

ECONOMIC POLICY NETWORK

Policy Paper 8

STRATEGIC APPROACH FOR NORTH-SOUTH CONNECTIVITY

(With Emphasis on Tourism, Trade, Industry and Agriculture)

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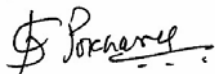
Inputs from various stakeholders during interactions at the NEA, Advisory Committee meeting, and the workshop organized by the EPN Focal Unit have been incorporated in the report. The names of people met during the interactions are included in annex 7 in this report.

Foreword

Economic Policy Network (EPN) is an undertaking of His Majesty's Government of Nepal (HMG/N) since August 2004 with an Asian Development Bank (ADB) technical assistance (TA) to develop and institutionalize an open, responsive and result oriented economic policy formulation process based on sound economic analysis and dialogues with the partnership of public and private sector, academia, and independent professionals, to support and consolidate the Government's economic policy reforms on poverty reduction strategy. The initial focus has been in the areas of macroeconomic management, trade, investment, employment, infrastructure, tourism, agriculture, and regional development through four thematic advisory committees chaired by the secretaries of the respective implementing ministries, and guided by a high-level steering committee. The present study is an outcome of the initiative under the Advisory Committee for Economic Policy on Infrastructure Development chaired by the Secretary of the Ministry of Physical Planning and Works.

The emerging economic giants, India in the south and China to the north, offer Nepal a strategic advantage as a transit point between the two nations and a market for our exports. In this respect, this paper was assigned to assess north-south connectivity, and prospects for the best alternatives to tap the emerging opportunities. The recommendations are the outcome of consensus reached among major stakeholders through various consultations and the EPN workshop. I hope the findings and recommendations will be helpful for policy makers for future reforms.

I would like to thank the Nepal Engineers' Association (NEA) for leading the study, and Mr. Iswer Raj Onta for carrying out the study on their behalf. I also thank all those who have provided inputs for the report during the interactions at NEA, the advisory committee meetings, and the EPN workshop. The work of the Advisory Committee for Economic Policy on Infrastructure Development is to be commended for selecting the issue and for following through with the study. I would also like to appreciate the entire EPN team for their hard work. I also thank the former Steering Committee chairperson (the then Chief Secretary of HMG/N) Dr. Bimal Prasad Koirala, for his guidance during his tenure. Last but not least, I would like to thank the ADB for supporting this initiative.



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Abbreviation

ADB	Asian Development Bank
AH	Asian Highway
BOT	Build-Operate-Transfer
CAAN	Civil Aviation Authority of Nepal
DDC	District Development Committee
DDG	Deputy Director General
DG	Director General
DoLIDAR	Department of Local Infrastructure and Agricultural Roads
DoR	Department of Road
DoTM	Department of Transport Management
DPR	Detailed Project Report
DTMP	District Transport Master Plan
EEPAN	Establishing Economic Policy Network
EIRR	Economic Internal Rate of Return
EWB	East-West Highway
FNCCI	Federation of Nepalese Chambers of Commerce and Industry
GDP	Gross Domestic Product
GNP	Gross National Product
GPS	Geographical Positioning System
HDI	Human Development Index
HMG	His Ministry of Government Nepal
ICD	Inland Clearance Depot
MOAC	Ministry of Agricultural & Cooperatives
MoF	Ministry of Finance
MoGA	Ministry of General Administration
MoICS	Ministry of Industry, Commerce and Supplies
MoLD	Ministry of Local Development
MPPW	Ministry of Physical Planning and Works
NEA	Nepal Engineers' Association
NEPECON	Nepal Engineering Consultancy Center
NPC	National Planning Commission
NRM	Nepal Resident Mission
NTB	Nepal Tourism Board
NTP	National Transport Policy
RBN	Roads Board Nepal
RNA	Royal Nepal Army
SRN	Strategic Road Network
STOL	Short Take off and Landing
TAAN	Trekking Agents Associations of Nepal
TOR	Terms of Reference
VDC	Village Development Committee
VOC	Vehicle Operation Costs
WTO	World Trade Organization

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EXECUTIVE SUMMARY

1. Despite various attempts in the past to address economic policy reforms, satisfactory and sustainable results could not be achieved due to various reasons. One of the issue identified was the lack of an institutional mechanism that could serve as a forum for economic policy dialogue based on sound analysis. HMGN requested assistance from ADB to establish Economic Policy Network (EPN) in the country.
2. The Advisory Committee on Economic Policy on Infrastructure Development selected 'Strategic Approach for North-South Connectivity with Emphasis of Tourism, Trade, Industry and Agriculture' as an instrument to improve Nepal's North-South Transport Connectivity which will enhance accessibility of people of remote hill districts and improved market integration, trade and service facilitation.
3. Roads and Civil Aviation continue to play an important role in Nepal's transport infrastructure. The total length of the road has increased from 6706 km in 1989 to 16,834 km in 2002. There are 50 airports/airstrips in the country. However air services are available in only 34 of the airports.
4. Despite the growth in total road network, diversification of agricultural activities has been slow. Limited road network connecting farm to market has been noted as one of the major constraint for accelerating the development of the agriculture sector in the country.
5. Nepal has experienced double digit growth in trading business in both exports and imports during 1990s. The total trade value was NRs. 174,283 million (\$ 3,421 million) in FY 2003/04. India remains the single largest trading partner of Nepal. Besides India, the largest exporter to Nepal is China. Trade between India and China is growing fast and more accelerated growth is expected in years to come. If Nepal could develop its north-south connectivity with International links, Nepal can play its role as 'transit country' for trade and commercial activities between China and India.
6. Industrialization of the country's economy is inevitable not only to add value to the primary commodities but also to employ burgeoning population displaced from the agriculture sector. Efficient and road network of quality construction which reduces the transportation cost of goods is of utmost important for the development of Industrial activities in the country.
7. Nepal has been a well known tourist destination because of its superb natural beauty, its unique culture and cultural heritages, well conserved national parks and innumerable attractive touristic places. The tourist arrivals peaked in the year 1999

with 491,504 arrivals. In recent years, decline in tourist arrivals have been experienced due to deteriorating security situation in the country. Development of transport access to the existing and future destinations need to be carefully planned, so that adverse impact to the touristic environment does not take place. While minimum air transport infrastructure exist to cater to most of the tourist destinations, several planned and existing north-south road network is expected to provide access to most of the tourist destinations. However, upgradation of existing facilities will be needed.

