearing loss and tinnitus.
Figure	 Ear Canal  

Traffic Cones

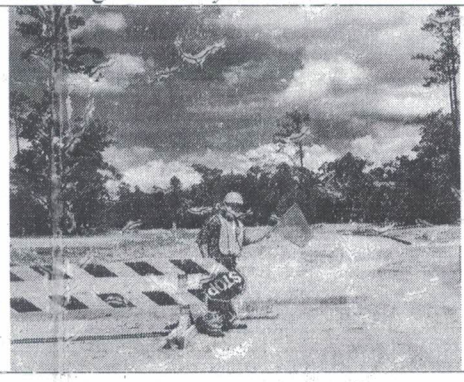
Material specification	PVC
Size	H=70 cm, bottom=38 cm
Colour	Yellow and White
Finish	As per figure
Placement of cones	





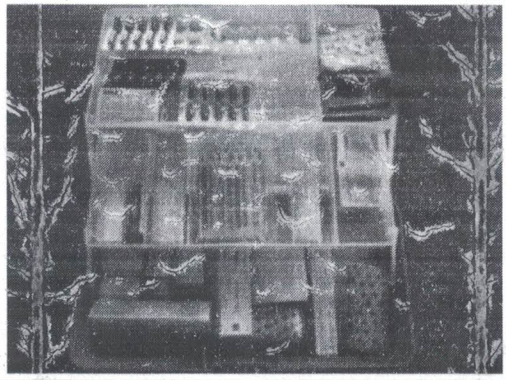
Traffic Flags

Name of the Product	Traffic Flags
Material specification	Brightly colored, Handheld flags
Specific Features	Usually bright Orange, Red, Green or Yellow for high visibility
Size	18 inches x 18 inches
Uses	To warn drivers about potential hazards and guide them safely through construction areas. To direct and control the movement of vehicles, signaling when to stop, slow down, or proceed through a work zone, ensuring the safety of both drivers and construction personnel on site
Figure	



First Aid Box Contents

S.N	Item	Quantity
	First Aid box (with good quality)	1 No.
	Crepe Bandage	1 No.
	Betadine, 100 ml.	1 No.
	Moov (tube)	1 No.
	Cotton (100 gm)	1 No.
	Dettol (50ml)	1 No.
	Triangular bandage	1 No.
	Scissor	1 No.
	Handkerchief	1 No.
	Normal solution (500 ml)	1 No.
	Forceps (small)	1 No.
	Dettol soap	1 No.
	Handiplast	50 Nos.
	Towel (small)	1 No.



ANNEX 4: RMG FORMATION NOTICE

NOTICE

for the formation of Road Maintenance Group

The IDO of [Enter name of IDO) intends to form a Road Maintenance Group (RMG) for the maintenance of [Enter name and description of road]. The following numbers of maintenance workers are required to form the Road Maintenance Group.

Start	End	Length	Number of workers
Total			

The members of the Road Maintenance Group will be required to work together to maintain the road in good condition, carrying out basic cleaning and clearing works as well as minor repairs. The work will be [Enter full-time or half-time] and will be for a period of one year. The Road Maintenance Group will be paid a fixed monthly amount of NPR [Enter monthly payment] for the entire road if the road is in good condition. If certain parts of the road are not in good condition, deductions will be applied to the monthly payment.

Selection of the members of the Road Maintenance Groups will be in accordance with the following selection criteria. It must be noted that previous experience with road works is not required, but is an advantage in the selection process. The ability to read and write and completed primary school are also not required but are an advantage.

TECHNICAL CRITERIA
The selected maintenance workers must be between 18 and 60 years of age
The selected maintenance workers must be physically and mentally able to work on road maintenance
The selected maintenance workers must live near the road to be maintained (reducing travel time). **If maintenance workers are not available near the road, they should be selected from the adjoining road section.**

SOCIAL CRITERIA
The selected maintenance workers must be unemployed or employed less than 25% of their time
The selected maintenance workers must be from the poorest people in the Rural municipality.
Preference must be given to female candidates and participation of women should be promoted. At least 50% of selected maintenance workers must be women. Where possible, all selected maintenance workers should be women.
At least 40% of the maintenance workers must be Dalits or Janajati, or be from other excluded and deprived groups

For more information, please contact the R/Municipality Chief/Chief Administrative Officer or the Infrastructure Development Office (IDO). Interested candidates should contact R/Municipality Chief/Chief Administrative officer and fill in the RMG Application Form before [Enter date by which the RMG Application Form should be submitted]. Within one week after the final application date, the RMG Application Forms will be evaluated and the RMG members will be selected.

प्रदेश सचिव

अनुसूची ४: सडक मर्मत-सम्भार समूह गठनको सूचना

सूचना

पूर्वाधार विकास कार्यालय [.....] ले [सडकको नाम र विवरण प्रविष्ट गर्नुहोस] मर्मत-सम्भारका लागि सडक मर्मत-सम्भार समूह (RMG) गठन गर्न चाहेको छ। सडक मर्मत-सम्भार समूह गठन गर्न निम्न संख्यामा मर्मत-सम्भार कामदारहरु आवश्यक रहेको छ।

क्र.सं.	पुरुष	महिला	अन्य लिङ्ग	जम्मा	कामदारको संख्या

सडक मर्मत-सम्भार समूहका सदस्यहरुले सडकलाई राम्रो अवस्थामा राख्न, आधारभूत सरसफाई कार्यका साथै स-साना मर्मतका लागि संगसंगै काम गर्नु पर्नेछ। मर्मत कार्य [पूर्ण समय वा आधा समय प्रविष्ट गर्नुहोस] र एक वर्षको अवधिका लागि हुनेछ। सडक मर्मत-सम्भार समूहलाई तोकिएको सडकखण्ड राम्रो अवस्थामा छ भने निश्चित मासिक रकम नेरु. [मासिक भुक्तानी रकम प्रविष्ट गर्नुहोस] भुक्तानी गरिनेछ। यदि सडकको केहि खण्डहरु राम्रो अवस्थामा छैन भने मासिक भुक्तानीमा कटौती लागु हुनेछ।

सडक मर्मत-सम्भार समूहका सदस्यहरुको चयन निम्न मापदण्ड अनुसार हुनेछ। यो सूचित गरिन्छ कि सडक मर्मत कार्यमा पुर्व अनुभवको अनिवार्यता छैन, तर चयन प्रक्रियामा प्राथमिकतामा राखिनेछ। त्यस्तै मर्मत-सम्भार कर्ताहरुको छनौटमा औपचारिक शिक्षाको अनिवार्यता छैन तर चयन प्रक्रियामा प्राथमिकतामा राखिनेछ।

