

HMIS News

Highway Management Information System, Planning Branch, DOR

M R C U

ROAD MAINTENANCE MANUAL for Engineers & Overseers

DOR is responsible for management of **motorized surface transport infrastructure** i.e. road transport regarding planning, designing, construction and maintenance activities of Strategic Road Network (SRN). Thus, Maintenance of roads is one of the major tasks of Department of Roads. When the repair work is not done at the appropriate time, then extensive rehabilitation and also reconstruction will have to be carried out, which costs as many as five times the cost of normal maintenance. Moreover, the rapid expansion of road network without adequate and timely maintenance, road condition and level of service have been inexorably deteriorated in the past. The consequences are higher vehicle operating costs with increased numbers of accidents and reduced level of services of roads. Therefore this matter has become serious concern in our country having limited resources. Considering these aspects, **MRCU (Maintenance and Rehabilitation Co-ordination Unit)** in DOR have prepared a very useful brief handbook i.e., Road Maintenance Manual for Engineers & Overseers.

(Continued on Page No. 3)

12 digital rules by BILL

Bill Gates has mentioned 12 digital rules in his new book "**Business @ The Speed of Thought**" for the successful companies to reinvent the way they work.

12 Steps of digital rules:

1. Insist that communication flow through E-mail.
2. Study sales data online to share insights easily.
3. Shift knowledge into high-level thinking.
4. Use digital tools to create virtual teams.
5. Convert every paper process to a digital process.
6. Use digital tools to eliminate single-task jobs.
7. Create a digital feedback loop.
8. Use digital systems to route customer complaints immediately.
9. Use digital communication to redefine the boundaries.
10. Transform every business process into just-in-time delivery.
11. Use digital delivery to eliminate the middle man.

12. Use digital tools to help customers solve problem



Road Construction
Industry

DOR
WORKSHOP

Foreign Co-operation Branch, DOR has organized a 3 days workshop on **Road Construction Industry** on 22-24 March 1999 at Everest Hotel, Kathmandu, Nepal.

The objective of the workshop as stated is:

"To facilitate a consensus, between the various parties involved in road construction, on steps required for economical and efficient construction of public roads in Nepal."

Various papers were presented in the workshop, which destined to cover the objective, they are:

- Nepal Road Construction-Institutional Issues – NP Chalise, DG, DOR.
- Procurement Problems on Nepal-Factors of Project Delays – BL Nyachhyon, President, SCAEF.
- Current Concerns on the Performance on the Nepalese Consulting Industry on Road Sector and the Correct Approach to Alleviate the Problems – K Kunwar.
- World Bank Procurement Procedure – ND Sharma.
- Constraints in Road Project Implementation – GL Shrestha.
- Empowering SCAEF for Strengthening the Construction Industry in Nepal – BL Nyachhyon, President, SCAEF.

Group discussion has been taken place after paper presentation and the reporting of the following recommendations took place for the raised issues.

ISSUES No. 1

Lack of authority at project level

RECOMMENDATIONS

DOR: To increase all authority at all level according to the quantity of work. For technical matters, the DG, DOR should be given final authority.

Contractor: Full authority should be given to contractor's project managers.

Consultants: Full authority should be given as per the terms of contract.

ISSUES No.2

Failure to exercise available authority

RECOMMENDATION

Not general problem

ISSUES No.3

Low salary / incentives

RECOMMENDATIONS

Salary and incentives of consultant and contractors' staff should be increased to match the market price, whereas for government employees, pay commission recommendations should be followed.

ISSUES No.4

Inadequate work environment and facilities

RECOMMENDATIONS

Norms for work environment should be developed, and facilities and assets should be managed properly following the principle of asset management.

ISSUES No.5

Accountability

RECOMMENDATIONS

Job description of each staff should be prepared and followed strictly. Technical and operational auditing system should be established and linked with staff evaluation.

ISSUES No.6

Cooperation of other line agencies

RECOMMENDATIONS

Inter-departmental standing committees at project level and steering committee including stakeholders should be formed.

ISSUES No.7

Frequent changes in project personnel

RECOMMENDATIONS

Civil service act should be followed strictly

ISSUES No.8

Available qualified and experienced human resource in Nepal

RECOMMENDATIONS

- Amend the present qualifying requirements of those personnel whose experience can be reduced to suit the job.
- Provision of short term training to suit specific requirements of projects.
- Phasing work load wherever possible on the basis of the nature of work

ISSUES No.9

Using imported resource remuneration constraints

RECOMMENDATIONS

- Appropriate use of expatriates and local consultants. They should be limited to supporting/advisory role on the basis of capability.

ISSUES No.10

Training and technology transfer what, how much and when?

RECOMMENDATIONS

- Training and transfer of technology are required. Those could be achieved by :
- establishing construction management training center under Construction Development Board,
- establishing and maintaining coordination between existing training institutes in the country and DoR, SCAEF and CAN,
- formulating policy regarding training opportunities to the private construction industry by the government, and
- Making joint venture mandatory whenever possible.

Views!!! On workshop
during inauguration and closing
sessions of Contracting industry:

workshop

- Partnership between government and the private sector - **Hon'ble Mr. GR Joshi, Minister (MHGA);**
- 3 key issues: Institution capacity, Institution management & Works operation - **Mr. HL Regmi, Secretary, MOWT;**

- BOT approach in road sub-sector with economic development support in the road corridor - **Mr. NP Chalise, DG, DOR;**
- Positive development in the construction industry, Training opportunities for the construction industry, NCCN be sold off - **Mr. HM Rothenbuhler, WB Country Director, Nepal;**
- Strategic shift to: Development of rural accesses and agricultural roads, Improvement of domestic construction industry, Labour based technology - **Dr. RN Vaidya, Member, NPC;**
- Construction industry for socio-economic development, for poverty alleviation and skill learning, Translation of recommendations - **Mr. MG Malekhu, DDG, Foreign Co-operation Branch, DOR;**
- Phasing of Implementation of workshop recommendations and its monitoring - **Mr. SB Pradhanang, Former Chief Engineer, DOR;**
- Need of more transparency and thoughtfulness in procedure for selection of consultants, Database of consultant's performance in Web page, SCAEF in action - **Mr. BL Nyachhyon, President, SCAEF;**

KHULA BAZAR (a vernacular magazine) (special issue on contracting industry)

- Nepalese engineering consulting firms are capable of doing complex job with compare to International firms, but local firms are acting as helping hands to International one. Suggested that local consulting firms would establish co-ordination and affiliation with research and academic institutions in the country and abroad as well. - **Dr. JC Pokhrel, Member, NPC;**
- Introduction of performance specification of End product, use of statistical indexes in quality control, value engineering for our limited resources, introduction of concession law with BOT, BOOT, BOO, BOOS system - **BB Deuja, Joint Secretary, Ministry of Works and Transport;**
- Concession law, privatization act, privatization system, Toll system, Government's commitment are important issues to be studied in Privatization of infrastructure development work - **NP Chalise, Director General and LK KC (Engineer);**
- Promotion and protection of contracting profession has to be initiated in Nepal as in the abroad for the development basic infrastructure in the country - **GL Shrestha, President, IFAWPCA;**
- All development partners Government, Donors and decision makers along with the contractor have to be involved in completion of projects with positive intention and tendering time should be shifted to the early date - **R Sharma, President, FCAN;**
- Contracting Industry can not be developed only by involvement of contractors, consultants and financier, but appropriate equipment, tools, skill & technology along with management are inevitable - **IR Wanta, East Consult;**

* * * *

Excerpts from

Presented at DOR
Workshop

NEPAL ROAD CONSTRUCTION INSTITUTIONAL ISSUES (by NP Chalise, DG, DOR)

In his presentation, Mr. Chalise outlined the objectives and functional role of government. He then assessed the government capacity to fulfill the role and has suggested capacity strengthening measures.

