



HMIS News

Highway Management Information System Unit, Planning Branch, DOR

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R.M.D.P

Progress of New Construction Component

The RMDP (Road Maintenance Development Project) has entered into construction phase. The new construction component of the RMDP has started construction of the proposed roads. All the technical staffs of the consultants as well as the contractors have already been mobilized in the sites. The constructions of the Baitadi - Darchula, Surkhet - Jumla, Chhinchu - Jajarkot, Safebagar -Mangalsen, Martadi road has been started. There are numbers of local and international contractors involved in the construction works. The details of contracts, name of the contractors and their agreement amount has been given in Page No.5

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Policy Document of

Environmental Assessment in the Road Sector of Nepal

Geo- environmental unit of Department of Roads has published the policy document regarding environmental assessment in the road sector of Nepal. It was published on January 2000. This policy documents contain the policy of the government regarding the environmental assessment of the roads. It explains what is environmental assessment and why is it necessary and when are these assessments done.

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Technical Seminar On Road Planning, Design and Maintenance

JICA (Japan International Cooperation Agency) Study Team of Kathmandu- Naubise Alternate Road Project conducted the technical seminar on road planning, design and maintenance on 15th February 2001 at Himalaya Hotel. The main aim of this seminar was to present road planning and designing tools used by the JICA study team in the feasibility study of Kathmandu-Naubise Alternate Road Project.

The seminar was inaugurated by National Planning Commission member Dr. Jagdish Pokharel. The seminar was attended by Joint secretaries of Ministry of Physical Planning and Works, DG, all DDGs and technical staffs from the Department of Roads and by other technical staffs of international organizations. Large number of senior as well as junior engineers from the department took active part during this seminar.

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EROM 2 nearing an end

EROM 2 is a DFID funded Project that has been providing maintenance support to the Eastern Region for almost 5 years, as did its predecessor projects EROM 1, ERIP and RWWP. EROM 2 is due to end in July 2001 with the handover of the final section of the Koshi Highway from Bhedetar to Tamar, to Dhankuta Division.

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S.M.D. Workshop In Pokhara

DOR conducted a SMD YPO 2001 Workshop on March 1-2, 2001 in Pokhara. DG, all DDGs and Unit Chiefs of DoR were present in that workshop. During the seminar Regional Directors and Division Chiefs of all 24 Division Road Offices presented yearly plan of operation (YPO) for year 2001/2002.

SMD Yearly Plan of Operation

Background

Planned maintenance is one of the key elements in DOR strategy. It is a programme of integrated routine, recurrent and periodic activities on those roads, which are in a maintainable condition. At present, improved routine and recurrent maintenance are being implemented through the Strengthened Maintenance Division Programme (SMDP). By fiscal year 2000/2001 SMD process has been institutionalised in 18 division road offices.

SMD process starts in divisions with an introductory workshop, in which all members of divisions are made familiar with SMD activities. Preparation of *Yearly Plan of Operation (YPO)* is one of the important activities of SMD process. This is later on presented in annual SMD YPO workshop and becomes the

guiding document for the divisions while implementing the process.

What is YPO?

YPO is the main tool, which helps implementation of maintenance management system in DOR. It is a document, which contains all division level information, particularly about the road network, bridges (history, condition), physical facilities (office building, logistics, supervision vehicles etc), resources (manpower, equipment, fund) and progress status (physical as well as financial). Important components of YPO are detailed programme and needs based budget for all activities of maintenance, such as routine, recurrent, emergency and major works (flood damage, preventive and periodic). Facts and figures provided in YPOs are used for demanding budget from MOF. So it is basically an ARMP (Annual Road Maintenance Programme) as envisaged by the proposed Nepal Road Board Act. Format for YPO was developed by SMDCU in close cooperation with SMD divisions and regions.

Who prepares YPO?

Division chief is the responsible person for the preparation of YPO. He along with his subordinates collect data, carry out assessment, and then analyse them and prepare the YPO for next year. Regional director and SMDCU members extend necessary support to the divisions

How is it prepared?

In the beginning all necessary data and information are collected from different sources (HMIS, Division Road Office, Survey and Assessment). These data will provide the overall scenario and condition of the division level road network, workload of the division and resources available in the division to manage the maintenance activities. Needs based budget for different activities are prepared on the basis of established norms, standards and practices. There are approved norms for routine maintenance work, recurrent maintenance and major works budgets are prepared for each link of road based on assessment. And, finally emergency plan is made considering the vulnerability of potential landslide and flood prone sites in the division. Past experience, in-depth knowledge about the road network (link characteristics, local geology, pavement deterioration trend, general conditions of road, bridges and other structures) play a vital role in successful preparation of YPOs.

Use of YPO

Generally YPOs are prepared nicely, putting lots of efforts, but occasionally, they are neglected during the actual implementation. Since this is the guiding document, it should be widely used by all divisions as far as possible. If we use it properly, it would enhance the efficiency of utilisation of scarce road maintenance fund and improves the service delivery level on all strategic road networks. And hence it ultimately helps to preserve the valuable national road infrastructure asset.