8. Nepal's main road networks consist of about 16,834 km (NRS 2002), of which 4,780 km is black topped, 4,519 km of gravel and 7,535 km is earthen road. Additionally it is also estimated that there are more than 5,000 km of village and agricultural roads, bringing the total road network to around 21,000 km.
9. The Strategic Road Network (SRN) comprising 15 designated National Highway and 51 designated Feeder Roads, is the basic national road system of Nepal. HMGN Department of Roads (DOR) is the responsible organization to develop and maintain the SRN. The total length of SRN is about 4,860 km. Other roads classified as District Roads, Urban Roads and Village Roads are developed and maintained by respective Local Government organizations namely DDCs and Municipalities under overall coordination of Department of Local Infrastructure and Agricultural Roads (DoLIDAR) under Ministry of Local Development (MOLD). All agricultural Roads comes under the overall jurisdiction of DoLIDAR/DDC.
10. The National Transport Policy (NTP) 2001 has consolidated the erstwhile policies and strategies followed during earlier periodic plans and has included broader objectives, strategies, policies and programmes related to transport infrastructure, transport vehicles and equipment, service levels, Institutions (organizations) and private sector participations.
11. DOR has also produced a 20 Year Road Plan (2002-2022) as well as Master Plan for Strategic Road Network covering these time period. DoLIDAR has also prepared a long term Transport Sector Plan based on Local Infrastructure Development Policy (2004).
12. The laws relating the transport sector are Public Roads Act (2031, Amendment 2035 B.S.); Vehicle and Transport Management Act (2049 B.S.); Road Board Act (2055 B.S.), Local Self Governance Act (2055 B.S.) and Civil Aviation Act (2015 B.S. last amended 2034 B.S.); and Nepal Civil Aviation Authority Act (2053 B.S.). Anomalies have been noted in laws relating to road sector and hence NTP 2001 has enunciated that an Integrated Surface Transport Act and rules will be enacted and implemented. It is believed that such Act is in preparation phase.

13. The expansion of road network achieved in the 1990s, has in recent times stalled and lacked much needed expansion and improvements. Even the road conditions of SRN which was fairly good at around 90% till 2001 has again shown decline, mainly due to the paucity of fund allocated for maintenance of the roads. Though Roads Board Nepal (RBN) has been recently established to improve the level of domestic funding for maintenance, it could muster only around Rs. 360 million in 2004/05, less than a third required for maintenance of SRN only. The investment in road sector normally should be at a level equivalent to about 2.5% of GDP (about NRs. 12 billion a year). The current investment is less than half needed (about NRs. 5.5 billion) to achieve the desired national growth rate of 6%. Adequate mobilization of domestic funding must be sought to properly maintain the road system.
14. The impediments identified in the road infrastructure and transport services are: (i) Lack of programme coordination; (ii) Lack of coherent and Integrated Road Sector Policy and Implementation Strategy (lack of focused investment based on economic objective and development outcome); (iii) Lack of effective regulations; (iv) Inadequate Road Sector Resource Mobilization; (v) Weak Institutional Capacity and Performance Constraints; and (vi) Lack of private sector participation to offset public investments in the sector.
15. The North-South transport corridors should be developed/improved keeping in view the following elements: (a) development of feeder roads/district roads to link large settlements and agriculture and other potential areas with the SRN; (b) development of feeder roads to link unconnected district headquarters with peoples' participation; (c) construction of cross-border links with China; (d) construct a new direct link between Kathmandu and the Terai (Fast Track Connection); (e) construction of broad gauge railway link with Indian Railway System and initiation of East-West electric railway system (wherever feasible); and (f) upgrade mountain STOL airstrips and provide efficient and dependable communication and navigational facilities.
16. Following recommendations for development of north-south connectivity has been made:

A. General

- Review Nepal Transport Policy 2001, and prepare a coherent, integrated and holistic Transport Sector Policy framework focusing on the transport need and wider economic considerations. Two new additional road classification such as 'Expressway' and 'International Highway' has been recommended.

- Promulgate a new Integrated Transport Act, which should include major elements of transport sector policy framework including updated comprehensive road classifications and responsibilities. Detailed regulations be prepared to avoid misinterpretation and misrepresentation.
- Reform organizational strengthening process of implementing organizations like DOR, DoLIDAR and CAAN.
- Restructure NPC and line Ministries to include effective programme coordination mechanisms.
- Prepare realistic Medium Term Expenditure Framework and 10 year Road Sector Investment Plan showing financial implications of proposed Road Sector Program.
- Include mechanisms to generate financial resources for road network maintenance and development in the Transport Policy and related Acts.
- Prepare enabling environment to attract private sector participation and donor funds in the transport sector.

B. North-South Connectivity

- Improve and maintain Arniko Highway to an ‘International Highway’ Level.
- DoLIDAR and DDCs identify feasible road links which enhance agriculture, tourism, trade and Industry based on 20 year road plan and DTMPs. DOR give adequate priority to link the growth centers (Agriculture, tourism, trade and industry) while completing the on-going SRN network.
- 18 km long, Syabrubesi-Keirung link be started as soon as possible. Jomsom-Mustang-Korela link to be completed as soon as possible. No further investment be made on China border link for another ten years.
- Improve Galchhi-Trisuli-Syabrubesi road to ‘International Highway’ level.

- A comprehensive feasibility study of 'Kathmandu-Terai' Fast Track connectivity be carried out as soon as possible and complete the Detailed Project Report (DPR) of selected route within 18 months time period.
- Conduct a detailed comprehensive study on the implications of developing Nepal as a 'transit country'.
- Initiate earnestly to develop broad gauge railway connections to Indian Railway System and plan for East-West Electric Railway System. Activate/ Establish a 'Railway Cell' in MPPW immediately.
- Make BOT laws attractive to private sector financing in infrastructure development including alternate International Airport(s).
- Upgrade and equip mountain airports to make it more safe and dependable.