• चयन हुने मर्मत-सम्भार कामदारहरु १८ देखि ६० वर्ष भित्रको हुनु पर्नेछ।
• चयन हुने मर्मत-सम्भार कामदारहरु काम गर्नका लागि शारीरिक तथा मानसिक रुपमा सक्षम हुनु पर्नेछ।
• चयन हुने मर्मत-सम्भार कामदारहरु सडकको नजिक बसोवास गरेको हुनु पर्नेछ। यदि सडक नजिकै मर्मतसम्भार कामदार उपलब्ध छैनन् भने, तिनीहरूलाई छेउछाउको सडक खण्डबाट छनोट गर्नुपर्छ।
सामाजिक समावेशीकरण
• चयन हुने मर्मत-सम्भार कामदारहरु बेरोजगार वा बर्षमा २५% भन्दा कम समय कार्यरत हुनु पर्नेछ।
• चयन हुने मर्मत-सम्भार कामदारहरु गरिब परिवारबाट हुनु पर्नेछ।
• महिला उमेदवारलाई प्राथमिकता दिईनेछ। कम्तिमा पनि ५०% चयन हुने कामदारहरु महिला हुनु पर्नेछ । सम्भव भएको ठाउँमा सम्पूर्ण कामदारहरु महिला हुन सक्नेछन्।
• कम्तिमा ४०% मर्मत-सम्भार कामदारहरु दलित वा जनजाति हुनु पर्नेछ वा अन्य बहिष्कृत र वन्चित समूहबाट हुनु पर्नेछ।

थप जानकारीका लागि [.....गाउँ/नगरपालिका] अध्यक्ष/प्रमुख/ प्रमुख प्रशासनिक अधिकृत वा पूर्वाधार विकास कार्यालय [.....]मा सम्पर्क गर्न सक्नु हुनेछ। इच्छुक उमेद्वारहरुले [गाउँ/नगर पालिका] वा पूर्वाधार विकास कार्यालय [.....] मा सम्पर्क गरी आवेदन फारम भरी [आवेदन फारम पेश गर्ने अन्तिम मिति प्रविष्ट गर्ने] पेश गर्नु पर्नेछ। आवेदन फारम पेश गर्ने अन्तिम दिनको सात दिन भित्र आवेदनहरुको मूल्यांकन गरी सम्भारकर्ताको छनौट गरिनेछ।

प्रदेश सचिव

ANNEX 5: RMG APPLICATION FORM

RMG APPLICATION FORM		Recommended By
Name	.....	
Surname	.....	
Identity document	.....	
Age	.....	
Place of residence	.....	
Gender	☐Male ☐Female	
Ethnicity/caste	☐ Dalit ☐Janajati ☐ Muslim ☐ Madhesi ☐Other	Concern ward or R/Municipalities
What sources of income does the candidate currently have?	☐None ☐Temporary (e.g. migrant work, hired labor) ☐Fixed (e.g. agricultural land, permanent employment)	Concern ward or R/Municipalities
Does the candidate own any property?	☐ None ☐Agricultural land ☐House ☐Shop or other business premises	Concern ward or R/Municipalities
How many family members does the candidate support?	☐0-3 ☐4-6 ☐More than 6	Concern ward or R/Municipalities
Can the candidate read and write?	☐Yes ☐No	Concern ward or R/Municipalities
What work experience does the candidate have?	☐Construction activities ☐ Agricultural activities ☐Commercial activities ☐Other activities:	Experience Certificate
Does the candidate have experience working on roads? If yes, what type of experience?	☐Yes ☐No	Experience Certificate
Has the candidate ever worked as part of a team or group? If yes, what kind of team?	☐Yes ☐ No	Experience Certificate
Has the candidate ever filled leadership positions? If yes, what kind of positions?	☐Yes ☐ No	Experience Certificate

प्रदेश सचिव

अनुसूची ५ : सडक मर्मत-सम्भार समूह निबेदन फारम

सडक मर्मत-सम्भार समूह निवेदन फाराम		सिफारिस
नाम	....	
थर	....	
परिचयपत्र	....	
उमेर	....	
ठेगाना	....	
लिङ्ग	□ पुरुष □ महिला	
जात/जाती	□ दलित □ जनजाती □ मुस्लिम □ मधेसी □ अन्य	सम्वन्धित वडा/पालिका
निवेदक श्री [illegible] को आम्दानीको श्रोत के छ ?	□ केहि छैन □ अस्थाई (ज्यालादारी) □ स्थाई (कृषि पेशा, स्थाई रोजगार)	सम्वन्धित वडा/पालिका
निवेदक [illegible] आफ्नै कुनै सम्पत्ति छ ?	□ केहि छैन □ कृषि जमिन □ घर □ पसल अथवा अन्य ब्यवसायिक स्थान	सम्वन्धित वडा/पालिका
निवेदकको आश्रित परिवार संख्या कति छ ?	□ ०-३ □ ४-६ □ ६ भन्दा बढी	सम्वन्धित वडा/पालिका
निवेदक [illegible] पढ्न लेख्न सक्छ ?	□ सक्छ □ सक्दैन	सम्वन्धित वडा/पालिका
निवेदकको कार्यानुभव	□ निर्माण क्षेत्र □ कृषि क्षेत्र □ ब्यापारिक क्षेत्र □ अन्य क्षेत्र	अनुभव प्रमाणपत्र
निवेदकले सडकमा काम गरेको अनुभव छ ? यदि छ भने [illegible] कामको नाम ?	□ छ □ छैन	अनुभव प्रमाणपत्र
निवेदकले कुनै टीम वा समूहको सदस्य भएर कुनै [illegible] गरेको छ ? यदि छ भने कुन प्रकारको काम ?	□ छ □ छैन	अनुभव प्रमाणपत्र
निवेदकले कुनै नेतृत्वदायी भूमिकामा रही कार्य गरेको [illegible] ? यदि भए कुन प्रकारको ?	□ छ □ छैन	अनुभव प्रमाणपत्र

ANNEX 6: RMG APPLICATION FORM - SCORING CARD

RMG APPLICATION FORM - SCORING CARD		MAX
Name	.....	-
Surname	.....	-
Identity document	.....	-
Age	.....	-
Place of residence	.....	-
Gender	☐Male ☐Female (5)	5
Ethnicity/caste	☐Dalit (10) ☐Janajati (5) ☐Other	10
What source of income does the candidate currently have?	☐None (20) ☐Temporary (e.g. migrant work, hired labor) (10) ☐Fixed (e.g. agricultural land, permanent employment)	20
Does the candidate own any property?	☐ None (10) ☐ House (7) ☐ House & Agricultural land (3) ☐ Shop or other business premises	10
How many family members does the candidate support?	☐0-3 ☐4-6 (5) ☐More than 6 (10)	10
Can the candidate read and write?	☐Yes (5) ☐No	5
What work experience does the candidate have?	☐Construction activities (20) ☐Agricultural activities (15) ☐Commercial activities (10) ☐ Other activities: (5)	20
Does the candidate have experience working on roads? If yes, what type of experience?	☐Yes (10) ☐No If relevant road work experience	10
Has the candidate ever worked as part of a team or group? If yes, what kind of team?	☐Yes (5) ☐No If relevant team experience	5
Has the candidate ever filled leadership positions? If yes, what kind of positions?	☐Yes (5) ☐No If relevant leadership experience	5
TOTAL SCORE		100