Mr. Chalise first identified the overall objective of government. According to him, the objective of government is "to ensure the road system should be constructed and maintained in a cost effective manner to meet serviceability requirements that support the development needs of the country and society as a whole".

He then examined the role of government in meeting the stated objective under the constitution and identified the following ten functions that define this role: government as agent of economic change, regulator, strategic planner, investor, protector of the public interest, customer, contractor, partner, inspector, and auditor.

Mr. Chalise also discussed some broad issues (such as delays in the approval process, lack of a uniform approach, diverse and uncoordinated sources of project information and weak interaction between DoR line management) affecting institutional capacity of government.

Finally he identified and suggested the following capacity strengthening measures:

- A holistic approach to capacity building
- Improved financial management capacity of the government and sufficient physical resources to match the workload of DoR
- Shift from the present focus on inputs to the appropriateness, quality and sustainability of the actual outputs achieved and hence, to the levels of institutional capacity with government
- A network approach rather than a project approach in project planning, and work schedules based on practically achievable time frames
- Technical assistance on a demand rather than a supply driven basis
- Building capacity simultaneously in government and the private sector.

Road Maintenance Manual

(continued from Page No. 1)

To develop this manual, MRCU had utilized lot of man-days and consultation was being done with DOR engineers/overseers either individually or in the groups in the course of time. In addition, MRCU have conducted workshop, where Divisional Engineers, Engineers and Overseers of DOR for their feedback and comments on this manual. Thus, MRCU has included the practical idea and comments from DOR staff to make more simpler and useful for the application in the division road offices.

Basically, this manual contains major four sections of maintenance activities, which are as follows:

- i. On Road maintenance
- ii. Road side support maintenance
- iii. Emergency maintenance
- iv. Bridges maintenance

In this manual, various methods are being described with illustrations to introduce simple method for maintaining the road of Strategic Road Network in a continuous and systematic basis. Each of the sections is being refer to the four sub-types they are: routine, recurrent, periodic & preventive.

It is relevant to mention about "International Road Maintenance Handbook (IRMH)", which was first published in 1982 with joint efforts of the governments of France, Germany and United Kingdom. Later the handbook was reviewed by Permanent International Association of Road Congress's (PIARC) committee on Technology Transfer & Development [Funded by DFID].

It contains four volumes as follows:

- a. Maintenance of Roadside Areas and Drainage
- b. Maintenance of Unpaved Road
- c. Maintenance of Paved Road
- d. Maintenance of Structures & Traffic Control Devices.

ROAD FUND

NEPAL ROAD BOARD BILL to the PARLIAMENT

Road Management and Financing Reform Implementation Committee (RMFRIC) has recently prepared draft report on Nepal Road Board Bill. In 22nd Asadh, 2056, the draft report has been presented to newly appointed Minister of Works & Transport, Mr. Khum Bahadur Khadka. The road board bill will probably be tabled in the ongoing parliament.

RMFRIC has been formed with 11 members in 9th Marg, 2055, is being headed by the President of Nepal, Chamber of Industry & Commerce. Dr. Minendra Prasad Rijal, Executive secretary of RMFRIC has opined that the drafted Nepal Road Board Bill should be passed by the parliament without any delay for legalizing the fund management mechanism.

For the next five years the World Bank (WB) is likely to introduce US \$ 60 million worth Road Development and Maintenance Project with the provision of viable road financing mechanism. Insufficient multi-million maintenance budget allocated by HMG/N and dependency of development & maintenance work for Strategic Road Network on foreign assistance have necessitated to have local funding mechanism.

The proposed road board includes not only government members but also members from private participation. The Government-Private partnership in the proposed road board is a part of HMG/N policy to bring non-government institutional capacity to the development of road maintenance and its funding.

Presently, RMFRIC officials estimate the roads' "absorption capacity" stands at NRs. 1.3 billion, where as the allocated budget is NRs. 40 million only. Hence, RMFRIC vowed to manage the deficit amount.

Road fund will be collected from the direct levy on fuel & spare parts, vehicle license fees, and from road toll. The road board thus, is responsible for fund raising and management of road maintenance in a systematic manner.

Fuel and transport entrepreneurs across the country had shown interest to cooperate the proposed toll scheme, where as DOR, DDCs and Municipalities would work with together for tax collection activities.

1st BOT Project

Kathmandu Hetauda Fast Track Road

RS International Pvt. Ltd. has bagged the permission from MOWT to conduct detailed study and design work of 58km long

Kathmandu Hetauda Fast Track on June 7th, 1999 on Build, Operate and Transfer (BOT) basis.

The contract has been awarded in line with the Public Road Construction, Management & Transfer Policy 2055 BS.

50 years concession period includes about five years required for design & construction, where as the tunnel road will be operated in the remaining period 45 years for return of the investment and profit.

50 % financing of NRs. 14 billion is expected to be shared by China Hennan International Economic Technical Cooperation Corporation on equity and the Asian Development Bank on loan. Rest will be managed by RS International itself.

The proposed road will reduce the spatial distance between Kathmandu and Hetauda by 166km, which includes some 5km of tunnel through Chisapani spurs along the alignment.

The fast track road follows Bagmati river bank and reaches to Kulekhani, which will then follow the Kulekhani Khola and through tunnel at Chisapani. Further, at Bhimpheedi and Bhainse, the fast track matches with existing road alignment with some improvement and continues upto Hetauda to join with Mahendra Rajmarg.

The proposed two lane tunnel road will cater the designed capacity of traffic volume with more than 30,000 vehicles per day.

The fast track with travel time less than an hour is expected to save fuel by 1.44 billion rupees a year on transportation of goods & passenger through the route. This will reduce the price of goods imported through the route. Further, population pressure will be reduced due to migration of people from the crowded valley towards the fast track corridor. Infrastructure development of corridor is also expected to take place from the proposed road at the no tunnel sections.

RS International has been authorized for fixing toll charge with consent of MOWT. HMG/N has made provision of relaxing income tax and waving some other taxes as per the prevailing rules.