1. INTRODUCTION

Nepal had launched several reforms in different sectors in the past, such as in economic policies, industrial policies, Transport Policies etc. as well as financial deregulations and decentralization Act to alleviate poverty, to enhance growth and achieve competitive environment. But due to inadequate contemporary and compatible implementation reforms in all sectors/sub-sectors, the reforms could not achieve efficiency and desired results were not forthcoming. Some of the issues identified for such a state of affairs have been weakness in the reform in institutional improvement as well as lack of institutional mechanisms that could serve as a forum for economic policy dialogue among all stakeholders including public-private interface, so that the policy reforms adopted could be more effective.

HMGN being aware of this gap requested Asian Development Bank (ADB) to assist in Establishing Economic Policy Network (EEN) in the country, which will enhance the communication of ideas of economic policies around the country. In course of the EEN activities, the committee on 'Economic Policy on Infrastructure Development' which consists of member also from professional societies, selected among others 'Strategic Approach for North-South connectivity with Emphasis on Tourism, Trade, Industry and Agriculture' as an instrument to improve Nepal's North-South connectivity which will enhance accessibility of people of remote hill districts to promote a more inclusive development process and improved market integration, trade and service facilitation as well as enhancement of international trade.

The present study was done as an exercise to assist to develop a strategic approach to promote broad-based economic growth by fostering North-South connectivity. The task details were to (i) Review current and planned transportation networks and relevant policies related to north-south connectivity; (ii) Assess the progress in transportation development and identify constraints in achieving the goals; (iii) Prioritize north-south connectivity; (iv) Identify prospects for public-private partnership; and (v) Suggest policy improvements and policy-action matrix (see the Terms of Reference of the Study in Annex-1).

1.1 Limitations and Methodology

The major limitation to do justice to this important study was the time allocated for this study, which was of the period of one month. Hence the report necessarily will be schematic in many areas. The methodology adopted was the study and review of the related available literatures. Some interviews were also carried out with stakeholders' representatives in government as well as in private sector to get some insights on related issues.

1.2 The Context

1.2.1 Background

By the end of 2004, Nepal's transport system comprise primarily of more than 22,000 km of Roads including the village roads and 50 airports. The topographical features of the country calls for integration of social, cultural and economic aspects in the north-south orientation as the country is shaped with elongation in the East-West direction. The mountains and hills in the north and flat Terai region in the south has now been physically connected, at a skeletal level, by means of 15 national highways and more than 50 feeder roads. It is now imperative that the nation must take the advantage of the existing transport network and develop a concrete strategic approach for north-south connectivity with emphasis on tourism, trade, industry and agriculture for the enhanced development in terms of social, cultural and economic development, giving adequate attention towards expansion of the existing transport network. The strategic approach is expected to chart out a direction on how to maximize the benefit out of the existing transport network and calls for a preparation of an action plan to contribute towards the national goal of sustainable development.

1.2.2 Physical Setting

Nepal, a landlocked and by and large a mountainous country has relatively poor transport connectivity system in the modern parley. Nepal is situated between two large Asian nations China in the north and India in south, east and west. The country covering a total area of 147,181 sq.km has very diverse physical characteristics like topography, climate, geology and land use system, crisis-crossed by numerous rivers, which posses a considerable hindrances to develop an efficient modern transportation. It has the world's highest mountain, Sagarmatha, with an altitude of 8848m. The lowest elevation is 64 meters above mean sea level at Kechana is eastern terai district of Jhapa. Ecologically, the country is divided into three regions, namely, the Mountains (Himalaya), the Hills and the Terai (Plain area).

1.3 Population

Nepal, one of the least developed country, with an ever growing population of about 23 million (2001, Census), has an annual population growth rate of 2.25%. The geographic distribution of the population is around 7.3% in the mountain and the rest being almost equally divided between the hills (44.3%) and plain Terai (48.4%). The population density is 33 persons per square kilometer in the mountains whereas the hills and the Terai have 167 and 330 persons per square kilometer respectively. Out of the total population, 86 percent live in rural areas and 14 percent live in urban areas.

1.4 Socio-Economic Setting

Human Development Index (HDI) is the measure of human development, which is considered one of the important indicators of overall development of any country in the world. The HDI for Nepal has been computed at 0.526 and ranked 136 among a total of 177 countries according to Human Development Report 2005. Nepal is labeled as one of the least development countries with an annual per capita Gross National Product (GNP) estimated at around US\$ 300^{1/}.

The life expectancy at birth is about 61 years, with average literacy of 53.7%. Net primary school enrollment has, however, moved upward to 80.4% and infant mortality rate has come down to 64 per 1000 births.

Poverty in Nepal has persisted since long and now hovers around 30 percent inspite of focused intervention since a decade.

1.4.1 Gross Domestic Product Scenario

The GDP at current market price has increased from Rs. 99.70 billion in 1989/90 to Rs.191.59 billion in 1993/94 and it went up to Rs. 406.13 billion in 2001/02. The GDP is expected to reach Rs. 474 billion (revised estimates) in 2003/04 and Rs. 504 billion (preliminary estimates) in 2004/05. The GDP growth trend is shown in Table 1.1.

The share of agriculture sector, the largest sector, in the GDP was Rs. 50.47 billion (50.62%) in 1989/90 which is expected to grow to Rs. 193.29 billion in 2004/05 while in percentage terms it is expected to decline to 38.34%. The non-agricultural sector is showing remarkable growth in quantum from Rs. 49.23 billion to Rs. 310.81 billion during the same period, contribution in terms of percentage is also expected to grow to over 61%. This shows occurrence of structural change in the national economy.

Transport, communications and storage sub-sector has also shown remarkable growth and percentage contribution grew to 9.43% from 5.74%. It is to be noted that the total length of the road has also increased from 7,036 km in 1989 to 17,182 km in 2004 (village roads are not included in this statistics).

^{1/} Source: Economic Survey, HMG, MOF, 2062 (July 2005).