Note: *This is the scoring card for the RMG Application Form. This should not be provided to the candidates and should only be used for determining the score of each candidate based on the information provided in their RMG Application Form.*

अनुसूची ६ : सडक मर्मत सम्भार समूह निवेदन फारम - स्कोरिङ कार्ड

	अधिकतम्
.....	-
.....	-
.....	-
.....	-
.....	-
□ पुरुष □ महिला (५)	५
□ दलित (१०) □ जनजाती (५) □ अन्य	१०
□ केहि छैन (२०) □ अस्थाई (जस्तै; बाह्य ज्यालादारी, ज्यालादारी) (१०) □ स्थाई (जस्तै; कृषि पेशा, स्थाई रोजगार)	२०
□ केहि छैन (१०) □ घर (७) □ घर र कृषि जमिन (३) □ पसल अथवा अन्य व्यवसायिक स्थान	१०
□०-३ □ ४-६ (५) □ ६ भन्दा बढी (१०)	१०
□ सक्छ (५) □ सक्दैन	५
□ निर्माण क्षेत्र (२०) □ कृषि क्षेत्र (१५) □ व्यापारिक क्षेत्र (१०) □ अन्य क्षेत्र (५)	२०
□ छ (१०) □ छैन *यदि सडक कार्य सम्बन्धि अनुभव भएमा*	१०
□ छ (५) □ छैन *यदि टिम संग कम गरेको अनुभव भएमा*	५
□ छ (५) □ छैन *यदि सम्बन्धित नेतृत्वको अनुभव भएमा*	५
	१००

** नोट: यो सडक मर्मत-सम्भार समूह आवेदन फारमको लागि स्कोरिङ कार्ड हो । यो उम्मेदवारहरूलाई प्रदान गर्नु हुदैन र उनीहरूको आवेदन फारममा प्रदान गरिएको जानकारीको आधारमा प्रत्येक उम्मेद्वारको स्कोर निर्धारण गर्न मात्र प्रयोग गर्नुपर्छ ।*

प्रदेश सचिव

ANNEX 7: SAMPLE WORK PLAN

WORK PLAN

Month:
Province:
District: Kailali
Road Name: Bauniya-Joshipur road
Section: J o s h i p u r - B h a j a n i

ROAD ELEMENT AND ACTIVITY		Ward 2	Ward 3	Ward 4	Ward 5	Ward 6	Ward 7
	km	0	1	2	3	4	5	6	7	8	9	10	11
Road	Clearing landslides and obstacles												
Earthen or gravel surface	Repairing ruts, rills, gullies, potholes												
	Creating water bars												
	Creating stone pitching, paved drifts												
	Graveling												
Blacktop Surface	Repairing potholes and edge breaks												
	Sealing cracks												
Road shoulder	Repairing ruts, rills, gullies, potholes												
	Repairing cuts and improving shoulders												
	Removing banks												
Drains	Clearing drains												
	Repairing erosion and other damage												
	Creating earthen drains												
Culverts	Clearing culverts												
	Repairing backfill over culverts												
Bridges and causeways	Clearing drifts and causeways												
	Clearing bridges												
	Maintaining expansion joints + bearings												
	Maintaining railings and safety barriers												
	Repairing erosion damage												
Vegetation	Cutting and clearing vegetation												
Traffic signs + road furniture	Cleaning signs and road furniture												
	Repairing/replacing signs												
Retaining walls	Clearing weep holes												
	Creating retaining walls												
	Repairing minor damage												
	Repairing erosion damage												
Slopes	Maintaining bioengineering features												
	Planting bioengineering features												
	Removing hanging rocks												
	Small back cutting on side slopes												

Prepared by: _____
Maintenance Engineer/Sub-Engineer

Date:

Agreed by: _____
RMG Chairperson

Date:

ANNEX 8: BASIS FOR WORK VOLUME CALCULATION

WORK VOLUME CALCULATION SHEET	
Month	
Road	
Road length (km) ❶	
RMG name	

CALCULATION

Road element	Maintenance activity	Task rate unit	Proposed task rate range (units/ personday)	Applied task rate (units/ personday) ❷	Planned volume (check units) ❸	Required person days ❹ = ❸/❷	Location (chainage)
Road	Clearing landslides and obstacles	m^3	3 - 4				
Earthen or gravel surface	Repairing ruts, rills, gullies, potholes	m^2	10 - 15				
	Creating water bars	m	20 - 40				
	Creating stone pitching, paved drifts	m^2	2 - 3				
	Graveling	m^2	6 - 8				
Paved surface	Repairing potholes or fixing edge break	m^2	5 - 10				
	Sealing cracks	m	100 - 150				
Road shoulder	Repairing ruts, rills, gullies, potholes	m^2	10 - 15				
	Repairing cuts and improving shoulders	m^3	2 - 3				
	Removing banks	m^3	3 - 4				
Drains	Clearing drains	m	100 - 200				
	Repairing erosion and other damage	m^3	2 - 4				
	Creating earthen drains	m	20 - 40				
Culverts	Clearing culverts	unit	1 - 3				
	Repairing backfill over culverts	m^3	2 - 3				
Bridges and causeways	Clearing drifts and causeways	m^3	3 - 4				
	Clearing bridges	unit	½ - 1				
	Maintaining expansion joints + bearings	unit	1 - 2				
	Maintaining railings and safety barriers	unit	¼ - ½				
	Repairing erosion damage	m^3	2 - 4				
Vegetation	Cutting and clearing vegetation	m^2	300 - 400				
Traffic signs + road furniture	Cleaning signs and road furniture	unit	10				
	Repairing/replacing signs	unit	5				
Retaining walls	Clearing weep holes	unit	50				
	Creating retaining walls	m^3	1 - 1½				
	Repairing minor damage	m^3	1 - 1½				
	Repairing erosion damage	m^3	2 - 4				
Slopes	Maintaining bioengineering features	m^2	50 - 100				
	Planting bioengineering features	m^2	15 - 25				
	Removing hanging rocks	m^2	2 - 3				
	Small back cutting on side slopes	m^3	1.4 - 2.0				
Other	Other activity						

CONCLUSION

Average number of person days per month	❺ = ❸ * input level / 12	
Total person days required in this month	❻ = sum ❹	

Note 1: The total number of person days for a particular month may differ from the average number of person days per month, as long as the total person days for a year are equal to the road length * input level.

