

# HMIS News

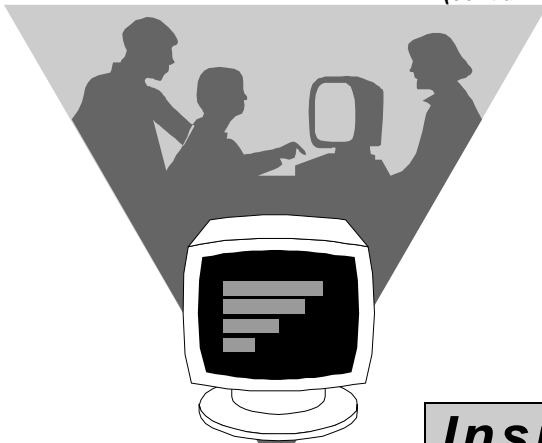
A NEWSLETTER FROM THE PLANNING BRANCH

SRN

## STATUS OF STRATEGIC ROAD NETWORK

**T**he status of the strategic Road Network (bituminous, gravel and earthen) comprising National Highways and feeder roads over the initial three year period of the Eighth 5 year plan is shown in Fig. 1. Under the government policy of providing access to each District Headquarters, at present, out of 75 District Headquarters 54 are already connected to the road network. There are at present 15 Highways and 51 Feeder roads completed with the total length of some 4400 km. Over 900 km of roads under Strategic Network is still to be constructed in order to establish the basic primary network within the country. The charts (Fig. 2) show the condition of the National Highways and Feeder Roads over the last two years. An assessment of the condition of the Strategic Network carried out in Fiscal Year 1993/94 and 1994/95, based on the visual surface condition rating,

(cont'd in page 2)



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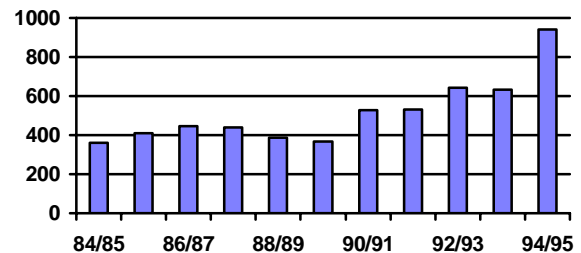
DATABASE

## ROAD ACCIDENTS

**T**he increase in the death toll presents a vivid picture of an alarming situation.

During the fiscal year 1994/95 road accidents claimed 941 lives and cost the nation a huge amount. It was an increase of 49% from the previous year.

Annual number of road deaths



Traffic Engineering and Safety Unit (TESU) is continuing to develop its road accident data base for the Valley and the Naubise-Mugling road. There are plans to bring other road sections into the system. The Unit in collaboration with Nepal Police has recently brought out a half yearly report on road traffic accidents, which is a step towards proper analysis of accidents to try and contain this situation to make our roads safer. A few excerpts of the report are given below.

### Kathmandu Valley :

In the first six months of the F. Y. 95/96, there were 31 fatalities and 112 serious injuries from 453 recorded accidents in Kathmandu valley.

- The high risk group were pedestrians under 16 years.
- Rear end collision and pedestrian accidents were most common.

(cont'd in page 2)

## Inside this issue:

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- 2 CALYX in GEU
- 3 Data available in HMIS
- 4 Ongoing activities in Planning Branch
- 5 What's going on - RMP Cyclic Maintenance