**Table 1.1: Growth Trend of the Gross Domestic Products (GDP)
(At Current Price)**

In millions of Rs.									
Fiscal Year Sector	1989/90 (2046/47)	1993/94 (2050/51)	1994/95 (2051/52)	1998/99 (2055/56)	1999/00 (2056/57)	2001/02 (2058/59)	2002/03 (2059/60)	2003/04* (2060/61)	2004/05** (2061/62)
1. Agriculture	50,470 (50.62)	80,589 (42.06)	85,569 (40.75)	132,373 (40.11)	145,131 (39.63)	160,144 (39.43)	171,104 (39.11)	183,357 (38.67)	193,291 (38.34)
2. Non-Agriculture	49,232 (49.38)	111,007 (57.94)	124,407 (59.25)	197,645 (59.89)	221,120 (60.37)	245,994 (60.57)	266,442 (60.89)	290,772 (61.33)	310,810 (61.66)
• Transport, Communications and Storage	5,724 (5.74)	12,625 (6.58)	13,995 (6.66)	24,631 (7.46)	29,336 (8.00)	34,652 (8.53)	38,286 (8.75)	43,664 (9.20)	47,558 (9.43)
Total:	99,702 (100)	191,596 (100)	209,976 (100)	330,018 (100)	366,251 (100)	406,138 (100)	437,546 (100)	474,129 (100)	504,101 (100)

Note: The fiscal years in parenthesis are Nepalese years; other figures in parenthesis are in percentage points.

* Revised Estimates

** Preliminary Estimates

Source: *Economic Survey 2004/05, HMG, MOF; July 2005.*

1.4.2 Agriculture

Agriculture is the main source of livelihood for a majority of the population of Nepal. More than 80% of the population is engaged in agriculture and it is still the largest sector of economy contributing around 39% towards Gross Domestic Product (GDP). It is still characterized by its subsistence orientation, low input and low productivity. However, with recent penetration of road networks into the rural areas, agriculture diversification towards income generating activities are slowly emerging. The food grain production rose from 2.84 million tons in 1957 to around 7.74 million tons in 2004, while the population grew from 9.4 million to around 24.0 million. The cultivated land has also expanded from 1.4 million hectares to 2.64 million hectares during the same period. The scope of further expansion of arable land has diminished and therefore the increase in the food grain production depends mainly in the growth in agriculture productivity. The potential to increase substantially the food grain productivity exist in Nepal.

Efficient transport connectivities between the production centers and the market will encourage production of all tradable agriculture products. The north-south roads will enhance

the development of agriculture which has ecological comparative advantages, shown such as by the recent surge of 'off-season vegetables' productions in the hill districts of Nepal, which has efficient road networks. 'Dhankuta Hills' vegetable production model, after opening of Dharan-Dhankuta-Hile-Basantpur road is one such example. The surge in dairy produce like milk in hilly districts is also the result of development of north-south road networks. However limited road network connecting farm to market has been noted as a major constraint for accelerating the development of the agriculture sector in the country as a whole. It is also true that transport access is a necessary condition but not a sufficient condition for agricultural growth in the country.

1.4.3 Trade and Commerce

Historically, Nepal had been an entrepot for commerce and trade between Tibet Autonomous Region of China in the north and India in the south. Even at recent times Nepal's economy is highly dependent in foreign trade. Nepal has an open border with India, by virtue of this it is surmised that substantial volume of informal trade exist between India and Nepal, through the porous border. It is therefore estimated that share of trade to GDP is about 50%. Nepal has experienced double digit growth in trading business in both exports and imports during the 1990s. The rate of export growth (11.4%) was slightly lower than the rate of import growth (14.2%). In FY 2003/04, Nepal's exports increased by 6.4%, imports increased by 15.5% with a total trade value of NRs. 174,283 million (\$ 2,421 million), representing a 23.1% increase over the previous years.

India remains the single largest trading partner of Nepal. In FY 2002/03, nearly 48% of Nepalese exports consisting mainly of primary commodities were destined for India, while nearly 22% of all imports originated from India. Besides India, the largest exporters to Nepal are China (13.2%) and United Arab Emirates (11.3%)^{2/}. Despite the narrowly based, the trade has been a key factor behind the acceleration of Nepal's economic growth in the 1990s.

Trade between China and India is growing fast and more accelerated growth is expected in years to come. Chinese economy is growing rapidly with high annual economic growth rate (over 9%) since last couple of decades and India is experiencing similar growth (around 7%) in its economic front since last several years. It is also to be noted that the Tibet Autonomous Region is undergoing tremendous economic transformation and presently a vibrant region. If Nepal could develop its north-south connectivity with international links, it could replay its historical role as transit country for increase in trade and commercial activities between China, India and beyond. Recent pronouncement by the Head of State that Nepal could

^{2/} Source: Asian Development Bank: Report and Recommendation of the President to the Board of Directors on a proposed loan to the Kingdom of Nepal for the sub-regional Transport Facilitation Project; October, 2004.

develop as a transit nation emphasizes towards the growth in transaction of trade through surface transport. The opening of commercial bus services between Kathmandu and Lhasa on May 1, 2005 is also a good beginning towards international connectivity.

1.4.4 Industry

In spite of certain improvements in the industry and commercial environment during last decade, the contribution of Industrial Sector in the total gross domestic production has not been able to cross 10 percent level. The industrialization of the country's economy is in fact in a very dismal situation. The recent security environment has exasperated this fragile sector. Over the period of past 12 years (1990 to 2002) number of cottage and small scale industries registered has exceeded 95,000 units with total fixed capital amounting to Rs. 72.46 billion. More than 90 percent of the numbers of industries fall under the category of cottage and small industries. However, if the north-south transport connectivity could be developed, the proposed Special Economic Zones to be established in hill regions like in the Panchkhal of Kabhre district and Bidur of Nuwakot district could be a feasible propositions. Given the conducive environment, not only the bio-diversity based various agro-based industries but value added industries could also be promoted and established. Industrialization of the country's economy is inevitable not only to add value to the primary commodities but also to employ the burgeoning population displaced from the agriculture sector. Efficient and road network of quality construction which reduces the transportation cost of goods is of utmost important for the development of industrial activities in the country.

1.4.5 Tourism

Tourism is a world's largest industry and has been growing at an accelerating pace. In 2000, the world tourism industry served 698 million people travelling internationally, which generated economic activities worth US\$ 4.76 billion. World Trade Organization (WTO) predicts that by 2020, 1.6 billion people will travel internationally.