Chinese contractor is interested to take over the job of design & construction of tunnel road on International Road Standards.

Improvement Issues

ROAD INVENTORY: Need of digital look

At present, the concept of maintaining a Road Inventory is a preliminary inventory keeping system, which should be modified to a simpler format and record keeping.

Currently, inventories are being collected in Planning Branch in a prescribed graphical format (A3 size).

The main problems encountered so far are

- i) The size of the format itself:
 - Difficulty in copying and storing,
 - Difficult in updating inventory and district level inventory.
- ii) Method of filling out the format should be stated.
- iii) Extent of Information to be included should be defined
- iv) Include inventory of district roads along with Road Inventory of Strategic Road Network.

Road inventory, as its name suggests, presents the overall spatial description of roads along with road features e.g., culverts, bridges, road furniture. The data, which then it will be utilised to get the general picture of existing road and its

accessories and may be utilized for extension work, rehabilitation work including detailed maintenance planning.

As we are entering a new millennium, why not we use computers to manage road inventory also? For this, instead of making inventory in a bulky format, a new concept using only alpha-numerical data representing a road can be worked out. Such data can be presented in a tabular form and can be converted into computer based data easily. The most important thing in this context is developing the appropriate alphanumeric coding system to represent the overall road network its features. The new system will have the following advantages:

- easily manageable
- easily updated (in DOR, DRO, RRD)
- compact, not bulky and
- easily retrievable.

For the implementation of this concept what we require are just few tables to be filled out, some key strokes in keyboard along with a wide vision and deep commitment.

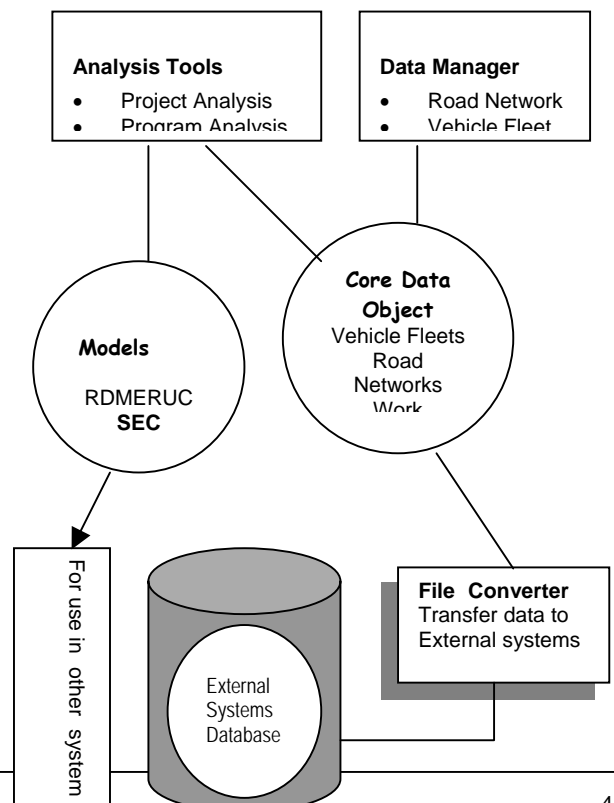
HDM-4

DFID Newsletter
Transport Mav'99 issues

Highway Development & Management Tools (HDM-4) to replace HDM-III

The Highway design and Maintenance Standards Model (HDM-III), developed by the World Bank, has been used for over two decades for technical and economic appraisals of road investment projects. Further, HDM-III is being used for analysis of strategies and standards for strategic road network maintenance and improvements.

An international study group sponsored by UK Dept. for International Development (DFID), the World Bank (IBRD), the Asian Development Bank (ADB), the Swedish National Roads Administration (SNRA) was set up in August 1993 has prepared a successor to HDM-III as HDM-4 (Highway Development and Management Tools).



Unlike HDM-III the HDM-4 is Windows based stand alone program. Further, the scope of HDM-4 is widened considerably with respect to different types of pavement, changing vehicle parameters, road safety, environmental issues and traffic congestion etc.

Two more areas of applications are added over the old model HDM-III. Project analysis provides the same capability of analysis as in former model, but the new additional models like programme and strategy analysis are useful for preparation of rolling work programs and preparation of longterm planning estimates of road expenditures respectively.

SMD Program

A Brief Introduction

Background

As a part of service delivery objective, one of the main task of the Department of Roads is to keep the strategic road network in a reasonably good condition at all the time. The achievement of this objective provides comfort and safety to the road users, decreases the vehicle operating cost, and ultimately helps to support the national economy.

This task could only be achieved through the Planned Maintenance Program. Therefore, the Departmental Policy Document (The DOR Strategy) clearly pointed out that the planned maintenance is one of the key measures of the DOR strategy, which contributes a lot to achieve the DOR's ultimate goal. Planned Maintenance is implemented through the Strengthened Maintenance Division Process (SMD Process).

During the Road Maintenance and Rehabilitation Project (RMRP) formulation period different donor agencies took keen interest in SMD process and finally Swiss Agency for Development and Cooperation (SDC) and the World Bank (IDA) agreed to support this important component.

SMD process was first introduced in two divisions Lalitpur and Bharatpur as a pilot venture. Technical and logistic support required for them were provided by SDC and MRCU made available the service of one Maintenance Management Adviser (MMA) to assist the Division Chiefs. It then gradually expanded to other divisions. Later on UK Department for International Development (DFID) through Eastern Region Road Maintenance Project (EROM) agreed to assist in establishing the process in three divisions from Eastern Region namely Biratnagar, Dhankuta and Damak. Following tables show the expansion of SMD process during last five years in different divisions.

Fiscal Year	Divisions (Supported by SDC)	Divisions (Supported by DFID)
1993/1994	Lalitpur, Bharatpur	
1994/1995	Butwal, Pokhara, Nepalgunj Lahan	
1996/1997	Charikot, Shivapur Tribhuvannagar	Biratnagar
1997/1998	Pathlaiya Bardibas	Dhankuta
1998/1999	Bhaktapur, Damauli Mahendranagar	Damak

Donor's Support

Support provided by the donor agencies are in the form of limited financial assistance for office refurbishment, provision of supervision vehicles, small plants and equipment required for the divisions. Technical assistance is provided to help with the establishment of sustainable maintenance management system and to implement routine, recurrent and emergency maintenance in a planned way. Capital cost for all maintenance activities is borne by the DOR. First phase bilateral grant agreement with the Government of Switzerland was completed on June 1998 and the second phase has started from July 1998, which will remain valid till June 2002. Grant agreement explicitly defines the objectives of the programme, which are as follow:

- to maintain the strategic road network in a planned way;
- to decentralise the management and administration of maintenance on the strategic network;
- to maximise benefits of resources towards financial sustainability; and
- to enhance management and implementation capacity and capability.