Note 2: This sheet serves to ensure that the work volumes assigned to the RMG are in line with the available person days/km/year. The RMG is responsible for completing the assigned work plan and work volumes. This sheet is not to be provided to the RMG.

वैकुण्ठ प्रसाद अर्याल
प्रमुख सचिव

प्रदेश सचिव

ANNEX 9: TIMING OF MAINTENANCE ACTIVITIES

BEFORE THE RAINY PERIOD	
• Clearing drains • Clearing culverts • Clearing drifts and causeways • Clearing under bridges • Clearing bridges, spouts and weep holes • Repairing drains • Creating earthen drains	• Creating stone-paved drifts • Creating dry stone retaining walls • Cutting and clearing vegetation • Sealing pavement cracks • Removing hanging rocks • Removing shoulder banks • Creating waterbars • Application of bioengineering features
DURING THE RAINY PERIOD	
• Clearing of landslides and obstacles • Clearing drains • Clearing culverts • Clearing drifts and causeways • Clearing under bridges • Clearing bridges, spouts and weep holes • Repairing drains • Removing shoulder banks • Creating earthen drains • Creating waterbars • Creating stone-paved drifts	• Creating dry stone retaining walls • Removing hanging rocks • Planting bioengineering features • Repairing ruts, rills, gullies, potholes, corrugations - in major problem areas • Repairing pavement potholes and edge breaks - in major problem areas • Repairing cuts and improving shoulder - in major problem areas • Cutting and clearing vegetation - in major problem areas • Application of bioengineering features
AFTER THE RAINY PERIOD	
• Clearing of landslides and obstacles • Repairing ruts, rills, gullies, potholes, corrugations • Repairing cuts and improving shoulder	• Cutting and clearing vegetation • Repairing the backfill over culverts
DURING THE DRY PERIOD	
• Repairing ruts, rills, gullies, potholes, corrugations • Repairing pavement potholes and edge breaks • Repairing pavement raveling and stripping • Sealing pavement cracks • Repairing cuts and improving shoulder • Maintaining expansion joints and bearings • Maintaining railings and safety barriers • Repairing erosion damage to bridges	• Repairing retaining walls and structures • Repairing the backfill over culverts • Creating dry stone retaining walls • Stone pitching and graveling • Small back cutting side slopes • Cleaning signs and road furniture • Repairing and painting signs and road furniture

ANNEX 10: MAINTENANCE WORK INSPECTION FORM

INSPECTION FORM GENERAL INFORMATION				
Inspection period (month)				
Name of inspector				
Date of inspection				
Road name and length				
Road section start and end				
Name of RMG				
RMG chairperson's name				
RMG chairperson's phone number				
INSPECTION RESULTS				
Road element	In order	Deficient	Not applicable	Problems to be corrected
Road (obstructions)				
Earthen or gravel surface				
Blacktop surface				
Road shoulder				
Drains				
Culverts				
Bridges and causeways				
Vegetation				
Traffic signs and road furniture				
Retaining walls and structures				
Slopes				
CONCLUSION				
Standard Monthly Payment including allowances as per contract (NPR) ❶				
Deduction (NPR) (copy to Attendance Sheet) ❷	None NPR _____			
Approved Monthly Payment (NPR) (copy to Attendance Sheet) ❸= ❶ - ❷				
Number of person-days spent (copy from Attendance Sheet)				
Signature inspector				
Signature RMG chairperson				

Note: The amount of deduction is calculated by determining the volume of work not completed in accordance with the work plan and the performance standards, and multiplying this by the task rate for the activity concerned and the daily wage for the district concerned: (deduction = uncompleted work volume x task rate x daily wage rate).

प्रदेश सचिव

ANNEX 11: ATTENDANCE SHEET

ATTENDANCE AND PAYMENT DISTRIBUTION SHEET	
Reporting period (month):	
Road name and length:	
RMG name:	

ROUTINE WORKER

Name of member	Date (enter the number of hours worked each day by each RMG member)																													Total hours ❶	Total standard days ❷ =❶ / 8	Wage payment ❸ =❻ / ❸ * ❷	Signature
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
Total person days by RMG members ❸=sum ❷																																			

CONCLUSION	
Monthly wage payment as per contract (NPR) ❹	
Deduction as per Inspection Form (NPR) ❺	
Approved wage payment as per Inspection Form (NPR) ❻=❹ - ❺	
Signature RMG chairperson	
Signature inspector	

ANNEX 12: OHS SITE INSPECTION CHECKLIST

OHS SITE INSPECTION CHECKLIST			
Construction site information	Site (Location): Road Code: Road Name: Name of RMG: Name of the Group Leader: Contact no. of group Leader:	Total no of RMGs: Men: Women:	No of workers present on site: Men: Women:
Name and title of Person undertaking inspection	Name: Title: Department/Project:		
Date and time inspected	Date: Time:		

A. Workplace Control Management

Name of RMG in-charge:

Communication/ Employee Participation

Do you employ any of the following method to communicate safety information to your employees?	Frequency (If the answer is "yes")	Remarks
Pre-task meeting		
Health and safety meeting		
Co-ordination meeting		
Others (please specify)		

B. Training/ Induction

	Yes	No
Do all RMGs persons have safety and health trainings before the commencement of works?		
Do all RMGs persons on site been given the site-specific safety induction?		

प्रदेश सचिव

C. Personal Protective Equipment				
The equipment listed below complies with provision in this guidelines				
Items	Compliance		No. of workers not wearing the protective gear the time of inspection	Remarks
	Yes	No		
Hard Hats				
Safety Glasses				
Gloves				
Safety Shoes				
Masks				
Reflecting Jacket				
Ear Plugs				

D. Temporary Traffic Control				
The equipment listed below complies with provision in this guidelines.				
Items	Location	Compliance		Remarks
		Yes	No	
Flags				
Signs/Mark ups				
Flags, Signs or Cones were in use at the time of inspection				
Are the signs in good condition?				

E. Hand Tools						
The equipment listed below complies with provision in this guideline						
Items	Compliance		Good condition	Repair needed	Replacement needed	Remarks
	Yes	No				
Axe						
Chisel						
Crowbar						
Hand rammer						

Khukuri						
Mattock						
Measuring Tape						
Rake						
Ropes						
Shovel						
Sickle						
Sledge Hammer						
Spade						
Wheelbarrow						
Handheld Emulsion sprayer						
Small Gas Heater						
Hot bitumen pouring Kettle						

F. First Aid Kit

To avoid accidents site workers must have basic knowledge of the reporting system for any accidents or incidents so that they can be logged in quickly and accurately; they should at least have the contact details of the closest medical Center in case of emergencies and a basic knowledge of providing first aid.