The Himalayan mountain chain of Nepal, consisting of 8 out of world's 14, higher than 8000 m high mountain peaks including Mt. Sagarmatha (Mt. Everest) with 8848 m, is one of the world's most spectacular natural areas. Because of this fact, Nepal has been named as one of the places to visit and see the Mt. Everest once in one's life time by famous 'Travel Trade' global organizations. It can be safely assumed that there will be a stream of tourists every year and from every new generation of people world over, and increasingly so, if adequate and safe tourism infrastructure can be developed. Therefore mountain tourism has a great potential in Nepal, provided the pristine nature of it can be reasonably maintained.

Another world renowned place is Lumbini, the birth place of Lord Buddha. Buddhist the world over, aspire to visit Lumbini also atleast once in one's life time. The world is inhabited

by almost 2 billion people, who have faith in Buddhism. Nepal is also an attractive pilgrimage place for almost 1 billion people with faith in Hinduism. Therefore, the pilgrimage tourism has also another great potential in Nepal.

Nepal has been a well known tourist destination because of its superb natural beauty, its unique culture and cultural heritages, well conserved national parks and innumerable attractive touristic places. The tourist arrivals peaked in the year 1999 with 491,504 arrivals (see Table 1.2) a year after a tumultuous ‘Visit Nepal Year’ 1998 celebration. The target was 500,000 tourist arrivals.

Table 1.2: Tourist Arrivals and Gross Foreign Exchange Earnings		
Year	Tourist Arrivals	Gross Foreign* Exchange Earning (in ‘000 US\$)
1990	254,885	63,700
1991	292,995	58,589
1992	334,353	61,090
1993	293,567	66,337
1994	326,531	88,195
1995	363,395	116,784
1996	393,613	116,644
1997	421,857	115,904
1998	463,684	152,500
1999	491,504	168,100
2000	463,646	166,800
2001	361,237	140,200

* Excluding earnings from Indian Tourist

Source: Ministry of Culture, Tourism and Civil Aviation (2000); CBS (2000, 2001); MOF (2001); Tenth Plan (2001)

Out of the total arrivals, more than 25% came for trekking and mountaineering and over 50% for holidaying and pleasure. In recent years further decline in tourist arrivals have been experienced, mainly due to deteriorating law and order situation in country. Some 288,356 tourists visited Nepal by air in 2004, while the total number of tourists entering the country was 265,600 by air in 2003 (Source: Immigration Office, Tribhuvan International Airport, Analyzed and Compiled by Nepal Tourism Board).

The tourism industry has been one of the important sector contributing towards the foreign exchange earnings. In spite of the decline in tourist arrival, in recent years, this sector still contributes around 15% in the total foreign exchange earnings and contributes around 3.0% towards GDP.

Another potential touristic areas are Nepal's protected areas. The protected areas covers 14% of the country's total area. There are 17 number of locations covered by national parks (8 Nos.), wildlife reserves (4 Nos.) conservation areas (4 Nos.) and hunting reserve (1 No.).

While efficient and comfortable transport infrastructure is important for the development of tourism, the development of transportation access to the tourist destination need to be carefully planned, so that adverse impact to the touristic environment does not take place. While minimum air transport infrastructure exist to cater to most of the tourist destination, several planned north-south road network is expected to provide access to many identified touristic spots. For example, the road access to the two existing popular trekking and mountaineering destinations like Sagarmatha National Park and Annapurna Conservation area should be further developed only after adequate consultation with tourism entrepreneurs and other stakeholders. The Langtang National Park is well connected with transport system, further development except the upgrading of the road serviceability may not be warranted for the time being. The planned road to Kimathanka in the Arun Valley will serve adequately the Makalu-Barun conservation area and national park. The Arun valley road also opens up the possibilities of harnessing the identified hydropower potential (over 1000 MW) of Arun River. Similarly, other planned hill roads will enhance access to other tourist destinations.

2. THE TRANSPORT SECTOR

The transportation system plays a major role in the socio-economic development of a country. In Nepal, practically all modes of transportation are in vogue, but efficiencywise, much remains to be done at desired level. Following six modes of transportation exists in Nepal.

i. Air Transport

There are around 50 airports/airstrips in the country. However, commercial air services including helicopter services are available in 34 of these airports. There is one international airport in Kathmandu. There are 11 airports with asphalt surfaced runways including Kathmandu airport and rest are either gravel or earth strips.

Demand on international airports outside Kathmandu viz at Pokhara, Lumbini and Nijgadh (in Terai alternative to Kathmandu airport) is increasing. International airport at Nijgadh should be developed as South-Asian hub airport and experts also believe that the location is well placed to be attractive for International flights between Europe and the Far East.

There is also need to upgrade runways in several domestic airports including upgrading navigational aid and radio communication systems, so that air transport becomes more dependable and safe, even during bad weather conditions.

ii. Railways

Recent broad gauge railway connection from Raxaul in India to Birganj in Nepal has opened the possibility to have railway link with large network of railway system in India. The cost of transport of goods by railway network will reduce the price of goods substantially in comparison to truck traffic. It has also opened the possibility of extending the railway system in Nepal. East-West electric railway system is now contemplated and if undertaken, it will reduce the present cost of transportation of men and material substantially.

Another narrow gauge 52 km long railway between Jaynagar and Janakpur in central Terai in Nepal is in existence, since 1936. It has, however, quite limited use and is in need of upgradation.

iii. Ropeway

A 42 km long ropeway between Kathmandu and Hetauda was in commercial operation since 1964. At present, the ropeway does not function and preparation is underway to handover / sell the ropeway to private sector operator. Another short ropeway serving religious pilgrims to Manakamana temple in Gorkha district is being owned and operated by private cable-car operator. The success of Manakamana Cable Car has attracted such private operators to explore possibilities of cable-car systems elsewhere such as at Sworga Dwari Temple in Pyuthan district. In future, there are potentials for the development of ropeways in touristic destinations in several locations in the country.

iv. Main Trails and Tracks

Trails and tracks are still an important elements of Nepal transport system for essential links between rural villages, administrative centers and the national road system. It is estimated that there are over 16,000 km of main foot trails and mule tracks used by human portage and mules to transport essentials as well as construction goods. Suspension and suspended bridges are constructed to cross over numerous rivers and rivulets on such trails in the hill and mountain districts.

v. Roads

Around 17,000 km main roads networks of different categories are presently the principal transport mode of modern Nepal and this will unlikely to change in the foreseeable future. Road networks are classified as National Highways (3028 km), major Feeder Roads (1664 km), minor Feeder Roads (168 km), District Roads (9775 km) and Urban Roads (2200 km).

vi. Waterways

Waterways are the cheapest mode of transportation. Waterway transport in Nepal is still at a primitive stage, mainly because the larger rivers in Nepal have numerous rapids in its hill reaches and very little trade in Terai reaches of large rivers like Karnali, Gandaki and Kosi. Waterways is not perceived as an important mode of transport in the socio-economic development of the country.