Planned Maintenance

In order to keep the roads in a reasonably maintainable condition at all the time, planned maintenance should be immediately executed in all roads which have been handed over by the projects or where backlog maintenance has been recently carried out. It includes planning, programming, prioritizing, budget allocating and implementing the maintenance activities. Under the SMD Process, at present, planned maintenance activities encompass routine, recurrent and emergency maintenance activities. Planned Maintenance always reminds the maintenance engineers about the following activities:

- What is to be maintained?
- How it is to be maintained?
- When it is to be maintained?
- Who is to maintain it? And
- Evaluating the effectiveness of maintenance after its completion.

Routine Maintenance

Routine maintenance is generally carried out by the LENGTHWORKERS. As per the approved norms one lengthworker is employed for 5Km-road stretch in terai, 3Km in hill and 1 Km in urban areas. Lengthworkers and supervisors are trained for their works every year.

Recurrent Maintenance

This work is normally executed through small contracts, labour contracts or through departmental labour force. Detail assessment of works is needed prior to start the work and these should be verified by the engineer and division chiefs.

Emergency maintenance

Immediate opening of the road after its closure due to rain, earthquake or other reasons is the responsibility of the DOR. For this, emergency activity is carried out which is generally done through departmental labour, equipment and small contracts.

Two Stages of Introduction of SMD Process in Divisions

First Year

During this preparatory stage all staffs from division office are made familiarized with the SMD Process. A work programme for all maintenance-related activities is prepared and a need-based budget is estimated. Necessary tools and equipment are procured and working environment is improved in division through upgrading and renovation of office infrastructure.

Second Year

From second year SMD Process is fully implemented. It comprises the implementation of cyclic planned maintenance programme utilizing various methods for routine and recurrent maintenance operations in all strategic roads under the division.

Conclusion

SMD Process has been well accepted by all DOR units. After its implementation, working environment in divisions has substantially improved; record keeping and reporting systems are being developed and monitoring mechanism has been introduced by the regional directorate offices. New norms for routine maintenance are already in practice and norms for recurrent maintenance works are being developed with the feedback received from similar works carried out by different divisions. Every year during the month of April/May a workshop on Yearly Plan of Operation (YPO) is organised where all division chiefs present their YPOs. In this workshop, difficulties faced by the division chiefs are discussed and feedback for the improvement of the process is collected through the interaction among division chiefs, regional directors, the DOR unit chiefs, deputy director generals and director general. It is expected that by the end of 2002, SMD Process will be implemented in all 25 divisions of the Department.

Y2K

Y =Year & 2K =2000

Y2K Problem – What is it?

The year 2000 (Y2K) problem results from an industry-wide practice of representing years with only two digits instead of four (e.g., specifying 96 instead of 1996). This practice was widespread from the 1960s to the 1980s to save disk and memory space when these resources were relatively expensive. To compound the problem, many standards and programming guides promoted 2-digit year formats. Systems that use the last two digits of the year to calculate the day of week may think 1, 2000 is a Monday (as in January 1, 1900) rather than a Saturday.

The scope of the year 2000 challenge spans the entire IT industry. The data mismatch can exist in any level of hardware to software from micro-code to application programs, in files and databases, and might be present on any platform.

The year 2000 problems are not confined to just computer systems. It may affect elevator controls; household appliances such as VCRs and programmable devices; telephone calls; departmental store credit cards, airline flight schedules and railway's reservation systems etc. The leap year problem also will affect any computer hardware /network. Year 2000 is a leap year.

There are some general misunderstanding and myths regarding the year 2000 challenge. These include:

- This is a problem that occurs only after 31st December 1999. In fact the difficulties caused by the year 2000 challenge are already occurring, for example, some applications that deal with future dates in such areas as mortgages, insurance policies, and driver's license and credit card expiration dates have already encountered problems.
- This is just hardware and software are affected. The internal timers in hardware might need to be tested for year 2000 readiness and reset. In software, application programs and operating systems using 2-digit for year representation could experience difficulties if the hardware on which they are running has clock and/or system timer services that provide a 4-digit format.
- This is a format that only occurs in a mainframe system. Any system or program can be affected if it uses 2-digits for year representation.

All hardware which uses 4-digits for year representation will be unaffected by the transition to the year 2000, provided software which controls its operation also use 4-digit format for year representation.

Y2K IN DOR

In DOR, out of 59 computers studied 24 computers are compliant and 35 computers are not. All 386 and 486 computers are not year 2000 ready. This does not mean that all these computers have to be discarded because most of these are used only for word processing. Similarly out of 21 Pentium-I computers, 15 are Y2K Compliant and 6 are not Y2K compliant, but can be made year 2000 ready by upgrading the mother board. Similarly out of 3 Pentium Pro Computers, 2 are Y2K compliant and 1 is not Y2K compliant, but can be made year 2000 ready by upgrading the mother board.

All peripherals which are interfaced to the Personal and Desktop Computers such as printers, modems, monitors, tape drives and scanners etc. have no year 2000 problem. All interrupted Power Supplies (UPS) which are intelligent (software controlled) and shut down the system have no year 2000 problem. All equipment with embedded chips will not affect in year 2000.

Operating system, windows-95 is Y2K compliant with minor issues. Windows-98 is fully Y2K complaint. Earlier version of operating system should be phased out or updated. In DOR, most the computers are Windows-95 based, which is not fully complaint. Most customised software are found to be Y2K complaint except few software (no response from software vendors). Customised software like Personnel Information System (PIS), Credo-Dialogue 7.06 and MAAP Five foe DOS are not Y2K complaint.

Y2K Solution Card

The Hardware Solution Card corrects this dilemma by correcting the RTC and Basic Input Output System (BIOS) through enabling it to recognise the year 2000 instead of 1900.

Now one can overcome the impending threat of the millennium through the simplicity of PnP card! Which is

- quick and easy to install;
- cheaper (Rs. 3500/-) than upgrading to a new motherboard;
- tested and verified by all popular Y2K programs (e.g., DOSChk, AMI2000 Tester, Roght Time's Test 2000, NSTL-Ymark 2000 etc.);
- FCC 7 CE approved and certified

Districts with no Road Link DOR info

There are still some districts, which have been deprived of link with country's road network. But progress is underway to link these districts to the road head. There are 17 districts without road head at their respective headquarters.

Districts	HQs.	Name of the Project
Sankhuwasabha	Khadbari	Basantapur - Chainpur -Khadbari
Bhojpur	Bhojpur	Hiley- Leguwaghat- Bhojpur
Solukhumbu	Salleri	Project not yet started
Khotang	Diktel	Gaighat - Diktel (Sagarmatha Highway)
Manang	Chamey	Beshisahar - Chamey
Mustang	Jomsom	Baglung - Beni - Jomsom
Jajarkot*	Jajarkot	Chinchu - Jajarkot
Rukum*	Musikot	Salyan - Musikot
Jumla	Jumla	Surkhet - Jumla (Karnali Highway)

Bajhang*	Chainpur	Khodpey - Bajhang
Bajura*	Martadi	Sanfebagar - Martadi
Achham*	Mangalsen	Sanfebagar - Mangalsen
Darchula*	Darchula	Baitadi - Darchula
Kalikot*	Manma	Project not yet started
Mugu	Gamghadi	Project not yet started
Humla	Simikot	Project not yet started
Dolpa	Dunai	Project not yet started

Notes: * Road head touches the district.