Is the first aid kit available at work site?	Yes	No
Is the first aid kit stocked with standardized items?	Yes	No
Name and phone number of the person to be informed in case of emergency is displayed		
Do you keep the record of First Aid uses?		

Items inside the First Aid Kit Box	Expiry date	Expired		Remarks
		Yes	No	

प्रदेश सचिव

G. Child labor			
Particular	Yes	No	Remarks (If yes, mention the number)
Are there any under-aged (under 18) working at the site?			
Do RMG members bring their children to work site?			

H. Disposal of waste

How do the cut grass and vegetation remaining be managed?

How do the expired first Aid goods managed?

I. Incident: Reporting, Investigation & Recording

	Yes	No
Do you have any accident/incident recording and reporting system in place?		
Do you keep any accident/incident register?		
Do you conduct any post-accident investigation and record any such investigation?		

Findings
Recommendations

वैकुण्ठ प्रसाद अर्याल
प्रमुख सचिव

ANNEX IV: OHS COMPLIANCE MONITORING CHECKLISTS

A. OHS COMPLIANCE PARAMETER AND SCORE ALLOCATION

S.N.	Parameter	Score
1	**Safety Gear**	
1.1	Reflective jacket	1
1.2	Boot/Closed Shoes	1
1.3	Safety Helmet/Hard Hat/Cap	1
1.4	Mask/ Gloves/ Safety Glasses/earplugs as required	2
2.	**First Aid Kit**	1
Total		**6**

B. OHS COMPLIANCE SCALE

Score	U			MS	S	HS
	1	2	3	4	5	6
Compliance	Unacceptable			Required improvement	Acceptable	Highly Acceptable

C. COLOR LEGEND

Color code	Remarks
	Unsatisfactory
	Moderately Satisfactory
	Satisfactory
	Highly Satisfactory

भौतिक पूर्वाधार विकास मन्त्रालय
धनगढी, कैलाली
२०७४

प्रदेश सचिव

B. OHS COMPLIANCE MONITORING SCORE REPORT

Provincial and Local Roads Improvement Program (PLRIP)

Infrastructure Development Office (IDO), ...

OHS Compliance Monitoring Score Report

A. General Information

Name of Sub Project: Name of RMG:

Chainage: Date of Compliance Monitoring:

B. Monitoring Score Report

S.N.	Parameter	Score Allocation	Score Secured
1	**Safety Gear**		
1.1	Reflective jacket	1	
1.2	Boot/Closed Shoes	1	
1.3	Safety Helmet / Hard Hat / Cap	1	
1.4	Mask/ Gloves/ Safety Glasses/ Ear Muffs as required	2	
2.	**First Aid Kit**	1	
Total		6	

C. Conclusion:

The score..... secured by the .....RMG of ..... Sub-project fulfilled the minimum requirements of the RMG guideline.

D. Recommendation:

With respect to above conclusion, it is recommended for no objection for this payment of IPC (.....) requested by the contractor for the sub project.....

Prepared and Submitted by:

Designation: Date of Submission:

Signature:

प्रदेश सचिव

वैकुण्ठ प्रसाद अर्याल
प्रमुख सचिव

ANNEX 14: SAMPLE CONTRACT TEMPLATE

MAINTENANCE Contract

Between

[Enter name of MOPID]

and

[Enter name of RMG]

This contract describes the road maintenance activities to be undertaken in [Enter road name or description] over a total length of [Enter length of road] km from chainage [Enter start chainage] to chainage [Enter end chainage], involving a total of [Enter number of maintenance workers in RMG] maintenance workers. The duration of this contract is [Enter number of months] months starting from [Enter start date] up to [Enter end date].

Maintenance activities

The maintenance activities to be carried out under this contract consist of routine cleaning and clearing activities complemented by minor recurrent repairs and minor specific maintenance aimed at the creation of basic road protection measures. As part of this contract, the following maintenance activities may be carried out:

Road	Clearing landslides and obstacles
Earthen or gravel surface	Repairing ruts, rills, gullies, potholes, corrugations Creating water bars Creating dry stone pitching, stone-paved drifts Graveling
Blacktop surface	Repairing potholes and edge breaks Sealing cracks
Road shoulder	Repairing ruts, rills, gullies, potholes Repairing cuts and improving shoulder Removing banks
Drains	Clearing drains Repairing erosion damage Creating earthen drains
Culverts	Clearing culverts Repairing backfill over culverts
Bridges and causeways	Clearing drifts and causeways Clearing under bridges, bridge deck, bridge spouts, weep holes and vegetation Cleaning expansion joints and lubricating bridge bearings Cleaning, painting and repairing bridge railing and safety barriers Repairing erosion damage and placing minor protection works
Vegetation	Cutting and clearing vegetation Planting suitable plants (saplings) at road side, plant protecting, watering plants, Replacing dried and dead saplings
Traffic signs and road furniture	Cleaning signs and road furniture Repairing/replacing signs and road furniture
Retaining walls and structures	Cleaning weep holes Creating retaining walls Repairing minor damage Repairing erosion damage

प्रदेश सचिव

Slopes	Maintaining bioengineering features Planting bioengineering features Removing hanging rocks Trimming side slopes

Any repairs required to the road that are beyond the scope of the maintenance activities listed above, must be reported to the IDO. The RMGs will receive tools and safety equipment from the IDO to carry out the maintenance activities. Accident insurance will also be provided for the RMG members.

Monthly work plan

At the start of each month a work plan is prepared together with the IDO that indicates which activities will be carried out and in which sections of the road there will be carried out. The road maintenance group is responsible for planning and organizing its members to carry out the activities indicated in the work plan during the course of the month, ensuring that all work indicated in the work plan is completed by the end of the month. The work plan forms the basis for the activities to be undertaken, although additional activities may come up according to need. Increasingly, the road maintenance group will be made responsible for working out the work plan, which will need to be approved by the IDO.

Inspections and performance standards

The work carried out is assessed during monthly inspections. The quantity of work carried out is compared to the work plan for that month. The quality of the work carried out is compared to the performance standards that are defined below. If the quantity and quality of work comply with the work plan and performance standards, the full monthly payment as indicated at the end of this contract is approved. Where quantity or quality do not fully comply with the performance standards or work plan, a deduction may be applied to this monthly payment. The amount of this deduction is based on the amount of work estimated to be unsatisfactory. During each monthly inspection, an Inspection Form will be filled in, identifying any deficiencies found in the road, as well as the exact amount of any deduction applied, and the resulting monthly payment approved for the RMG.