Nepal Engineers' Association

Seventh National Convention of Engineers

Nepal Engineers' Association is organizing Seventh National Convention of Engineers from April 11 to 13, 2001 (29 - 31 Chaitra, 2057). The theme of the convention is "**Engineering Profession in Nation Building: Construction and Vision:**" NEA has requested for papers from all professionals on related fields.

The major highlights of the convention are:

- ⇒ Seminar on the theme of the convention
- ⇒ First engineering Expo 2001.
- ⇒ Young engineer award for best paper.
- ⇒ FEISCA regional seminar
- ⇒ Quiz contest among the engineering colleges.
- ⇒ Sports competition and Social activities.
- ⇒ New year 2058 B.S. celebrations with cultural show.

Active participation from members from Department of Roads is anticipated.

Manual Traffic Count Survey

Annual Average Daily Traffic of Strategic Roads

One of the main responsibilities of traffic section (HMIS Unit) of the Planning Branch is to carry out the manual traffic count survey in the Strategic Road Network (SRN). Last year in 2000, the traffic count survey was done in 75 traffic stations of Strategic Road Network (SRN). HMIS unit has converted these Annual Daily Traffic (ADT) data to Annual Average Daily Traffic (AADT) by considering the seasonality factors. The ADT and AADT of these traffic stations have been given in the following table.

ADT & AADT of road links of Strategic Road Networks (National Highways and Feeder roads)

Road Link	Station	ADT	AADT
F0101	South from Birtamod (Near Chaitu Temple)	850	725
F0201	200m south from Padajungi	455	413
F0301	South from Bharada	459	419
F0401	South from Rupani (At 5km)	706	643
F0501	200m south from junction with MRM Chauharwa	395	358
F0601	2 Kilometer south from Nawalpur (At Jutpani)	627	570
F0701	1 Kilometer South from Chandranigapur	332	303
F0801	1 Kilometer South from Bardaghat.	333	303
F0901	South from Sunwal (At junction with MRM)	205	188
F1201	1 km South from Chanauta	607	547
F1501	North from Lamahi near Arjun khola	293	387
F1601	South from Bhurigaon (At 1 Kilometer South)	118	108
F1801U	Gandak Canal	675	614
F2103U	End of Nagarjun forest (2 Km.north from Bypass)	591	539
F2201	Gate of TU	1571	1430
F2802	Near Army Camp	800	728
F3001	Near junction of Zero mile	298	273
F3101	15 Km. east from Dolalgat	93	85
F3201	Lamosangu (End of Bridge)	408	371
F3401	End of Trisuli bridge	200	184
F3501	End of Marshyangdi river (At Majhuwa)	466	426
F3801	West from Pasupatinagar (Near Barrier of VDC Pasupatinagar)	201	182
F3901U	Outside of Municipality (Near Singiya Khola)	797	725
F4101	At Junction of Bindebasini	256	230

ROAD MAINTENANCE AND REHABILITATION PROJECT (RMRP)

Er.B.K Yogal

PERIODIC MAINTENANCE PROGRAM

The Fifth credit Road Maintenance and Rehabilitation Project (RMRP) IDA's Credit No. 2578-Nep. amounting 50.5 million US\$ (SDR 36.6 million) is recently completed with maintenance and rehabilitation of some of strategic roads and bridges links of the country. Agreement of RMRP was signed with IDA on June 01,1994 and the project was completed on June 30,1999. The Department of Roads of the Ministry of Physical Planning and Works was the executing agency on behalf of His Majesty's Government of Nepal.

The Road Maintenance and Rehabilitation Project (RMRP) consisted of a number of component which include Road Rehabilitation, **Periodic Maintenance**, Pilot Labor-based District Road Rehabilitation and Maintenance, Project Preparation and Implementation Support Technical Assistance and Institutional Development Technical Assistance. **Periodic Maintenance** is the subject of this article.

The main objectives of the RMRP Periodic Component were:

- ❖ To maintain the 504-Km of the existing strategic road by regravelling, upgrading of gravel section to sealed standards, pavement reconstruction, resealing and maintenance of the existing drainage and slope stabilization works.
- ❖ To serve the road user by improving the traffic conditions of the existing road and consequently reducing the travel time and reducing the vehicle operating costs.
- ❖ To strengthen the operations and administration of the DoR's Maintenance Branch, related regional Offices and Division Offices, Local Contractors and associated Consultants in particular to improve their capability to implement and monitor Road Maintenance Project by providing them with technical assistance and training.

The objective of the RMRP (Periodic Component) achieved its aims to the greatest possible extent. Gravel standard roads were upgraded to sealed standards including construction of slope stabilization structures and adopting bioengineering process especially on the hilly roads. Surface dressing of both Feeder Roads and National Highways was carried out satisfactorily. Existing drainage structures including cross drainage were rectified. The table in the next page shows ten roads of sixteen contracts finally included for periodic maintenance program.