Feasibility study

Planning Branch

Department of Road, Planning Branch has started carrying out Feasibility Study of Roads and Bridges of all over the country since the fiscal year 2054/055. The projects, for which feasibility studies have been undertaken by the planning branch in F/Y-2054/055 and in F/Y-2055/056 are tabulated below.

These studies were carried out through local consultants. The reports of these studies have been sent to respective road division, regional road offices, design section and maintenance branch, so that the respective offices can use as reference for forthcoming task. Planning branch has kept in digital format with respect to name and status of these studied projects, which will be helpful to check the repetition, duplication of the study.

In this fiscal year 2055/56, the survey of 95 nos. roads and 43 nos. of bridges were carried out. The following list shows the number of feasibility studies done in different districts.

S.N	District	F/Y2054/55		F/Y2055/56	
		Roads	Bridges	Roads	Bridges
1	Arghakhachi				1
2	Achham			2	
3	Baglung		2	2	1
4	Bajhang		2	2	
5	Baitadi		1	1	
6	Banke		1	1	2
7	Bara	5	2		1
8	Bardiya	1	1	4	2
9	Bhaktapur	1	2		
10	Bhojpur	1			
11	Chitwan		1	3	1
12	Dang	1	1		1
13	Dailekh	4		4	1
14	Dhadedhdhura			2	
15	Dhankuta	4		2	
16	Dhanusha	3	2		
17	Dolkha	3			
18	Gorkha			1	
19	Gulmi	1		4	1
20	Illam			5	1
21	Jhapa	1		5	3
22	Kailali		1	4	2
23	Kalikot			1	-
24	Kanchanpur			1	1
25	Kapilvastu		1		4
26	Kaski	3	2	5	1
27	Kathmandu		3		
28	Kavrepalanchowk				1
29	Lalitpur		1	1	1
30	Lamjung		2	4	1
31	Makwanpur	1			
32	Mohatari				1
33	Morang	1	2	2	1
34	Nawalparasi			1	2

35	Nuwakot	2	1	4	
36	Okhaldhunga			4	1
37	Parsa		5		2
38	Palpa	1		1	
39	Panchthar	3		2	
40	Parbat	1			
41	Pyuthan		1	5	
42	Ramechhap	2			
43	Rautahat			1	2
44	Rolpa			5	
45	Rukum	1		1	
46	Rupandehi				3
47	Sankhuwasabha	2		3	
48	Sarlahi	2	2		
49	Sindhuli		1		
50	Surkhet			5	2
51	Sunsari		3		
52	Syanja	1		1	
53	Tanahu	2		2	2
54	Terathum	1		1	
55	Udayapur	1		3	2
	Total	49	40	95	44



Road Maintenance and Rehabilitation Project

Road maintenance and rehabilitation project (RMRP) was started since 1995. This project has two components, Rehabilitation and Periodic. These both components are financed by the World Bank (International Development Agency).

Under periodic component, construction of 12 major road projects is in last phase with the involvement of both National and International contractors in construction. Only local consultants are being involved in supervision work of these projects. The consultants for supervision works are GEOCE, ITECO Nepal, TAEC/CEMAT and GEOCE/SILT/Soil Test.

Periodic Maintenance Roads (completed)

SN	Name of Road	Length (Km)
1	Hetauda – Lothar	41.00
2	Tansen – Narayanghat	33.70
3	Tansen – Harthok	10.85
4	Atariya – Chaudhar	36.31
5	Dhalkebar – Bhitamode	42.75
6	Nepalgunj – Gulariya	35.86
7	Nawalpur – Malangwa	26.50
8	Chandranigapur – Gaur	43.95
9	Atariya – Baliya – Karnali	73.93
10	Kakani – Trishuli	44.85
11	Chisapani – Birendranagar	77.34
12	Syanja – Pokhara	36.93

Rehabilitation Component

The RMRP rehabilitation component consists of 9 roads. In this component, there are also national as well as international contractors involved in the construction works. Local and international consultants are responsible for supervision works of the construction of these roads. The consultants involved in these supervision works are ND Lea, ITECO – CEMAT J/V and GEC- ITECO J/V.

Roads for Rehabilitation (completed)

SN	Name of Road	Length(Km)
1	Thankot – Naubise	16.535
2	Gaddachowk – Chaudhar	12.260

3	Marshyangdi – Khairentar	41.145
4	Butwal – Tansen	41.000
5	Naubise –Simbhanjyang- Simbhanjyang – Bhainse	42.440
6	Birgunj – Kalaiya (including Padma Road leading ot Dry Port)	22.666
7	Bangari Bridge along Birgunj – Kalaiya Road	12.325
8	Dudhaura Bridge along Birgunj Kalaiya Road	
9	Narayanbghat – Mugling	36.100

ROAD CONDITION

TRAFFIC SURVEY

As in the previous year, Planning Branch of Department of Roads has carried out Annual Manual Traffic Volume and Vehicle Classification Surveys in 75 Stations, Surface Distress Measurement Survey of 3107.65 km. and Road Roughness Measurement Survey of 3283.1 km for this fiscal year 2055/56. The study was conducted through Nepal Engineering Consultancy Services Center (NEPECON).

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

STN No.	Road Link	Station	ADT
1	H0101	1 km east from Charali	1056
2	H0102	West from Charali (Near Buttabari)	1117
3	H0705	1km north from Charali	623
4	F0101	Suoth from Birtamod (Near Chaitu Temple)	778
5	H0108	East from Itahari (Salakpur)	2072
6	H0109	West from Itahari (At Pachurki)	2183
7	H0111	East from Koshi Barrage (At Bokraha)	1191
8	H0803	South from Itahari (At Ward no. 8)	1992
9	H0804	North from Itahari (At Tarahara, Panipia)	1368
10	H0901	North of Junction with MRM (At Kadmaha, Laxmipur-1)	384
11	F0201	200m south from Padajungi	335
12	F0501	200m south from junction with MRM Chauharwa	293
13	F0401	South from Rupani (At 5km)	453
14	F3901U	Outside of Municipality (Near Singiya Khola)	496
15	F3801	West from Pasupatinagar (Near Barrier of VDC Pasupatinagar)	194
16	H0707	Chibitar (Fikal)	318
17	H0709	100m North border of Ilam Municipality	64
18	H0604	South from Dhalkebar (At Mahendranagar)	659
19	H0128	East from Pathlaiya (At Nijgadh)	1252
20	H0129	North from Phatlaiya (At Amlekganj)	1820
21	H0204	South from Pathlaiya (At Simra)	2049
22	H0405	West from Munglin (At Dumre)	1198
23	H0132U	West from Hetauda (At Nawalpur)	2029
24	H0503	South from Munglin (At Kalikatar)	2633
25	H0404	East from Munglin (At Kurintar)	2800
26	H0214	Nagdhunga	2377
27	H0120	East from Dhalkebar (At Pusholpur)	935