2.1 Road Transport Network

Nepal's main road networks consist of about 16834 km* (4780 km of black top 4,519 km of gravel and 7,535 km of earthen road), plus there are about 5,000 km of village and agricultural roads, bringing the total road network to around 21,000 km.

In 1994, following the revision of road classification and the development of the road network concept, there were major changes in policy regarding development of roads in Nepal. Table 2.1 shows the types of roads and current responsibility.

Road Class	Description	Road Length (km), (2002)	Responsibility
National Highway	Main arterial routes connecting major towns and Administrative Centers	3,027	The strategic Road Network (SRN). Responsibility of Department of Roads (DOR)
Feeder Roads	Important Roads that Feeds into National Highway	1,832	
District Roads	Roads Connecting groups of villages within a district to roads of a higher class.	9,775	The District Transport Network. Responsibility of District Development Committees (DDCs) Coordinated by Department of Local Infrastructure Development and Agricultural Roads (DoLIDAR).
Urban Roads	Roads within Municipal Boundary (Except SRN)	2,200	Responsibility of Municipalities Coordinated by DoLIDAR
Village Roads	Non-through Roads Linking Villages to Roads of Higher Class.	> 20,000	Village Transport Network. Responsibility of Village Development Committee (VDC/DDC) Coordinated by DoLIDAR

Source: DOR, Transport Connectivity Sector Project T.A. NEP 4347, Inception Report, Oriental Consultants in association with ITECO and NDRI, November 2004.

* Nepal Road Statistics-2002.

Out of the total main road networks, regional distributions were 3481 km (21%) in the eastern region, 6665 km (40%) in the central region, 2955 km (17%) in the western region, 2215 km (13%) in the mid-west and 1518 km (9%) in the Far-western region by the end of 2002. Of these roads, 28% had black top, 27% gravel and 45% had earth surface.

Similarly, distributions on ecological regions were 740 km (4%) in the mountain, 7588 km (45%) in the hills and 8506 km (51%) in the Terai regions of the country. The density of road (km/100 sq.km) in the country as a whole is around 11. Ecological regionwise, the density of road in mountains is 0.14, in the hills 12.37 and in the Terai is 25.. In spite of the emphasis given to connect administrative district headquarters, 15 district headquarters out of 75 districts are still not connected by the road networks.

Strategic Road Network (SRN)

The Strategic Road Network is the basic national road system of Nepal. The Network consists of designated 15 National Highways and 51 Feeder Roads. The designations, name of the highway/roads and the length is presented in Annex-1 and Annex-2. Some of the links of the designated highways and feeder roads are under construction and some links of some highways are still under 'planned' category. About 186 km of national highway and 80 km of feeder roads are under construction and around 274 km of national highway are under 'planned' category.

The Mahendra Rajmarg (East-West Highway) is a part of Asian Highway Route AH2 and the Arniko Rajmarg and part of Prithvi Rajmarg are part of Asian Highway Route AH42.

District Roads

The district roads play an important role in connecting large settlements and rural production centers to SRN and market centers. District Road Networks are developed by DDCs in close coordination with DoLIDAR. District Transport Master Plan (DTMP) for each district is planned and so far 59 districts have prepared DTMPs. Five districts are in the process of preparing DTMPs.

Village Roads

The village roads are of immense important for the socio-economic development of those innumerable village settlements of Nepal. The connectivity of these roads to district and SRN are the responsibility of VDCs and DDCs. Many VDCs and the communities therein, are taking direct interest for road connectivity constructions in recent times.

3. THE TRANSPORT SECTOR POLICY, STRATEGIES AND LEGAL FRAMEWORK

3.1 Policy and Strategy

Nepal had around 376 km of vehicular road, one airstrip and less than 100 km of railway track to connect the border towns of Birgunj (Amlekhgunj and Jaynagar / Janakpur to India Railway system, before the advent of democracy in 1951. Therefore the transport policy and strategy during early period was necessarily geared towards administrative integration of different parts of the country.

Development of road network and airports in difficult hilly region had been given the highest priority during early three plan periods. Roads and civil aviation continue to play an important role in Nepal's transport infrastructure.

Between the period of 1951 to 1970, the road development policy and strategies mainly focused on the following:

- To facilitate movement of goods and services within the country without having to use the transport network of neighbouring India (hence the construction of East-West Highway);
- To strengthen administrative, social and political linkages (no. of airports in the hills and mountains were constructed); and
- To facilitate external as well as internal trade and commerce (advent of North-South road concept).

In early seventies, this approach was supplemented by the growth-axis strategy adopted for socio-economic integration of mountains, hill and Terai. The growth axis concept was incorporated in the Fourth Plan (1970-1975). The North-South road programmes received greater emphasis during this period.

The expansion of road network during seventies and eighties resulted in increase in several folds (from around 2000 km to over 7000 km) in its total length of the road but allocation of fund to upkeep already constructed roads including regular maintenance did not get adequate attention. Due to lack of maintenance, heavy depreciation of road assets occurred during late eighties.

The eighth plan (1992-97) introduced for the first time, a policy towards maintenance of roads to reduce road user cost while keeping the total transport cost to a minimum. Priorities were given for rehabilitation, periodic maintenance and reconstruction of roads.