Finally traffic conditions of 10 roads spread over 16 contracts under this component were greatly improved. Hence travelling time with vehicle operating costs was reduced extensively. It is the opinion of the Employer, Consultants and the Contractors involved in this project including local people that, this project was a good value for money.

Training and technology transfer were other achievement of this project. As the DoR had employed Field Implementation Advisor (FIA) including both local staff and DoR staff and expatriate staff at site, assistance and advice was provided to manage staff involved in the project. On the job training was given to the local contractors including sub-contractors and associated consultants.

F4203	North from Pokhara (Fedi)	1261	1136
F4302	Near Batase Danda, Tanshen	283	254
F4402	West from Bhairahawa (At Dogahara)	514	484
F4602	West from Nepalganj (At Man Bridge)	307	278
H0101	1 km east from Charali	970	882
H0102	West from Charali (Near Buttabari)	1181	1075
H0108	East from Itahari (Salakpur)	2448	2227
H0109	West from Itahari (At Pachurki)	2557	2327
H0111	East from Koshi Barrage (At Bokraha)	1706	1450
H0115	West from Lahan	1393	1149
H0120	East from Dhalkebar (At Pusholpur)	1057	960
H0121	West from Dhalkebar (At Jamunibas)	1432	1304
H0128	East from Pathlaiya (At Nijgadh)	1619	1423
H0129	North from Pathlaiya (At Amlekganj)	2080	1895
H0132U	West from Hetauda (At Nawalpur)	3020	2748
H0133	West from Hetauda (At Lothar)	1797	1633
H0134	East from Narayannghat(Tikauli)	3038	2609
H0138	West from Narayannghat(Gaidakot)	2468	2247
H0144U	East from Butwal (At Sunwal)	2371	2157
H0146U	West from Butwal (At Okharpur)	1781	1621
H0157	East from Kohalpur (Near Arjun Khola)	698	634
H0158	West from Kohalpur (At Bhardaha)	564	513
H0163	East from Atariya (At Hanumanpur)	653	594
H0164	West from Atariya (At Gularia)	538	489
H0204	South from Pathlaiya (At Simra)	2143	1950
H0205U	North from Hedauda (At Samari bridge)	92	82
H0214	Nagdhunga	3123	2842
H0304	Manohara Bridge	10081	9173
H0310U	Panchkhal (Near EMC)	989	901
H0404	East from Mungling (At Kurintar)	2567	2338
H0405	West from Mungling (At Dumre)	1243	1132
H0411	Talchowk,east from Pokhara	1488	1340
H0503	South from Mungling (At Kalikatar)	2601	2368
H0602	Jaleshor, Saharabwa	442	402
H0604	South from Dhalkebar (At Mahendranagar)	1010	919
H0705	1km north from Charali	622	566
H0707	Chibitar (Fikal)	340	310
H0709	100m North border of Ilam Municipality	71	66
H0803	South from Itahari (At Ward no. 8)	2419	2201
H0804	North from Itahari (At Tarahara,Panipia)	1717	1630
H0806	North from Dharan(at Base Camp)	413	377
H0901	North of Junction with MRM (At Kadmaha,Laxmipur-1)	504	458
H1002	South from Butwal (At Jogi Kuti)	2618	2358
H1004U	North from Butwal (At Chidiya Chauki)	874	796
H1012	South Pokhara (At Phusre)	369	332
H1204	South from Kohalpur (At Ranjha)	1521	1339
H1205	North from Kohalpur (At Chisapani)	316	270
H1402	South from Atariya (At Boradangi)	874	779
H1403	15 km north from Godawari (At Khanidanda)	454	360
H1407	North from Syaule Near Anar Kholi)	192	174
H1501	East from Syaule near Koryal	137	125

Training and advice in the area of Quality Control concentrated on: -

- ❖ Reviewing the Quality Control System.
- ❖ Determining appropriate procedure.

- ❖ Analyzing the training needs of local contractors, sub-contractors and associated consultants including DoR staff.
- ❖ Delivering that training.