PERFORMANCE STANDARDS

Road - There are no small landslides (less than 5 cubic meters), materials or other obstacles on the road surface, road shoulder, or side drains. In the case of large landslides (more than 5 cubic meters), these have been reported to the IDO. Vehicles are able to pass and water does not flow over the road.

Earthen or gravel surface - There are no remarkable potholes (>60x15 cm), no ruts, rills or gullies (>15cm deep), and no corrugation (>7 cm deep) which disturb the regular movement of traffic. Repairs to gravel surfaces have been made using suitable gravel material. In areas subject to longitudinal erosion, diagonal diversion ditches have been created at regular intervals to guide the water away from the road. Where water crosses the road, stone-paved drifts have been created. In case of stone pitching, the stones are well anchored in the ground, do not stick out, and there are no missing stones. Water does not flow over or remain on the road.

Blacktop surface - There are no remarkable potholes (>30x10cm) which disturb the regular movement of traffic. The potholes can be repaired with locally available materials. There is no significant edge break that reduces the width of the pavement. The length of unsealed cracks is less than 5 meters per kilometer of road. There are no unsealed cracks wider than 0.5 centimeters. The area affected by striping or raveling is less than 50 square meters per kilometer of road.

Road shoulder - There are no remarkable potholes (>30x10cm) and no ruts or rills (>10 cm deep). There are no uninterrupted banks on the road shoulder for more than 10 meters. Water does not flow over or remain on the road shoulder.

Drains - Less than one-quarter of the cross section at any point in the side drain is blocked. The drain is at least 15 centimeters wide and 10 centimeters below the road surface. There are no sharp curves in the drain and the drain has a proper outlet. Water can flow freely through the side drain, and there is no erosion of the drains. Water does not flow over the road surface or shoulder.

Culverts - Less than one-quarter of the culvert height at any point in the culvert is blocked, the inlet and outlet are clear, water can flow freely through the culvert, and there is no erosion at the inlet or outlet. The backfill over the culverts is at least one-quarter of the culvert diameter.

Causeways and Bridges - Drifts and causeways are free of sedimentation and are able to drain freely. Less than one-tenth of the cross section of the bridge is blocked, and the areas 5 meters on either side of the bridge are clear of obstructions. Water can flow freely under the bridge. The bridge deck, spouts and weep holes are clean. There is no vegetation growing in the crossing structures. Bridge railings are clean and covered in paint. Bridge bearings are clean and lubricated. Bridge expansion joints are clear. There is no damage to the approach road and bridge deck and cracks are sealed. Minor erosion has been repaired and protection measures are in place. Large damage to or erosion of the bridge structure has been reported to IDO.

Vegetation - Vegetation within 1 meter of the road is less than 30 centimeters high (except trees), vegetation protruding over the road is at least 2.50 meters above the road surface, and the flow of water away from the road is not restricted. Vegetation on slopes is not removed, only cut short.

Traffic signs and road furniture - All traffic signs and road furniture are clean and legible (painted where necessary). Signposts are straight and well anchored in the ground. Any damaged or missing signs have been reported to the IDO.

Retaining walls and structures - The retaining walls and structures are in good condition and the area behind them is compacted. There are no loose stones or other damage to the retaining walls, and weep holes are clear. There is no damage by erosion undermining the retaining walls and structures. Large damage to retaining walls and structures has been reported to the IDO.

Slopes - The slopes and road shoulders prone to erosion have been planted with vegetative material. The plants are not dried out and well anchored to the soil. There are no loose stones or other material on the slopes and roadside slope should be in stable condition.

Roadside Plantation: the success rate of the planted roadside plants should be 80%. The dried and dead samplings should be replaced and replanted

Note 1: These performance standards are for internal control mechanism, not fully comply in monsoon season and just basis for monitoring.

Note 2: Above performance standard can be considered as basis for monitoring as defined in note 1 only on last worked or maintained section of the road by RMGs not before than 1 month.

Payments and allowances

The RMG will receive monthly wage payments as well as a monthly transport allowance, a monthly administration allowance and a monthly tool maintenance allowance. These are fixed monthly amounts as indicated below. The payment is made as one single monthly payment.

DESCRIPTION	AMOUNT (NPR)
Monthly wage payment	Enter amount
Monthly transport allowance	Enter amount
Monthly administration allowance	Enter amount
Monthly tool maintenance allowance	Enter amount
Standard Monthly Payment (in case of good performance)	Enter total amount

In case of good performance, the Standard Monthly Payment is paid in full, but in case performance does not comply with the work plan or the standards, the Standard Monthly Payment may be reduced by applying a deduction. The exact amount of the deduction will be defined in the monthly inspection reports, taking into account the degree of non-compliance with the work plan or performance standards. The Approved Monthly Payment after application of any deductions is paid to the RMG as a single payment.

At the discretion of the IDO, payments may be made either to the road maintenance group as a whole or to individual members. In the case of group payments, the road maintenance group is responsible for the correct distribution of wages amongst its members, and this will be monitored by the IDO based on the Attendance Sheet. In case of individual payments, the distribution of the payment to the members of the road maintenance groups will be determined by the IDO based on the days worked by each group member as recorded in the Attendance Sheet. By signing this contract, the RMG agrees to present its accounts for public audit if so required by the MOPID.

Employment status

This contract forms a procurement contract between a public entity (the IDO) and a service provider (the RMG) for a fixed duration of time. It does not give any entitlement to the extension or renewal of the contract beyond the stipulated duration, nor does it give any entitlement to the RMG members for continued employment by the IDO or any other public entity. Under this contract, the RMG is considered to be a service provider for the IDO. RMG members are not considered government employees, nor do they qualify for any entitlements related to government employees.

वैकुण्ठ प्रसाद अर्याल
प्रमुख सचिव

RMG members

The RMG in this contract includes the following members:

1. [Enter full name and address of RMG Chairperson] (Chairperson)
2. [Enter full name and address of RMG Treasurer] (Treasurer)
3. [Enter full name and address of RMG member]
4. [Enter full name and address of RMG member]
5. [Enter full name and address of RMG member]
6. [Enter full name and address of RMG member]
7. [Enter full name and address of RMG member]

On behalf of the Employer: _____

_____

(IDO)

Name:

_____

(LRUC/Road Project if exist) (Treasurer)

Name:

On behalf of the RMG:

(Chairperson)

Name:

_____

Name:

प्रदेश सचिव

ANNEX 15: INJURY/INCIDENT/ACCIDENT RECORDING

The RMG leader must maintain and keep a record of Injury/accidents or illnesses with the following minimum data in the given format:

i. Date of accident or illness
ii. Name of the injured or ill worker, sex, age and address
iii. Occupation of the injured at the time of the accident or illness
iv. Assigned cause of the accident or illness
v. Extent or nature or disability