Another major changes in policies occurred during 1994, after the revision of road classifications to SRN and other type of roads. By then the total length of the road system was close to 10,000 km. The Department of Roads, hitherto managing all types of roads in Nepal was entrusted with the responsibility of development and management of Strategic Road Networks only, whereas the district, urban and village roads development and management were given over to local governments supported by DoLIDAR in Ministry of Local Development.

The National Transport Policy (NTP) was published, for the first time, in 2001. NTP requires formulation of Integrated Transportation Act to replace the existing Public Roads Act (2031 B.S., amendments in 2035 B.S.). The policy has classified the road systems as Central Level Transport System and Local Level Transport System. Maintenance and improvement of central road system is to be based on traffic level and the economic rate of return. Other areas like Institutional mechanisms, private sector participation, transport vehicles etc. have been covered satisfactorily in this policy.

A 20 year Road Plan was produced in July 2002. The 20 year plan covers the period from 2002 to 2022. Five main objectives have been enunciated, they are (a) strengthening political and administrative linkage, (b) poverty alleviation, (c) development and utilization of social, economic and cultural potentials, (d) minimization of transportation cost, and (e) minimization of adverse effect on the environment. It envisages additional construction of 4040 km of SRN during this period and investment required is shown as Rs. 36,153 million. The total length of SRN is expected to reach 9,200 km.

In June 2004, DOR came up with 'Master Plan for Strategic Road Network' also covering the period between 2002-2022. The strategy has set out (i) extension of the strategic road network, (ii) to maintain the road network effectively and efficiently through asset preservation, (iii) to provide and improve existing access to all district headquarters, and (iv) to develop roads to complement the poverty reduction program and improve access to the mid-hills and Terai.

DoLIDAR has drafted a long term Rural Transport Sector Plan based on Local Infrastructure Development Policy (2004). Local Transportation System consists of rural road, urban road, trails, trail bridges, ropeway, cable car and waterways relating to local infrastructure development.

In the 10th Five Year Plan (2002-2007), certain policy and strategy has been adopted, which are enunciated as:

- Civil Aviation :
- (i) Construction of one new international airport;
 - (ii) Construction of one medium sized international airport for the development of tourism, import and export trade;
 - (iii) Private Sector participation will be extended in air transport service;
 - (iv) Security will be strengthened in Tribhuvan International Airport; and
 - (v) Establish and extend satellite based communication and navigational aid system.
- Transportation:
- (i) The construction of north-south roads will be given high priority;
 - (ii) Roads connecting district headquarters as well as upgrading of postal roads will be carried out with priority;
 - (iii) Mid-hill East-West Highway concept will be encouraged;
 - (iv) Road project under 20 year road plan will be gradually implemented under public – private partnership;
 - (v) Local government will be given responsibility for the development and management of local level projects. Labour intensive technology will be adopted to protect environment and to increase employment;
 - (vi) Roads will be taken up under the policy of Build-Operate-Transfer (BOT);
 - (vii) Railways transport will be developed in such a way that it could integrate the railway system of neighboring country;
 - (viii) Perspective plan of waterways development will be developed; and
 - (ix) Private sector will be encouraged in the construction and operation of cable car and ropeways.

3.2 Legal Framework

The laws relating to the transport sector are Public Roads Act (2031 B.S. Amendment 2035 B.S.); vehicle and Transport Management Act (2049 B.S.); Road Board Act (2055 B.S.); and Local Self Governance Act (2055); Civil Aviation Act (2015, Last Amendment 2034 B.S.) and Nepal Civil Aviation Authority Act (2053 B.S.). Regulations related to transportation are Financial Administration Rules 2056, Local Body Financial Rules 2056, Local Self Governance Rules 2056 and Road Board Rules 2060 etc.

Public Roads Act (2031) has classified the roads into four categories viz Highway, Feeder Roads, District Roads and Urban Roads and the Act has authorized His Majesty's Government to fix Right of Way not exceeding 31 meters either side from the center of the road.

The Act mentions about the maintenance of the road, but very little has been said on that score. Similarly issues like safety, environmental aspect and traffic have not been dealt with adequately. But there are subjects like 'development tax' on adjacent land which have been dealt in detail but not implemented so far. Similarly, in vehicle and Transport Management Act (2049 B.S.) many subjects have been dealt with but implementation do not seem satisfactory.

4. ISSUES RELATED TO ROAD SECTOR

Road transport is the major transportation mode that dominates the transport sector for moving passenger and freight traffic in Nepal. Expansion of road network which attained close to 7% a year in the 1990s has stalled in recent years, mainly due to the impact of prevailing conflict situation and security problems. Allocation of financial resources has also declined from about 10% of total HMG-N budget in the 1990s to around 5% since 2001. The road network density could not be increased satisfactorily and remains low, while the road quality and standard, by and large, is fair to poor. This has limited the prospect and growth of economic development especially through high valued agricultural products and delivery of social services in remote hill and mountain districts.

The condition of SRN, which was fairly good at 90% till 2001 has again shown decline, mainly due to paucity of fund allocated for maintenance of the roads. HMGN has recently established on 30 Dec. 2002, Roads Boards Nepal (RBN) with a view to improve the level of domestic funding for maintenance. However, the RBN, which became operational in 2004, could muster only around Rs. 360 million in 2004/05, less than a third required for maintenance of SRN only. If the foreign donors can not be further attracted towards maintenance and if the RBN can not generate sufficient funds, there is a danger that the SRN road conditions will further deteriorate with costly rehabilitation consequences. The SRN roads must be kept in good condition to induce all round economic and social development of the nation, including existing north-south connectivity. RBN must be strengthened and adequate internal resources must be generated in not too distant future to sustain the growth as well as to maintain the road transport system. The existing levy on petrol and diesel (Rs. 1.00/litre of petrol and Rs. 0.5/litres of diesel) should be atleast doubled immediately and aim to levy upto 10% of the purchase price of those fuel. Other revenues, like surcharge in vehicle spare-parts and increase in road 'Toll' charges should gradually be increased to finance all maintenance and some development program of road infrastructure.