PERIODIC MAINTENANCE PROGRAM ROAD PACKAGES

Final Contract Packages					
S.No.	Road	Original Lengths (KM)		As Built Lengths (KM)	
		Sealed	Gravel	Sealed	Gravel
1	Hetauda-Narayanghat (Part I)	41.00	0.00	41.00	0.00
2	Hetauda-Narayanghat (PartII)	33.70	0.00	33.70	0.00
3	Tansen-Harthok	0.00	10.85	0.00	10.85
4	Attaria-Chaudhar	36.31	0.00	36.31	0.00
5	Bhittamod-Dhalkebar	42.75	0.00	42.75	0.00
6	Chandranigahapur-Gaur Part I)	23.00	0.00	23.00	0.00
7	Chandranigahapur-Gaur Part II)	12.95	8.00	20.95	0.00
8	Nawalpur-Malangawa	10.19	16.31	26.50	0.00
9	Kakani-Trisuli (Part I)	21.21	0.00	21.21	0.00
10	Kakani-Trisuli (PartI I)	23.65	0.00	23.65	0.00
11	Nepalgunj-Guleria (Part-I)	8.61	5.60	14.21	0.00
12	Nepalgunj-Guleria (Part-II)	0.00	21.65	21.65	0.00
13	Chisapani-Birendranagar (Part I)	0.00	33.45	33.45	0.00
14	Chisapani-Birendranagar (Part II)	0.00	43.89	43.89	0.00
15	Syangja-Pokhara	36.93	0.00	36.93	0.00
16	Karnali-Balia-Attaria	73.93	0.00	73.93	0.00
	Total	364.23	139.75	493.13	10.85
		504.00		504.00	

EROM nearing an end

(Continue from Page No. 1)

Over the past year EROM 2 has had an office in Babar Mahal in an effort to integrate the Eastern Region into the SMD process and ensure that DoR maintenance procedures and practices are standardised across the whole country. This has involved working very closely with SDC and other units within DoR, as well as providing physical and technical support to Ilam, Damak, Biratnagar and Dhankuta Divisions in the East.

The partnership of SDC and DFID, and the integration of the Eastern Region with the rest of the country has worked well and is showing good results. Maintenance has improved in all Divisions in the East and EROM has been able to contribute towards countrywide training courses for Overseers, Supervisors and Lengthworkers, as well as specialised bio-engineering and computer courses.

EROM has also been involved in the development of a Road Maintenance Training Policy for DoR, as well as funding a presentation skills course for DoR staff who presented at the recent YPO held in Pokhara.

From July it is expected that the Eastern Region will come completely under the central umbrella of SMD, funded by SDC. SMD plans to continue and expand on its training programme over the coming years with the aim of further increasing the DoR's capacity to maintain the road network in Nepal. EROM has made an important contribution to this aim and we are confident that this will be sustained through the SMD co-ordination unit for the foreseeable future.



Do You Know

- ❖ According to traffic survey done in fiscal year 2056/57, the highest and lowest AADT in the SRN is 9173 in Arniko Highway (H03) at Manohara Bridge and 66 in Mechi Highway at border of Ilam municipality respectively.
- ❖ According to recently done survey of Links and Node Updating, the highest number of 81 links is in Mahendra Highway (H01).
- ❖ The number of districts, whose area has not been touched by road in our country, is 10.

Correction of Last HMIS Issue

In the last paragraph of "Malekhu - Dhading Besi Road Project", the sentence should be read as "The second contract of road upgrading works from Km 0+030 to km 9+600 was awarded to Amar and Super Sherpa Construction (JV) and the third contract of road upgrading works from km 9+600 to km 17+516 has been awarded to Arniko Nirman Company, Nepal."