**STATUS OF SRN (Cont'd from page 1)**

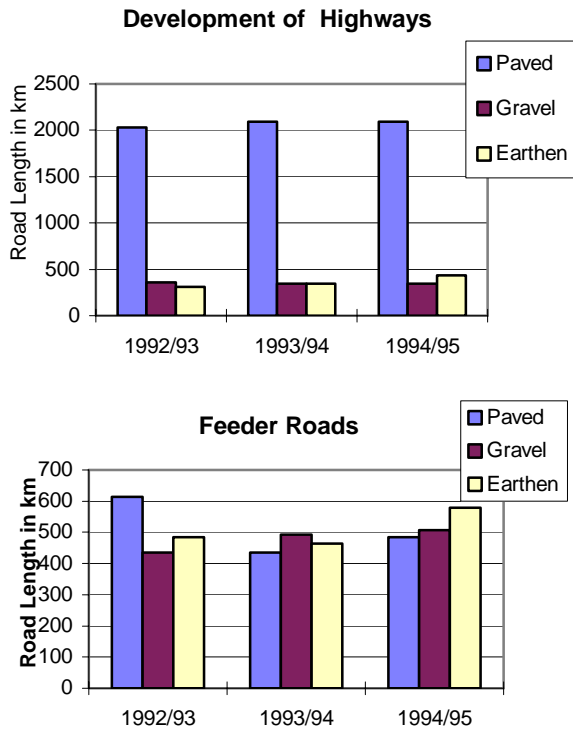


Fig. 1

shows some improvement of the network. Substantial increase in the Feeder road condition of good/fair is due to the completion of newly constructed roads. It can be seen that the Feeder Roads has deteriorated in the last two years with an increase in the length of

**Road Condition of National Highway**

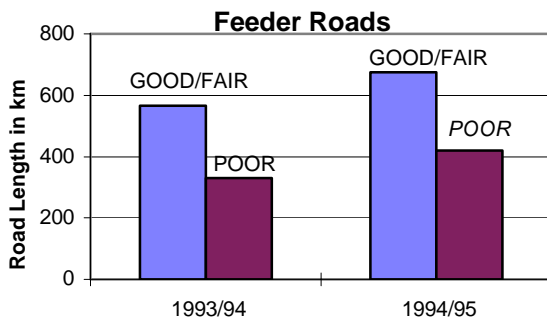
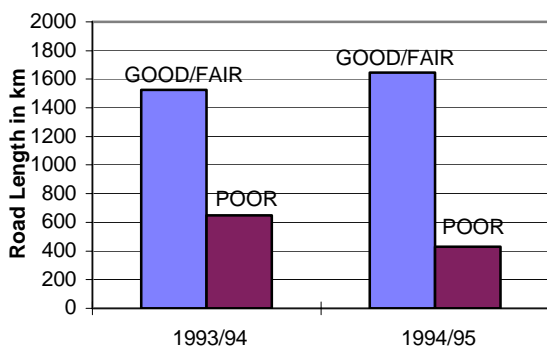


Fig. 2

the road in poor condition. This could be due to largely the result

of delays in implementing rehabilitation works. In the past, the maintenance of the road network suffered heavily as a result of inadequate funding and absence of mechanism to take care of maintenance in planned manner. This apparently resulted in a number of large segments of the SRN requiring very costly rehabilitation programmes. Such lessons from the past have focused attention on bringing the network into a maintainable condition through the execution of backlog periodic maintenance, rehabilitation and reconstruction of the network. The targeted programme is scheduled for completion by the end of 1999. The state of road in a maintainable condition will then facilitate the effective implementation of maintenance activities in a planned way rather than responsive way which was case in the past.

**ROAD ACCIDENTS (Cont'd from page 1)**

- Motorcycles and Private cars were the most involved vehicle types.
  - Worst accident occurred near the end of office hours between (16:00-1800). About a third of accidents occurred during darkness and a surprisingly most of them happened in the first two hours after midnight.
  - Seven accident clusters (three were pedestrian accident clusters) were identified, all were at junctions.
- On the basis of this DOR intends to take steps to improve pedestrian safety in collaboration with Nepal Police and Kathmandu Metropolis.

**ATTENTION**



**NEW TRAFFIC SIGN SYSTEM**

The Ministry's Standards Committee has approved the revised traffic sign and road marking system. The old signs are retained, but there are many new signs, and for the first time there are standards for road marking. Care has been taken to ensure that the signs conform to international conventions. Traffic sign regulations are being drafted, so that the signs will have legal status, unlike the present signs. A manual is to be published giving full technical details on the design and usage of the signs. Information on the new sign system will be circulated shortly, but in the meantime anyone who is specifying signs and markings should seek advice from the Traffic Engineering and Safety Unit, Design Branch - tel. 231 843.