A. Injury records of Routine Maintenance

Name of sub-project : **Code of Sub-project:** **District:**

SN	Date	Name	Injury/Incident/Accident detail	Emergency medication process	Root cause of Incident/Accident	Status at present
Example						
1						
2						
3						
4						
5						
6						
7						
8						

B To be reported within 24-hours

B1: Incident Details

Name of the RMG:
Name of the victim:
Date of incident:
Time of incident:
What type of injury:
Date reported to PPMU/ reporting person/ mode of notification (email/phone call/media notice/other):
Date reported to WB/ reporting person/ mode of notification (email/phone call/media notice/other):

B2: Type of incident/Accident/Injury (Please check all that apply):

☐ Fatality	☐ Disease outbreaks	☐ SEA/SH
☐ Lost time injury	☐ Child labor	☐ Acts of violence/protest
☐ Minor injury	☐ Forced labor	☐ Other

B3: Description/Narrative of Incident (provide short paragraphs):

i. What is the incident?
ii. What were the conditions or circumstances under which the incident occurred (if known)?
iii. Are the basic facts of the incident clear and uncontested, or are there conflicting versions? What are those versions?
iv. Is the incident still ongoing or is it contained?
v. Have any relevant authorities been informed?

B4: Actions taken to contain the incident (provide short answer):

i. Action taken:
ii. Responsible party:
iii. Expected date:
iv. Status:

B5: Support provided to affected people

Provide a short description.

C. To be reported within 7 days, and 30 days

To be reported following investigation, noting for example:

i. Where and when did the incident take place?
ii. Who was involved, and how many people/households were affected?
iii. What happened and what conditions and actions influenced the incident?
iv. What were the expected working procedures and were they followed?
v. Did the organization or arrangement of the work influence the incident?
vi. Were there adequate training/competent persons for the job, and was necessary and suitable equipment available?
vii. What were the underlying causes, where are there any absent risk control measures or any system failures?

वैकुण्ठ प्रसाद अर्याल
प्रमुख सचिव

ANNEX 16: PROJECT INFORMATION BOARD OF ROUTINE MAINTENANCE OF ROADS AND BRIDGES

Sudurpashchim Provincial Government
Ministry of Physical Infrastructure Development
Transport Infrastructure Directorate (TID)
Infrastructure Development Office (IDO)
..... (Location)

सुदूरपश्चिम प्रदेश सरकार
भौतिक पूर्वाधार विकास मन्त्रालय
यातायात पूर्वाधार निर्देशनालय
पूर्वाधार विकास कार्यालय
.....(जिल्ला)

Name of the Road: .....

Contract Number: .....

Chainage: from..... to.....

Routine Maintenance Group Number: .....

Name of the RMG Leader: .....

Name of the RMG's Site In-charge: .....

Contract Amount (inclusive of VAT): .....

Contract Agreement Date: .....

Intended Date of Completion: .....

Major Works included in the Contract: .....

Contact Details for More Information:

Name of Project Manager: .....

Contact Number (Office): .....

Mobile Number: .....

Email ID: .....

सडकको नाम: .....

ठेक्का नं.: .....

चेनेज: .....देखि .....सम्म

RMG नं.:

RMG को टोलीनेता को नाम:

RMG को साइट इन्चार्ज को नाम:

सम्झौता रकम (भ्याट सहित): .....

सम्झौता मिति: ..... अन्तिम सम्पादन मिति:.....

सम्झौतामा भएका मुख्य कामहरु: :.....

.....

थप जानकारीका लागि सम्पर्क

आयोजना व्यवस्थापकको नाम:.....

सम्पर्क नं. (कार्यालयको) :.....

मोबाइल नं.:.....

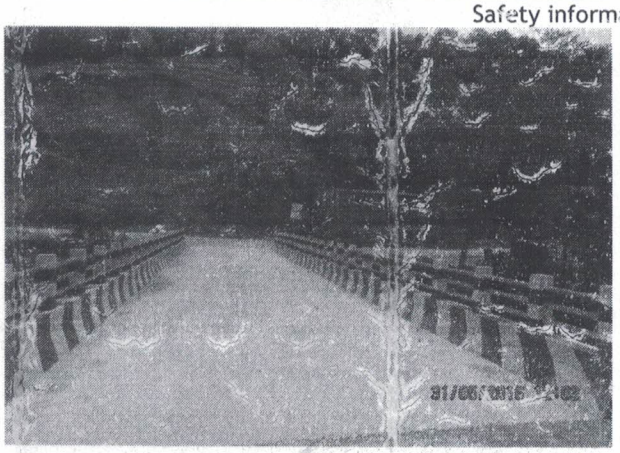
इमेल आइ. डी: .....

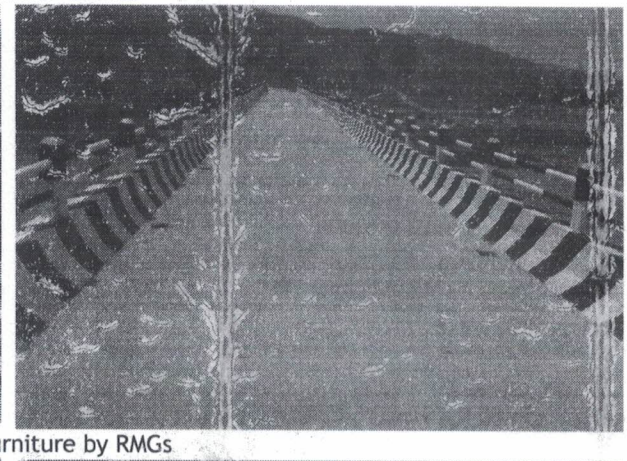
सुदूरपश्चिम प्रदेश सरकार
भौतिक पूर्वाधार विकास मन्त्रालय
धनगढी, कैलाली
२०७४