ROAD MAINTENANCE AND DEVELOPMENT PROJECT						
FIRST AND SECOND YEAR CIVIL WORK CONTRACTS						
S. No.	Contract No	station		Length Km	Name of Contractor	Contract Amount NRs
		From, Km	To, Km			
I New Construction						
	Chameliya- Darchula Road	93.000	126.700	33.700		
	First Year	93.000	102.700	9.700		
1	NRDUC/CD/NCB:1-1	93.000	95.000	2.000	Lumbini- Lohani JV	12,184,415
2	NRDUC/CD/NCB:1-2	95.000	96.350	1.350	Nagarjun Construction	9,636,274
3	NRDUC/CD/NCB:1-3	96.350	97.900	1.550	Gaura Construction	8,408,208
4	NRDUC/CD/NCB:1-4*	97.900	101.200	3.300	Mahalaxmi- Nagarjun jv	15,469,146
5	NRDUC/CD/NCB:1-5	101.200	102.700	1.500	Gaura Construction	8,277,421
	Sanfebagar- Martadi Road	19.000	56.200	37.200		
	First Year	19.000	43.000	24.000		
6	NRDUC/SMT/NCB:2-1	19.000	20.530	1.530	Kanchanjunga Construction	9,054,046
7	NRDUC/SMT/NCB:2-2	20.530	22.900	2.370	Chandra & Basanta Constrn.	7,859,905
8	NRDUC/SMT/NCB:2-3	22.900	25.000	2.100	Khom-Shivashakti JV	6,330,133
9	NRDUC/SMT/NCB:2-4	25.000	28.400	3.400	Prakash Construction	11,439,134
10	NRDUC/SMT/NCB:2-5	28.400	30.000	1.600	Lama Nirman Sewa	8,441,201
	Sanfebagar- Mangalsen Road	23.000	37.700	14.700		
	First & Second Year	23.000	38.590	15.590		
11	NRDUC/SMN/NCB:3-1	23.000	24.700	1.700	Swachhanda Nirman Sewa	11,331,552
12	NRDUC/SMN/NCB:3-2	24.700	27.200	2.500	P. S. Construction	11,263,772
13	NRDUC/SMN/NCB:3-3	27.200	29.600	2.400	Sapana Nirman sewa	10,913,703
14	NRDUC/SMN/NCB:3-4	29.600	30.850	1.250	Lama- Salpa JV	6,669,813
15	NRDUC/SMN/NCB:3-5	30.850	33.660	2.810	Kanchanjunga	8,766,055
16	NRDUC/SMN/NCB:3-6	33.660	36.600	2.940	Lama- Salpa JV	10,886,826
17	NRDUC/SMN/NCB:3-7	36.600	38.590	1.990	Lama- Salpa JV	7,938,889
	Kalikot- Jumla Road	132.000	220.400	88.400		
	First Year	131.900	149.000	16.600		
18	NRDUC/KJ/NCB:4B-1	131.900	133.000	1.100	Kalika Construction	15,176,510
19	NRDUC/KJ/NCB:4B-2	133.000	133.750	0.750	Kalika Construction	16,131,334
20	NRDUC/KJ/NCB:4B-3	133.750	134.500	0.750	Waiba Construction	19,567,667
21	NRDUC/KJ/NCB:4B-4	135.000	136.800	1.800	Jagat Nirman Sewa	12,395,420
22	NRDUC/KJ/NCB:4B-5	136.800	138.000	1.200	Jagat Nirman Sewa	8,808,138
23	NRDUC/KJ/NCB:4B-6	138.000	138.800	0.800	Sharma & Co./ GGNS JV	10,066,688
24	NRDUC/KJ/NCB:4B-7*	138.800	139.600	0.800	Sharma & Co./ GGNS JV	8,677,490
25	NRDUC/KJ/NCB:4B-8*	139.600	140.900	1.300	Jagat Nirman Sewa	11,893,694
26	NRDUC/KJ/NCB:4B-9*	140.900	142.100	1.200	Prakash Cons./Bokhim jv	6,172,177
27	NRDUC/KJ/NCB:4B-10	142.100	142.900	0.800	Rojan & Saroj/ Sagar JV	6,512,613
28	NRDUC/KJ/NCB:4B-11	142.900	144.300	1.400	Waiba Construction	16,564,250
29	NRDUC/KJ/NCB:4B-12	144.300	145.700	1.400	Bhairab/ Dharmendra JV	8,994,750
30	NRDUC/KJ/NCB:4B-13	145.700	147.400	1.700	Lama Construction Co.	19,715,818
31	NRDUC/KJ/NCB:4B-14	147.400	149.000	1.600	Waiba Construction	15,828,231
	Chhedegadh- Jajarkot Road	86.000	107.000	21.000		
	First Year	86.000	96.000	10.000		
32	NRDUC/CJ/NCB:5B-1	86.000	87.300	1.300	Rama and Radhika, Barahi JV	4,272,416
33	NRDUC/CJ/NCB:5B-2	87.300	89.500	2.200	Lama Construction Co.	6,138,402
34	NRDUC/CJ/NCB:5B-3	89.500	92.700	3.200	Jaya Buddha, Keshab JV	7,002,828
35	NRDUC/CJ/NCB:5B-4	92.700	93.900	1.200	Lama Construction Co.	7,525,792
36	NRDUC/CJ/NCB:5B-5	93.900	96.000	2.100	Jaya Buddha, abi & Babi JV	5,806,225
	Subtotal New Construction			195.00		372,120,936
	Subtotal First year New Construction			75.890		
II Upgrading						
	NRDUC/SK/ICB-01	-	134.880	134.880	China Chongqing Intl	345,142,117
	subtotal					345,142,117
III Rehabilitation						
	RMDP/ICB/TS-01			85.000	CCECC/ Sharma & Co. JV	184,533,078
	RMDP/ICB/LT-02			14.000	Lama- Tundi JV	25,329,980
	RMDP/ICB/HT-03			63.000	SIETCO	161,920,748
	subtotal					371,783,805
IV Periodic Maintenance						
	First Year			65.000		
	RMDP/PM1/NCB-1			-	Lumbini Builders (P) Ltd.	18,819,857
	RMDP/PM1/NCB-2			-	Nepal Adarsha -Jaya Buddha JV	16,024,884
	RMDP/PM1/NCB-3			-	Kailash -Jayee JV	8,835,467
	subtotal					43,680,208
Total Civil Works (Construction) contracted						1,132,727,066

Project Summary of Phidim - Taplejung Road

Phidim Taplejung road project is the section of Mechi Highway (H07). Mechi Highway starts from Kechana of Jhapa district and ends at Taplejung, the district headquarter of Taplejung district. The construction work of this Phidim - Taplejung sector started in the fiscal year 039/40 and is still in progress. This project is the government-funded project. The total length of the Mechi Highway is 262.7 Km. in which Phidim- Taplejung section is 86.7 km.