**ONGOING ACTIVITIES IN PLANNING BRANCH**

1. Preparation of the DoR budget for fiscal year 1996/97 is going on. Maintenance budget is being planned for the first time based on the pavement condition survey
2. 15 Engineers from the central office is being trained to work with the computer.
3. Annual Pavement condition survey of the whole strategic road network has been completed
4. The first block of the pilot bio-engineering training course for engineers was completed on 5 th April and the second block will take place from 9 to 21 June 1996 at Kurintar.
5. An environmental assessment consultant has been working with the Geo-Environmental Unit to update the

road sector EIA guidelines, for three months upto the end of June 1996

## WHAT'S GOING ON IN - RMP CYCLIC MAINTENANCE

The progress of the Cyclic Maintenance Component of the RMP within the Maintenance Branch of the DOR was reported in the HMIS News September 1995 issue (Number 4). Since that time several advances have been made which have involved certain Regional Directors and Divisional Chiefs and following the recent Mid-term Review of this Component in April, regular updates to continually keep the DOR well-informed are essential.

A further four resealing training contracts (Packages 6, 7, 8, and 9) have been identified which will bring the number of potential Packages up to nine. These were explained at a recent seminar held in Pokhara to discuss the SMD's Yearly Plan of Operations. The locations of the contracts and the status of each is listed below:-

Pk	Road Ref.	Region	Division	Location and description	Length (km)
1	F 35	Western	Damauli	Anbukhareni to Gorkha	24.69
2	H 14	Far-Western	Mahendra nagar	Dhangadhi to Atariya to Godavari	22.98
3	H 1	Western	Butwal	Junction at Bardhaghat to Butwal	26.00
4	H 4	Eastern	Lahan	Kadmaha Chowk towards Gaighat	20.73
	F 4	Eastern	Lahan	Rupani towards Kunauli	10.26
5	H 7	Eastern	Damak	Charali towards Ilam	16.00
6	H 1	Mid-Western	Nepalganj	Kohalpur towards Karnali	30.00
7	H 12	Mid-Western	Nepalganj	Jamuniya to Kohalpur	22.33
8	F 12	Western	Shivapur	Chanauta to Krishnanagar	20.06
9	F 44	Western	Butwal	Bhairahawa to Lumbini	20.50

Status as at 30 April 1996:

**Package 1** - Lama/Tundi/P.S. Construction joint venture (contractors) sign agreement on 28 April and are currently mobilising. DOR engineer and overseer from the Division to be seconded to the local consultants CEMAT/DEVTEC joint venture during the supervision phase. Civil works likely to commence in June '96.

**Package 2** - Siruwa/Sagar/Sky/The Kanchanjunga joint venture (contractors) have received letter of acceptance, and are expected to sign the agreement early in May. DOR engineer and overseer from the Division to be seconded to the local consultants ITECO/TAEC joint venture during the supervision phase. Civil works likely to commence in July '96.

**Package 3** - EastConsult (consultants) commence design services on 28 April. DOR engineer from HQ Maintenance Branch, Mr. G. Shrestha seconded to the local consultants during the two month technical design phase. Civil works likely to commence in March 1997.

**Package 4** - SILT/ICON joint venture (consultants) approved to enter financial negotiations for their design and supervision services. Negotiations substantially completed. Civil works likely to commence in April 1997.

**Package 5** - The Evaluation Committee complete their evaluation report on the local consultants proposals. The report and recommendations to be forwarded to the MOWT through the DOR for approval to enter negotiations. Civil works likely to commence in July 1997.

**Package 6** - Location to be inspected by the Cyclic Maintenance Team and the Package confirmed. Civil works likely to commence in July 1997.