प्रदेश सचिव

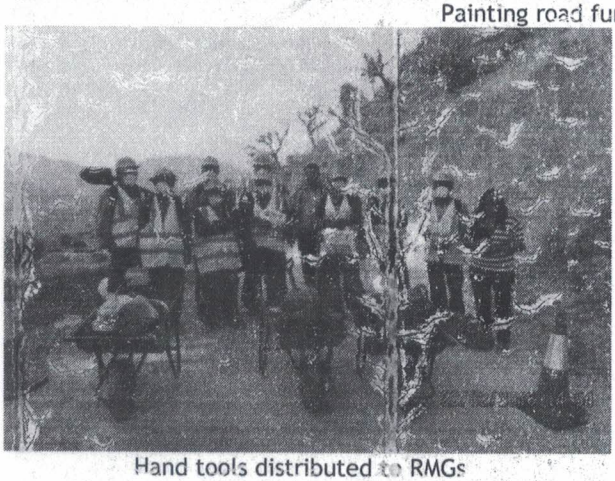
ANNEX 17: SOME PHOTOGRAPHS

Safety information boards





Painting road furniture by RMGs

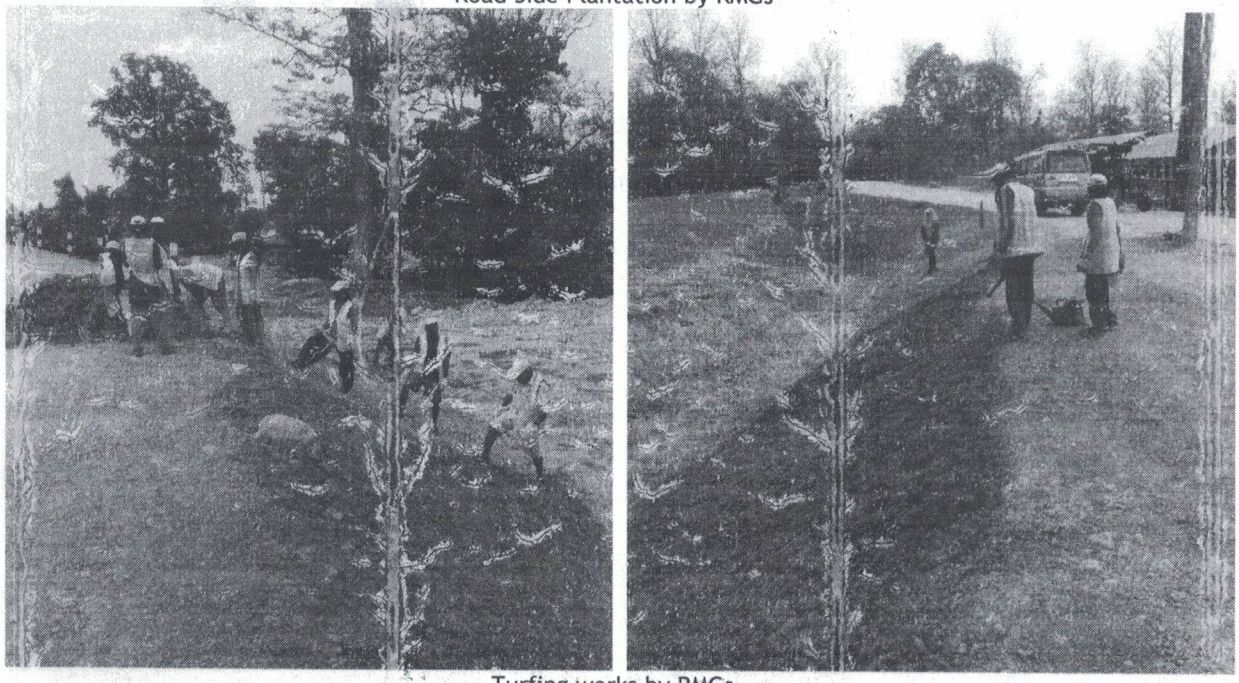


Hand tools distributed to RMGs

RMGs with PPEs

प्रदेश सचिव

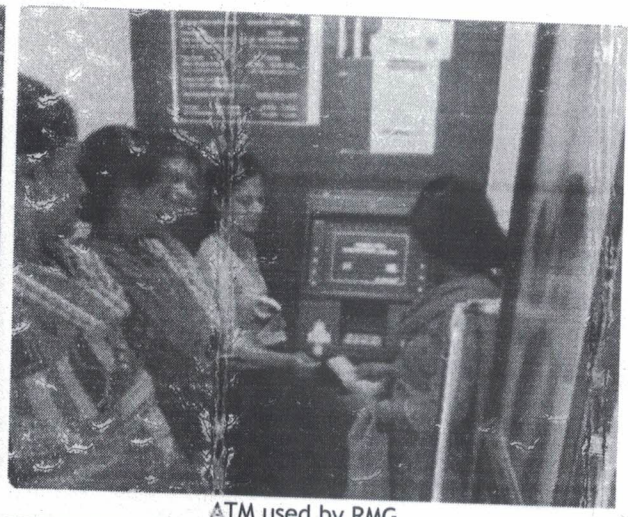
Road Side Plantation by RMGs



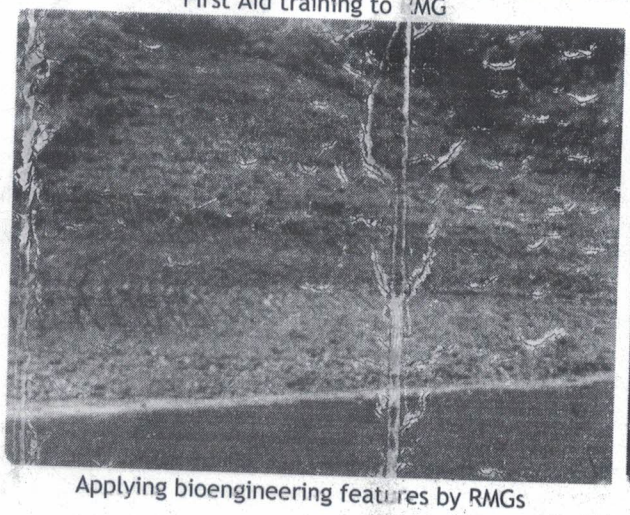
Turfing works by RMGs

RMG in banking process receiving wages

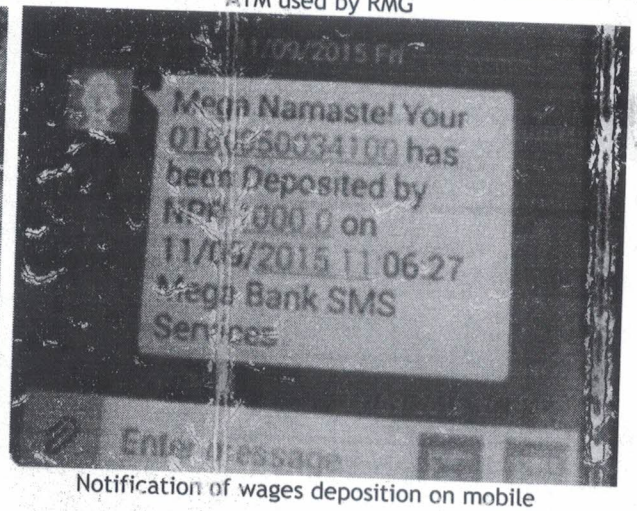
First Aid training to RMG



ATM used by RMG



Applying bioengineering features by RMGs



Notification of wages deposition on mobile