28	H0121	West from Dhalkebar (At Jamunibas)	858
29	F0701	1 Kilometer South from Chandranigapur	259
30	F0601	2 Kilometer south from Nawalpur (At Jutpani)	484
31	F1801U	Gandak Canal	560
32	H0205U	North from Hetauda (At Samari bridge)	83
33	F3401	End of Trisuli bridge	280
34	F2103U	End of Nagarjun forest (2 Km.north from Bypass)	749
35	F3001	Near junction of Zero mile	258
36	F3101	15 Km. east from Dolalgat	71
37	F3201	Lamosangu (End of Bridge)	243
38	H0304	Manohara Bridge	8341
39	H0310U	Panchkhal (Near EMC)	763
40	F2201	Gate of TU	1489
41	F2802	Near Army Camp	673
42	H0602	Jaleshor, Sahardbwa	310
43	H0146U	West from Butwal (At Okharpur)	1671
44	H01004U	North from Butwal (At Chidiya Chauki)	789
45	H1002	South from Butwal (At Jogi Kuti)	2038
46	H0144U	East from Butwal (At Sunwal)	2639
47	F4402	West from Bhairahawa (At Dogahara)	196
48	F0901	South from Sunwal (At junction with MRM)	149
49	H0411	Talchowk, east from Pokhara	1456
50	F1201	1 km South from Chanaula	551
51	F4203	North from Pokhara (Fedi)	748
52	H1012	South Pokhara (At Phusre)	526
53	F0801	1 Kilometer South from Bardaghat.	246
54	F4101	At Junction of Bindebasini	231
55	F3501	End of Marshyangdi river (At Majhuwa)	402
56	F4302	Near Batase Danda, Tanshen	219
57	H0133	West from Hetauda (At Lothar)	1655
58	F1501	North from Lamahi near Arjun khola	172
59	H0157	East from Kohalpur (Near Arjun Khola)	714
60	H0158	West from Kohalpur (At Bhardaha)	372
61	H1205	North from Kohalpur (At Chisapani)	232
62	H1204	South from Kohalpur (At Ranjha)	580
63	F4602	West from Nepalganj (At Man Bridge)	215
64	F1601	South from Bhurigaon (At 1 Kilometer South)	73
65	H0163	East from Atariya (At Hanumanpur)	380
66	H0164	West from Atariya (At Gularia)	335
67	H1402	South from Atariya (At Boradangi)	527
68	H1403	15 km north from Godawari (At Khanidanda)	190
69	H1501	East from Syaule near Koryal	120
70	H1407	North from Syaule Near Anar Kholi)	144
71	H0806	North from Dharan(at Base Camp)	393
72	F0301	South from Bharada	280
73	H0115	West from Lahan	1318
74	H0134	East from Narayannghat(Tikauli)	2643
75	H0138	West from Narayannghat(Gaidakot)	1818

Pavement Surface Distress & Road Roughness (Highways and Feeder Roads)

Surface Distress Index evaluates the defects of pavement such as cracks, rutting, potholes, edge break, slickness, bleeding raveling etc. SDI is visual indicator of pavement deterioration.

Road Roughness survey is carried out to calculate International Roughness Index (IRI), which has a linear relationship with vehicle operating cost (VOC). To derive the numerical value of IRI, it is necessary to find out the numerical value of Bump Integrator (BI), which is measured in the field by the help of Vehicle Mounted Bump Integrator (VMBI) machine. Then this value is changed to IRI by the help of empirical formula.

The comparative data of the SDI Assessment, which has been taken out from the report of this year and previous year is as follows.

National Highways (Black topped)

Category	Length in Fiscal year (Km)	
	1997/1998	1998/1999
Good	780.79	622.42
Fair	804.96	1134.62
Poor	67.18	250.87
Total	1652.93	2007.91

National Highways (Gravel)

Category	Length in Fiscal year (Km)	
	1997/1998	1998/1999
Good	12.9	12.9
Fair	80.19	54.13
Poor	67.62	49.30
Total	160.71	116.33

Feeder Roads (Black topped)

Category	Length in Fiscal year (Km)	
	1997/1998	1998/1999
Good	103.73	136.51
Fair	301.85	240.69
Poor	119.63	178.11
Total	525.21	555.31

Feeder Roads (Gravel)

Category	Length in Fiscal year (Km)	
	1997/1998	1998/1999
Good	0.00	0.00
Fair	413.9	194.16
Poor	32.99	188.16
Total	446.89	382.32

These data are very useful in terms of doing the maintenance of the road. It is well known that when these values approaches the limiting values then there will be necessity of maintenance of roads. The type of maintenance will also depend upon the values of these factors. So it is very essential to carry out these study so as to plan the road maintenance effectively and economically.

Dhodhara Chandani Crossing (over Mahakali River)

Presentation on
Feasibility Study

A program was organized by the Planning Branch for the **presentation** of the report of "The Feasibility study of Dhodhara Chandani Crossing over Mahakali River". The study was carried out by NEPECON in association with MEH Consultant.

The presentation was conducted in MRCU hall with a well-equipped display facility like LCD projector. The consultant has used MS-Power Point program for display of 40 nos. of digital slides.

Before presentation hands-out were being distributed for a brief knowledge of the study. Presentation was followed by a QA program. Most of the participants including DG, DDGs, SDEs and engineers took part in QA program. Most of the questions were concerned with:

- Socio-Economic data & Economic analysis;
- Complexity of multi-span suspension bridge option;
- Cable car system;

Basic features of both options are as follow:

Suspension Bridge:

5 spans of 244.46m each with additional stabilizing cables

Cable Car System:

Bi-cable, 2 spans of 630m each, 4 nos of cars.

Detailed Design of Multiple span Suspension Bridge

NOTES from proposal on structural analysis

Focus of this design project is being tied with analysis of structural system of spanning. A team of experts like Structural Analyst, Steel Bridge Designer and Engineering Software Package specialist will act jointly to propose numerous option on the issue of Mahakali River crossing with regards to multi span suspension bridge.

The possible options are limited to the basic requirement i.e. multi span system with two variants i.e., continuous and non-continuous spans of structural system. Thus, the primary task of structural analysis is to reduce the complicated options (structural and construction points of view).

Existing Motorable Multiple span Suspension Bridge (Review)

Existing motorable multi span San Francisco Oakland Bay Suspension Bridge in California (designed by LS Moiseiff), the USA, reveals that spanning of bay has been successfully resolved with the introduction of **anchor piers** to the system of consecutive suspension bridge spans.