According to the booklet published by the Phidim - Taplejung Road Project, out of 85.2 km of constructed road, about 77.2 km road has been gravelled till fiscal 2056/57. There are four major bridges along this road namely Hewa Khola bridge, Kabeli Bridge, Khahare bridge and Khokse bridge in chainage 10+000, 61+182, 61+970 and 70+750 km respectively. Till fiscal year 2056/57 it is expected that about 86% of physical progress has been achieved.

The salient features of this project is as follows:

Name of the Project:	Phidim -Taplejung Road
Length of Road:	86.7 Km
Formation Width:	5.5 m
Carriage Width:	3.5 m
Average Gradient:	7%
Maximum Gradient:	12%
Design Speed:	30 Km/hr
Minimum Horizontal Radius:	15 m
Surface Type:	Gravel
No. Cross drainages:	310 Nos
No. of Major Bridges:	4 Nos.
Estimated Cost:	NRs 324.5 Million (Estimated in FY 2038/2039)
	NRs 650 Million (Estimated on FY 2055/56)
Per Km cost:	NRs 7.47 Million (Estimated in FY 2055/56)
Date of Start:	FY 2039/2040
Expected Date of Completion:	Depends upon Budget
B/ C Ratio:	1.14 (According to recent survey)

Report on Land Slide at Krishna Bhir (Prithvi Highway):

Most of the road in our country runs in the mountainous region. Due to this the majority sections of the road is exposed in the land slide prone zones, which makes the road maintenance works more difficult for the road engineers. Similarly on 11 August 2000, a huge land slide occurs in Krishna Bhir of Prithivi Highway at chainage 57 km. The traffic was blocked from 11 August to 21 August 2000 for about 11 days. After the day and night effort

from the technicians and non technicians of Department of Roads, single lane traffic was possible to open on 22 August 2000.

There had been lot of speculations about the cause of this landslide. Some argued that the land slide was caused due to heavy cutting and blasting of the earthworks during construction works. Some argued that there was lack of geo environmental works done on the slope of this area. Some argued that the landslide was caused due to cultivation done in the top of the hill. Society of Nepal-German Academicians (SONGA) also conducted a talk program on Thapathali campus on 8th September, 2000 regarding this landslide. At this programme Dr. Indra Raj Humagain and Dr. Megh Raj Dhital described different aspects of this landslide and also gave their views regarding the cause and protection of this landslide. The views presented during this seminar by the presenters were somehow conflicting.

A team of Department of Road's engineers inspected the landslide site and gave a brief report. The Inspection team was headed by DDG Planning Branch, Mr. Deepak Bahadur Thapa along with Mr R.P. Pradhananga, SDE, Mr. J.B. Shrestha SDE and N.M.Shakya, Engineer GEU as team members. The team did field geo-technical investigation and measured the land slide area. It had been measured as 300m X 200m X 12m high. During this visit, the slope observations and soil type was also observed. It was found that the soil was colluvial, poorly graded, very loose and clayey silty gravel. The angle of internal friction was about 22-25 degrees.

The causes of this slide have been categorized as immediate and long-term causes. The immediate cause was due to continuous high rainfall saturating the highly weathered rock (to soil state) mass on the slope reducing the internal angle of friction of soil to very low value. Also the excess irrigation channel water diverted to slope caused this mishap happened.

The team also made some recommendations and proposed some remedial measures, which are as follows;

The unstable debris should be cleared on the up hill-side and down hill side. Then breast wall should be constructed in the uphill side. Similarly construction of bank protection works should be done in the down hill-side (riverside) to prevent toe undercutting by the river.

Water management structures like catch drains above crown of failure to channelize water coming to slide area from the top should be constructed. Tension cracks, if visible in the top of slide, should be sealed by compacted red soil. Bio-engineering works on the unstable slide slope should be done. Other measures like over burdening of slide slope by extra weight of structures should be avoided.

The team has also recommended making further detail study and investigation with mapping of the slide area and confirming the crack in transverse direction by slip circle. If transverse crack has occurred in the road, study may have to be carried out for re-alignment of road from the other bank.

(Continued from Page No. 1)

Policy Document of

According to this document, there are five main types of environmental assessment activities, which are Screening, Initial Environmental Examination (IEE), Scoping, Environmental Impact Assessment (EIA) and Monitoring.

The type of environmental activities required will depend upon the phases of the project cycle as follows:

<u>Phase of Project</u>	<u>Environmental Activity</u>
Pre-feasibility (new roads)	Environmental screening
Feasibility (new roads and rehabilitation)	Initial environmental examination or if necessary, scoping followed by environmental impact assessment
Detailed survey and design	Review of IEE or EIA and incorporation of recommendations (e.g as an Environmental management plan)
Construction or rehabilitation	Monitoring
Maintenance (the road operation phase)	Monitoring

In this policy document the definitions of environmental assessment terms and procedures have been defined. According to this, the environmental assessment procedures consist of following five phases:

Pre-screening: This is the first initial assessment of some projects to be funded by the World Bank. It is a simple check as to whether the project will have an impact on any environmentally sensitive areas. If it does then the project will be rejected.