**Package 7** - Location to be inspected by the Cyclic Maintenance Team and the Package confirmed. Civil works likely to commence in July 1997.

**Package 8** - Location to be inspected by the Cyclic Maintenance Team and the Package confirmed. Civil works likely to commence in July 1997.

**Package 9** - Location to be inspected by the Cyclic Maintenance Team and the Package confirmed. Civil works likely to commence in July 1997.

### NEW SOFTWARE

## CALYX in GEU

CALYX is an expert system and database tool that has been designed to assist with the process of EIA. The development of The software has been carried out over a period of more than 8 years, starting in Canada with a system called Screener. The basic function of CALYX is to assist users in identifying the potential environmental impacts that a particular project may cause at a particular site and then to provide a relevant database of information on potential mitigative actions and appropriate monitoring. CALYX-ADB version was developed by ESSA Software Ltd. of Vancouver, Canada through the assistance of the Asian Development Bank to meet the needs of the ASIAN member countries. This software now is introduced in Nepal through the Technical Assistance of the ADB for the NES Nepal EIA Strengthening Project, Strengthening Interministerial Capabilities for Implementing EIA Guidelines. Presently for the first phase, the recipients of this system are Department of Roads, National Planning Commission, Ministry of Forests and Soil Conservation, Ministry of Population and Environment, Department of Mines and Geology, and Department of Housing and Urban Development.

CALYX has particular application in the scoping, terms of reference, IEE, and EIA review phases where it is important to ensure that a broad range of social, environmental, and economic impacts are considered in a systematic fashion.

CALYX-ADB provides assistance in: 1) Screening, 2) Scoping the TOR for EIA studies and reports, 3) identifying key issues and impacts to consider during the review of EIA reports, and 4) developing monitoring requirements and mitigation measures to attach to approvals. In addition the system provides information on environmental standards, mitigation measures, guideline documents, and laws and regulations. The information and knowledge on environmental impacts and mitigation measures contained in the system is based on experience gained with environmental impact assessment throughout the ASIAN region.

CALYX contains a set of impact rules that describe the conditions under which environmental impacts will occur based on general principals- not on specific legislation. These rules were initially developed in Canada and have since been extensively modified with input from various ASIAN countries including Thailand, Indonesia, the Philippines, and Malaysia.

Using the CALYX-ADB, following reports may be printed: Screening Report, Preliminary TOR, Detailed TOR, Checklist, Impact Report, Primary Impacts, Secondary Impacts, Assessment Report, and Terms and Conditions.

The CALYX-ADB is installed within the Geo-Environmental Unit of **HMIS DATABASE** individuals, please contact 31981.

## INSTALLATION OF dMAP Module

In this April HMIS database has been enhanced with the addition of the software developed by Deighton Associated "dMAP" - the mapping module. The addition of the module has made possible to generate the map based report using the data from the HMIS database. This software is programmed using AutoLISP language and works under Auto CAD environment with the strategic road network

### What is dMAP

Deighton Associates developed dMAP to provide their dROAD users with a data display component of a pavement management system. dMAP is a dROAD add-on that provides automated mapping capabilities. The purpose of dMAP provides users with a mechanism to display a variety of data in different formats on map of their network. Second, dMAP allows users to select one or more sections from the map and access any of the data in the dROAD database for viewing or editing.

### How dMAP Works

dMAP's main function is to link the data in a dROAD example, a user could show all roads in poor condition in red, those in fair condition in orange, those in good condition in yellow and those in excellent condition in green. This user could then select all the road sections displayed in red and could look at the data associated with those sections. dMAP uses AutoCAD to display the base map and to display any data that a user requests. dMAP uses custom-built software to form a link with the map and the dROAD database.

### A GIS Comparison

dMAP is not a GIS. It is an automated mapping tool. A tool that assists a user in creating maps of his dROAD reports and accessing his data through maps using AutoCAD.