The function of an anchor pier is very simple as its name hints that it hooks the anchors from both sides and supports the system between the two adjoining suspension spans. Thus, more importantly the introduction of anchor pier reduces the complicated continuous system to non-continuous one. Of two bridge systems bridging Oakland (East) and San Francisco (West), one linking to San Francisco i.e., West Bay Crossing is having two consecutive suspension bridges placed end to end with a separating anchor pier at the center. (Please refer the sketch of San Francisco Oakland Bay Bridge)

The center anchor pier has dual purpose that it reduces the continuous complicated to a simple consecutive system. The second part is to hold the anchor guys from either side of suspension bridges. The structural function of anchor pier is to

resist the worst case of loading from both sides with unequal loading i.e. combination of static and dynamic loads (due to dead load and live load, wind load etc).

The described example here above could be a solution to Dodhara Chandani Multiple Span Suspension Bridge with continuous system. The possible spanning system has been depicted in the sketch below.

* * * * *

Training - RSSDU

Road Sector Skill Development Unit under Planning Branch has leading role in human resources development of the Department. It has maintained the database for all of the staff of department. It has systematically kept the records of qualifications, training, of all the personnel employed in the Department of Roads.

In spite of these data, it has the records of the participants who has participated/will be participating in different seminars and study tours after being nominated from Department of Roads. The following are the list of participants, who has recently taken training and other activities after nomination from the DoR. It is the continuation of the previous list which we had published in the last Issue No. 10.

In the previous issue, we regret for the mistake of the following training "ESCAP Seminar cum Workshop on Upgrading Asian Highways", Thailand.

Instead of Participants:

SDE Mr. Sudershan Ram Bhandary, CAO Mr. Rabindra Nath Karmacharya

It should be read like:

ESCAP Seminar cum Workshop on Upgrading Asian Highways. Participants:

SDE Mr. Ramesh Raj Bista

Training In Country

1. Tender Preparation & Site Management Training (21-23 Feb & 24-27 Feb, 1999)

1st Batch Mr. Umesh Jha Mrs. Puspanjali Khanal Mr. Tara Puri	2nd batch Mr. Rajan Babu Tiwari Mr. Madhav Karki Mr. Tulsii Situala Mr. Shobhakar Khanal
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2. Bio-Engineering Training for overseers (28 Feb - 19 March, 1999)

Mr. Ratan Singh Rawal Mr. Sadhusharan Kurmi Mr. Mohan Pd Adhikari Mrs. Gitanjali Koirala Mr. Baburam Bhujel Mr. Satyajeet Pokharel Mr. Ram Chandra Chaurasiya	Mr. Ram A. Mandal Mr. Bijaya Thapa Mr. Rajendra Krishana Rupakheti Mr. Dinesh Manandhar Mr. Sunil Ranjitkar
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3. Lab Boy Training (07-19 March, 1999)

Mr. Omkar Poudyal Mr. Chandra Pd Tajpuriya Mr. Pncha Lal Malaha Mr. Gulzar Yadav Mr. Mohan Bd Acharya Mr. Devi Pd Sapkota Mr. Bishnu Pd Baral Mr. Baburam Acharya Mr. Binod Rana	Mr. Guru Pd Baral Mr. Uddhav Pd Adhikari Mr. Raju Hamal Mr. Laxman Lamsal Mr. Baburam Pahari Mr. Dhurba Raj Acharya Mr. Dil Bd. Gurung Mr. Ram Chandra Karki Mr. Surya Pd Bhandari Mr. Tarani Pd Sahu
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4. Third National Conference on Science & Technology (08-11 March, 1999)

Mr. Madan Gopal Maleku, DDG
Mrs. Puspanjali Khanal, Er.

5. Computer for Executives (04 April-04 May, 1999)

Mr. Basudev Jha, DDG

6. Computer for Executives (11 April -11 May ,1999)

Mr. Basanta Lal Shrestha, Er.
Mr. Baburam Ranabhat, Er.
Mr. Bhagirath Yadav, Sec. Off.

7. Auto Cad (11 April - 11 June, 1999)

Mr. Kishor Nath Gongal, Er
Mr. Dhurba Pd Dhungel, Er.

8. Performance Management (14-16 July, 1999)

Mr. Lava Prasad Wagle, SDE

9. Short Course on Geography Information System (20 July -2 August, 1999)

Mr. Sudershan Ram Bhandary, SDE
Mr. Rodesh Ratna Shakya, Er.

10. SAARC Workshop on Managing B.O.T (Build Operate & Transfer) Infrastructure Development Projects) 28 - 31 July, 1999

Mr. Ramesh Raj Bista, SDE
Mr. Bishnu Man Singh Dangol, SDE
Mr. Amulya Das Shrestha, Er.

11. International Symposium on Engineering Geology, Hydrology and National Disaster with emphasis on Asia (28-30 Sep, 1999)

SDEs Mr. Bhagawan Shrestha Mr. Bishnu Man Singh Dangol Mr. Sudershan Ram Bhandary Mr. Indu Sharma Dhakal Mr. Rajendra Prasad Pradhanang	Engineers Mr. Madhusudan Acharya Mr. Uttam Lal Pradhan Mr. Sunil Kumar Poudyal Mr. Buddhi Neupane Mr. Shiva Raj Adhikary. Mr. Biswo Ranjan Singh Shahi
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Training Abroad

1. Human Resource Management (Intensive) 30 Nov-20 Dec, 1998 U.K

Mr. Sudershan Ram Bhandary, SDE
Mr. Rabindra Nath Karmacharya, CAO

2. Executives Forum on Transport Development & Management (15 Feb - 13 March, 1999) Philippines

Mr. Bishnu Man Singh Dangole, SDE
Mr. Dhurba Prasad Dhungel, Er.

3. Pile Integrity Testing Course (26 Feb - 05 March, 1999) Bangladesh

Mr. Uttam Lal Pradhan, Er
Mr. Mukti Lal Saha, Er

4. Seminar on " Ground and Water Bio-Engineering" (19-21 April, 1999) Philippines

Mr. Basudev Jha, DDG
Mr. Sudhir Prasad Upadhyay, RD
Mr. Jamuna Bahadur Shrestha, SDE

5. Bio-Engineering Study Tour (22 April -08 May, 1999) Austria, Switzerland, UK

Mr. Jamuna Bahadur Shrestha, SDE

6. Country Workshop on Road Finance & Management (16-17 June, 1999) Srilanka

Mr. Niranjan Prasad Chalise, DG

7. International Training Programme on " Organisation & Management of Road Maintenance" (16 August -17 Sep, 1999) Sweden

Mr. Kiran Lal Shrestha, SDE

8. Road Planning (Aug-Sep, 1999) Japan

Mr. Basanta Lal Shrestha, Er

9. Post Graduates Training on GIS (01 Oct 1999 -June 30, 2000) India

Mr. Achut Bhatta, Er
Mr. Suraj Sigdel, Er.