Screening: All the construction, upgrading, reconstruction and rehabilitation programmes must be screened. This is a rapid evaluation to check the likely environmental impacts and determine whether there is a need for further study. If the programme fails to be cleared by the screening process, then either an IEE or an EIA must be undertaken.

Initial Environmental Examination (IEE): It is a primary level of study of the likely environmental impacts of any road construction, upgrading, reconstruction or rehabilitation programme, which has not been cleared by the screening process. The purpose of an IEE is to make a brief but informed evaluation of possible environmental impacts.

Scoping: If it is determined that an EIA is necessary, the process of scoping is used to determine the details of an EIA. In this scoping, the main areas and level of detail to be studied in the EIA are defined on the basis of the perceived environmental impacts, and terms of reference are devised for the team to carry out the EIA. The main output of the scoping is a set of terms of reference for an EIA. The term "scoping" is grammatically incorrect and it confuses the engineers unfamiliar with environmental assessment terminology. A better term would be "determining the scope of".

Environmental Impact Assessment (EIA): An EIA is a full study of the likely environmental impacts of a planned project. It should be a constructive document, offering alternatives to reduce adverse impacts or to increase beneficial ones. It should also identify the measures to be used to reduce damage. All large road construction projects, and any new construction activity in a sensitive area should normally be subject to an EIA.

This policy document also clarifies the legal requirements of agencies such as the Department of Roads in undertaking environmental assessments. The law covering this is relatively new and so far is little known. His Majesty's Government of Nepal passed the Environment Protection Act 2053 (1997) with

the aims of maintaining a healthy environment, minimizing adverse impacts likely to degrade it and move towards resource use which combines sustainable development with protection of the environment.

R.S.S.D.U

DG of DoR Mr. Ananda Prasad Khanal visited Manila, Phillipines, from March 6-7, 2001 to participate in Road Funds Strategy Regional Workshop. The theme of the workshop was "Sustainable funding for sustainable Roads: Solving the problem of maintenance neglect". He presented the latest status of Nepal's Road Fund in the workshop.

D.G also visited Japan from Jan 16-29, 2001 to attend the contract signing ceremony of Bardibas - Sindhuli - Banepa Road (Section II, Phase I). During the visit, he also talked with JICA regarding road sector matters. He was accompanied by Project Manager Mr. Bindu Samsher Rana.

Road Sector Skill Development Unit has managed the training opportunities to the following staff of the department.

In Country Training:

1. Road Maintenance Skills training for Overseers (2057/8/26 to 2057/9/7)

Mr. Kailash Deo
Mr. Binod Shah
Mr. Vimarjun Kandel
Mr. Arjun Rayamaji
Mr. Ghana Shyam Jha
Mr. Bharat Raj Acharya
Mr. Ram Chandra Chaurasia
Mr. Ram Prasad Devkota
Mr. Hum Bahadur Ale
Mr. Rajeshwar Prasad Devkota
Mr. Gopi Nath Silwal
Mr. Ram Prasad Subedi

2. Bridge Expansion Joints Repair and Maintenance (2057/9/26 to 2057/9/28)

One Engineer and one Overseers from all Divisions Road Office

3. Capacity Building of Local Institutions for class III Officers HMG/N (2057/10/18), Staff College, Jawalkhel

Er. Mr. Sanjay Kumar Shrestha

Out Country Training:

1. Study Tour in Switzerland and Participation in 5th International Road Maintenance Congress in Paris (11 Nov - 25 Nov., 2000)

DG Mr. Ananda Prasad Khanal
DDG/ MB Mr. Suresh Kumar Regmi
SMD Co-ordinator Mr. Pawan Man Shrestha
MRCU Project Coordinator Mr. Biplav Kumar Karki
SDE Mr. Hari Bhakta Shrestha
SDE Mr. Bishnu Man Singh Dangole
SDE Mr. Bhoj Bahadur Dhakal
SDE Mr. Yogendra Prasad Gupta
MMA Mr. D.D. Pradhananga
CTA Mr. T. Fischler
TA Mr. D. Pittet

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During this seminar, the team leader of this study team Mr. T. Masuzawa gave brief explanation about the project and details of the study carried out. He also presented the final report of the feasibility study on the construction of Kathmandu - Naubise alternate road. Mr. Ishibashi presented road alignment study using GIS and hazard maps. Mr. Masunari, who is an expert in tunneling-work, presented highway tunnel engineering in Japan.

Mr. Naresh Sthapit, highway engineer, explained and demonstrated the JICA STRADA, which was used for road planning during this study. He also demonstrated the computer aided design (CAD) used during this study. The study team had used Land Development Desktop (LDD) and Civil Design for the purpose of detail designing of the road alignment.