The essential difference between a GIS and the dROAD - dMAP combination is in the approach. A GIS performs a two-dimensional spatial analysis that can relate polygons, lines and points through their spatial location using topology. dROAD and dMAP also uses topology and can perform this same kind of spatial analysis in one and half dimensions. The one and a half dimensions means that the spatial analysis can only be performed on lines (e.g., road sections) and points (e.g., reference points or bridges) and does not include polygons.

dROAD's dynamic segmentation is one of its primary features. And it is dynamic. And it is this dynamic segmentation function that is the key to our software's performance of this one and a half dimensional spatial analysis quickly and efficiently. Many GIS systems do not have dynamic segmentation as part of their list of functions. GIS systems use the much slower and cumbersome two dimensional logic to relate one road section to another.

### Advantages of dMAP

dMAP is written entirely in AutoLISP, therefore, dMAP uses either pull down menu s, side or top menus or keyboard commands,

A map created by dMAP corresponds closely to conventional map in that it may contain a graphical representation of the whole road network and any other entity of interest such as rivers and boundaries. And, with dMAP a user may create full color maps that show various characteristics of the road network using colors to highlight specific characteristics of interest. dMAP lets a roadway engineer work with maps in the same way he would with conventional maps. However, with dMAP he has more flexibility and more power than with a paper-based system.

### Developing a Link

To use dMAP a user must develop a link between a base map and the dROAD database. dMAP is used to join the road network on the base map to the data files in dROAD whose data describe

the attributes of the road network. Once this has been completed, all the capabilities of data display and updating are available from dMAP.

### Display Flexibility

dMAP's main function is to graphically display data on base map of a user's network using AutoCAD. dROAD knows when a user has dMAP installed. Knowing this, dROAD allows a user to save the results of any ad hoc query report in map file. A user can create as many map files as required. These map files contain the location of all pieces of road(or points) that met the search condition requirement of the query report.

When a user status up dMAP it automatically draws the base map on the screen. From there a user can place as many layers as desired on top of this base map. Each of the dROAD query report map files are treated as another layer on the base map.

In addition to displaying queries created in dROAD. in the dROAD also allows a user to review and edit the data in the dROAD database. This function is facilitated by the user first selecting one or more sections of road from the map. When in the BROWSE mode of dMAP, the user has the ability to look at any data for the selected sections and, at the same time, to edit the data.

### dMAP installation procedure in DoR

Initially a base map was digitized using available district map of the scale 1:125000 Originally the map was digitized using GIS software in Arc info format with the cooperation of strategic road network in GIS format Later on it was converted to Auto CAD format as dMAP recognize only the AutoCAD format.

Now necessary calibration of the map database, import & export procedure are being done to set up the dMAP system. Once the software is set up is complete HMIS will be able to produce reports with the varying color and thickness of lines in the map to represent various situation .

Digitized Map of Nepal with National Strategic Road Network can be obtained from planning Branch DoR.

## Do You Know what data are available in HMIS?



1. Description of Roads, its length depending upon the pavement type.
2. Description of links, beginning & ending chainage & locations; Administration responsible for the section of road(region, district, DoR division & region). Traffic data of for FY 1992/93 , FY 1993/94 & FY 1994/95.
3. Location of different reference points (permanent objects) along the road.
4. Pavement condition (roughness & SDI data ) of the roads in strategic Road Network for FY 1992/93 , FY 1993/94, FY 1994/95 & 1995/96.
5. Information about the committed sections, sections under construction and rehabilitation.
6. Pavement structure data of some of the major roads.
7. National average unit cost rate for major items of works on construction & maintenance for planning & budgeting purposes
8. Information on the availability heavy equipment in regions and projects.
9. Information on DoR project & division office location
10. Digitised map in ACAD & ARCINFO format.

## MORE LATEST NEWS

1. Silgadhi-Sanfegagar Feeder Road has been substantially completed
2. DoR now has 17 permanent bio-engineering nurseries. Bio-engineering works are on in 10 Divisional Offices.
3. DoR's has initiated action to evacuate illegal encroachment from the right of way.