10. M.Sc in Management & Implementation of Development Project (Sep 1999 - Sep 2000) UK
Mr. Satyandra Shakya, Er
11 M.Sc in International Construction Project Management (Sep 1999 - Sep 2000) UK
Mr. Kishor Nath Gongal, Er
12. M.Sc in Management & Implementation of Development Project (Sep 1999 - Sep 2000) UK
Mr. Vijaya Chapagain, Er
13. International Conference on Bridge Management (16-19 August,2000) UK
Mr. Keshav Prasad Pokharel, DDG

CAR of 2010

Zero Emission

California has already announced that 10% of all cars introduced after 2002 must produce "zero emissions". Although the electric car will eventually arrive, the most advanced batteries now can only store a 50th of the energy of a tank of gasoline.

Electric cars will be best suited for short journeys and for average speed. Even with this in mind, how does one charge the batteries if they run low in town? Perhaps parking meters could have chargers built in so one can top up while one does the shopping. Curb-side boxes for **recharging cars** are already available in Paris.

In the meantime, some cars will overcome the disadvantages of batteries by carrying two power sources, i.e., **hybrid cars**, which will run at speed of 100 miles per hour.

Smart car concept (**individuality**) as presented by Swatch and Mercedes-Benz will encourage the owners to customize their smart cars with extra fittings and different colored panels with a different design.

Electronics has made car driving safer and easier. Some Mercedes models already have a microprocessor that not only detects the beginning of a skid but also corrects it by adjusting acceleration and braking. A system also exists that can automatically maintain a safe distance from the car in front, and Volkswagen has demonstrated a car that one can draw up alongside a parking space and leave to do the parking on its own. Ultimately, in Ford's Synergy 2010 prototype, a **voice-recognition** system enables the driver to tell the car what to do – more heat, radio on, activate turn signal and so on.

TRL Overseas Road Note 15

GUIDELINES

for the design and operation of Road Management Systems

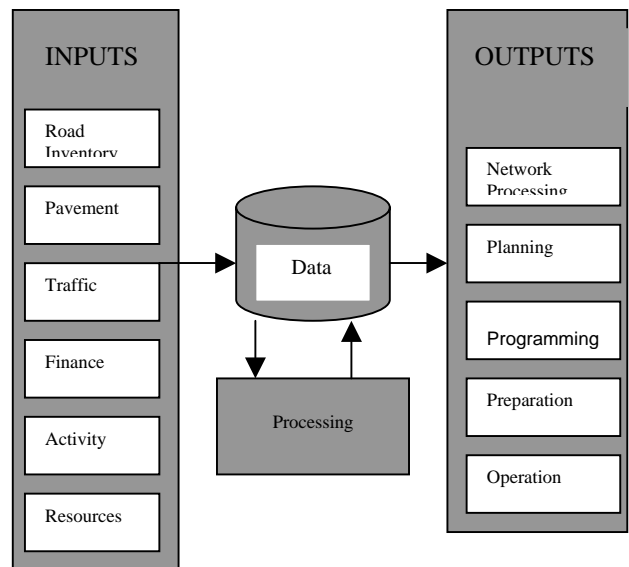
TRL (Transport Research Laboratory) has issued a new publication Road Note 15 in August 1998. This series includes detailed guidance on the design and operation of computer-based road management systems.

The main message of the guidelines in the Note is that institutional and management issues in a road administration must be clearly defined before introduction of any technical improvement scheme to a road management system.

Three basic levels of institutional hierarchy along with their role are described in the Road Note, they are:

- Senior Policy & Decision makers – Computer based management procedures;
- Professional Staff – System design and process with system specification;
- Implementing Staff - Introduction of computer based system with training, day to day management system.

The following scheme shows the data input, processing and result output.



Schematic Diagram of Input & Output along with data processing

ADB Roster of Local Expert

The Asian Development Bank (ADB) has decided to make roster of local transport experts from within the Department of Roads (DOR). The local experts from the roster will be deputed to the ADB-financed road related projects. Interested experts have to apply with their personal details with relevant experience as per field of expertise and discipline to Technical Examination Branch, MOWT.

FIELD OF EXPERTISE

Planning, Design, Contract Management, Construction Supervision, Maintenance of the following **DISCIPLINES**:

1. Rural / Agricultural Roads. 2. Mountain Road. 3. Highway.
4. Inland Waterways. 5. Railway. 6. Ropeway/ Cable way
7. River Training. 8. Bridge Engineering.

FURTHER DISCIPLINES RELATED HIGHWAY ENGINEERING

9. Bio-engineering.
10. Landslide and Slope Stability Analysis and Controls.
11. Construction Materials. 12. Construction Contract Law.
13. Traffic Engineering. 14. Road Safety. 15. Pavement.
16. Procurement. 17. Quality assurance/ Technical Audit.
18. Geotechnical. (Foundation Engineering, Rock Soil Slope Engineering).
19. Project Management.

FORMAT FOR EXPERT DETAILS

PARTICULARS OF EXPERT

1. NAME:
 2. DATE OF BIRTH:
 3. ACADEMIC QUALIFICATION: (Degree obtained/ Institution)
 4. EXPERIENCE:

Year / Month		
to Year / Month	Position Office	Major Responsibilities
 5. TRAINING PARTICULAR TO
 - A) Field of Experience

Year/ mm	Duration	Training course/ Major focus
----------	----------	------------------------------
 - B) Others
 6. PUBLICATION (IF ANY):

Year	Topic: Publication	Publishing Agency
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Conferences / Seminars / Journals etc.
 7. COUNTRY VISITED:
 8. FIELD EXPERTISE:

Field	Expertise / Area
-------	------------------

List by order of preference
 9. BRIEF DESCRIPTION OF RELEVANT EXPERTISE
- Note: Please attach additional sheets if required.

***Share your views on this
PL ATFORM***

Address for correspondence:

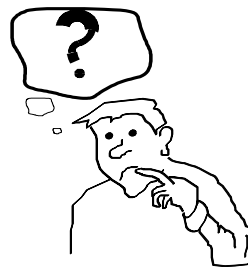
The HMIS Unit

Planning Branch

Tel. : 262693, Ext.147

Fax. : 255746

Email: hmis@htp.com.np



Do You Know?

1. Karnali Zone is the only Zone of our country where there is no road.
2. Central Development Region is the only region where there are no districts whose headquarter is not linked by road.
3. In our country there are 15 National Highways and 51 Feeder Roads.
4. The headquarter of Baitadi is the farthest headquarter from Kathmandu which is 848 Km. away.
5. Kathmandu - Trishuli - Dhunche feeder road (F21) has the maximum number of 10 links among all other feeder roads.

E D I T O R I A L

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)** welcomes any article, news, events, suggestions related to Highway Engineering development.

HMIS would like to thank to the colleagues Mrs. Sushila Dali, Prakash Upadhyaya, Babu Ram Ranabhat, Shakil Manandhar, Nabin Man Shrestha and Bina of Planning Branch for compilation and production of this **HMIS** newsletter.

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