Ms. Sasaki presented the potential study on wind and solar power generation in Nepal. Mr. Okmura, who was a representative from the Japanese government, presented road fund and toll road in Japan and other countries.

Lastly Project Manager Mr. Bindu Samsheer Rana and JICA advisor Mr. Kimata gave the introduction of Sindhuli Road Project and its progress till now. During this presentation some slides of the constructed road section of this project were also shown.

Joint Secretary of MPPW, Mr. Birendra Bahadur Deuja spoke about the importance of this road project. At the end of this

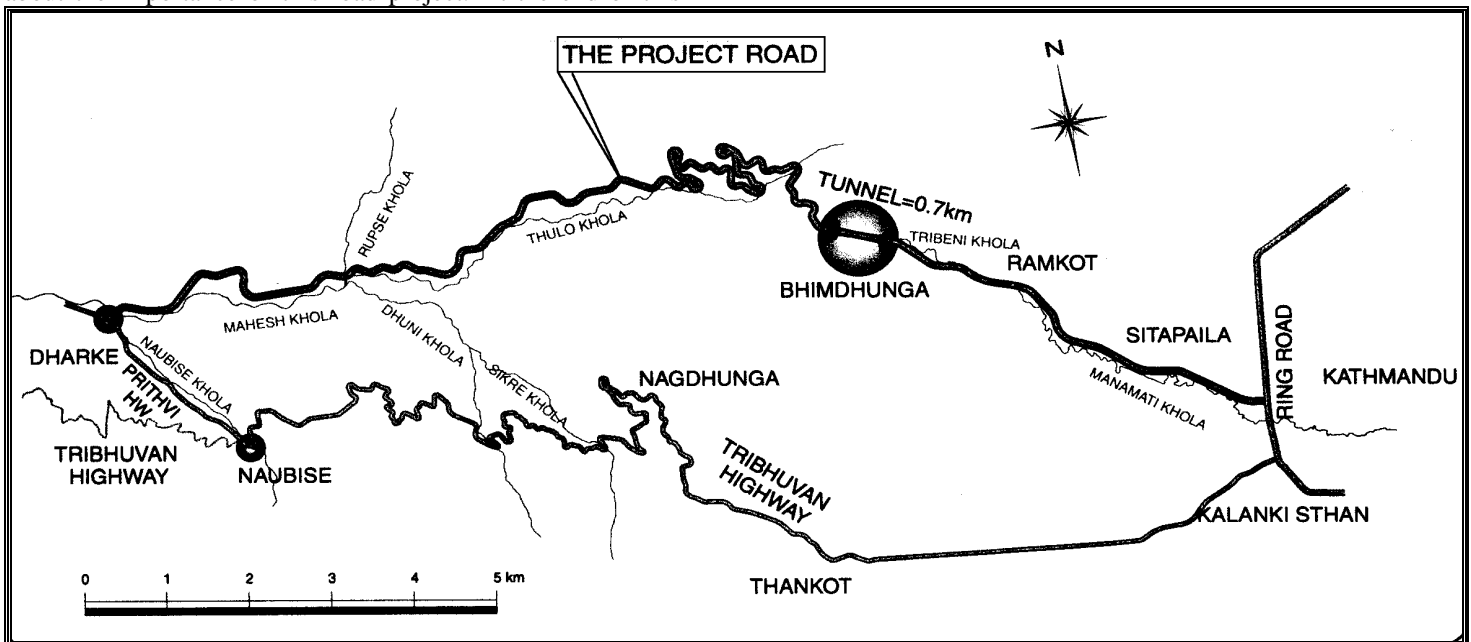
seminar Director General of Department of Roads Mr. Ananda Prasad Khanal delivered the votes of thanks to the organizer and participants.

The study team has calculated the tentative project cost and economic internal rate of return of the most feasible road alignment. The total length of the proposed road had been estimated as 21.4 km starting from Sitapaila and ending at Dharke. The main features of the project along with its tentative alignment and the alignment of the existing Thankot - Dharke road are shown in the following map.

Project Summary

Name of the Project:	Kathmandu - Naubise Alternate Road
Total Length;	21.4 Km
Road Width:	7m + 2@1.5m = 10m
Tunnel Length	705 m
Tunnel Width	10m
No. of Bridges:	10 Nos.
Estimated Cost:	US\$ 54.55 Million
EIRR	18.1%
B/C Ratio:	1.57

It is expected that traffic volume in the project road will be 3900 V/day and 5340 V/day in the year 2010 and 2020 respectively assuming the Kathmandu - Terai alternate road is opened.



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HMIS would like to thank to the colleagues Bina and Rajendra Thapa of HMIS for compilation and production of this HMIS newsletter.

EDITORIAL

This newsletter is being produced for the dissemination of information of activities related to Highway Engineering and its development in the country and abroad. Highway Management Information System (HMIS) Unit welcomes any article, news, events, suggestions related to Highway Engineering development.

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