4.1 The Issues

Some of the major issues identified in the road infrastructure and transport services are: (i) Lack of programme coordination; (ii) Lack of coherent and integrated Road Sector Policy and implementation strategy; (iii) Lack of effective regulations; (iv) Inadequate road sector resource mobilization; (v) Weak institutional capacity and performance constraints; and (vi) Private sector participation.

i. Lack of Programme Coordination:

As mentioned earlier Nepal has attempted reforms in many sectoral areas through policy pronouncement and in some areas with legislative measures as well. But due to lack of coordination, as well as due to lack of compatible implementation reforms, the outcomes has not been satisfactory. The sectoral government ministries and

departments are grossly biased towards its own mandates and conveniently ignore the reform and programme activities that involves other sectors including private sector. Some stakeholder alleges that government entities want to coordinate but do not like to be coordinated. National Planning Commission (NPC) an apex coordinating body, in theory, also continues to be sectoral oriented according to the work division of members (agriculture forestry, transport, social services etc.) It is imperative that NPC should consider changes in its organizational structure and the crucial coordination activity should be given a priority attention. Similarly, the government ministries should also orient itself towards integrated approach of development activities and be amenable towards to be coordinated.

ii. Lack of Coherent and Integrated Road Sector Policy and Implementation Strategy

Nepal has been following over-riding political and administrative objectives of connectivity to district headquarters, since the beginning of the planning exercise and still continues as expressed in Nepal Transport Policy, road sector strategy and successive Five Year Plans. While that strategy is imperative in view of the overall national needs, time has come to review this policy to integrate this connectivity plans with wider development considerations including inclusive development* and outcomes. A policy to provide transport access to relatively large settlements (say the settlements of more than 2,500 people) and potential economic growth centers, along completed SRN route or otherwise, regardless of whether they are in connected or unconnected district headquarters, should now be adopted. A more coherent, integrated and holistic policy framework focusing on the transport needs of the population and the economy needs to be developed.

An integrated holistic Transport Act, as envisaged in NTP, should be in place, as soon as possible. There may be a need to add a new classification in the road system to cater to the need of 'fast track roads'. 'Expressway', category based on traffic volume and economic return may be added. Similarly 'International Highway' category can also be envisaged during reclassification of road system.

The Civil Aviation Policy, 2050 also needs to be revised to be consistent with the National Transport Policy, 2058.

* Gurung, Dr. Harka 'Nepal Regional Strategy for Development'; Working Paper Series No. 3, Nepal Resident Mission, Asian Development Bank; June 2005.

iii. Lack of Effective Regulations

The existing Act and related rules have provisions, which normally gives prerogative authorities to government officers (usually to be identified when needed). There are matters, which are vulnerable to misrepresentation and misinterpretation, lack clarity and are subject to varied interpretations. It is advisable to include major elements of Transport Development and Management Policy(ies) in each mode of transport, in the proposed Act itself. Those elements, such as Right of way, maintenance of infrastructure assets; traffic related matters; Axle Load Limitations; matters related to Safety during construction as well as during operations, environmental considerations; rights, duties and responsibilities of major stakeholder and people at large etc. should be dealt in detail in Regulations to ameliorate misinterpretation and misrepresentations. The Act should also include provisions to develop Operational Standards, Manuals and Directives to be prepared within a stipulated time frame. It is advisable to prepare the regulations with as much objectivities as possible, to give away rooms for subjective judgments.

iv. Inadequate Road Sector Resource Mobilization

Nepal had been facing resource crunch in all its development efforts. Road transport sector is not only facing shortage of adequate resources but it is exasperated due to having to distribute resources, whatever available, thinly on a large, disparate portfolio. In order to facilitate a 6 percent GDP growth as projected in 10th plan, Nepal needs to invest about 2.5 percent of its GDP (about NRs. 12 billion a year) on road expansion and maintaining the current road assets. For 2004/05 HMGN has allocated about NRs. 5.5 billion which is only 5 percent of total HMGN budget. Of this amount, NRs. 2.5 billion is allocated for 'Rehabilitation and Maintenance', but this is funded mostly from donor supported programs. There are 32 Feeder Roads and 8 Highways under construction, distributing the low level resources to all these projects make the investment ineffective. The Medium Term Expenditure Framework instituted by HMGN is not implemented as seriously as planned. Inefficient portfolio is still taken on board mainly due to political pressures.

The transport sector is expected to generate revenue at around NRs. 6.00 billion in FY 2004/05. Out of this only about NRs. 0.36 billion is earmarked to NRB. Hence the road sector is acutely under-funded. HMGN must find ways to mobilize and generate revenue to adequately invest in road sector and NRB must be strengthened to manage the Road Fund efficiently. The Policy document and the Act must include mechanisms to generate financial resources to finance road network development and maintenance. For example, policy document could mention that the state should endeavour to invest 2.5% to 3% of GDP in the transport sector.

v. Institutional Capacity

The issue relating to institution, being common to all government organizations, all transport related organizations of the government have been dealt in briefly.

The transport sector responsibilities are shared by several institutions. They are Ministry of Physical Planning & Works (MPPW), Ministry of Local Development (MOLD), Department of Roads (DOR), Department of Local Infrastructure and Agricultural Roads (LOLIDAR), and DDCs for Roads, main trails, railways and waterways. Ministry of Culture, Tourism and Civil Aviation (MOCTCA) and Civil Aviation Authority of Nepal (CAAN) are responsible authorities to develop and manage the Air Transport. Ministry of Labor and Transport Management (MOLTM) and Department of Transport Management (DOTM) are responsible for management and development of Transport Services.

Government organizations, in general, lack outputs oriented performance based assessments and known to be not very efficient in its work performance. The conditions of service at different levels and locations (remote vs center or administrative headquarters) do not provide adequate incentives to perform effectively. Sanctions for underperformance are not in existence. Few positive performance incentives like trainings and visits abroad are available mostly to senior officers.

Strategic planning and implementation performance in the sector has not been strong; achievement of planned targets have not been effectively monitored and their capacity building activities have been project oriented without focus on sustainable sector-wide performance outcomes. The road sector responsibilities are shared by MPPW, MOLD, DOR, DOLIDAR and DDCs. At implementation level DOR has particular responsibility for the SRN; DOLIDAR and DDCs share responsibilities for the development and maintenance of district level roads. The institutional capacity building programs for DOLIDAR, DDCs and Municipalities should be emphasized.

Although DOR has made considerable progress in key aspects of its core technical and managerial capacity, DOR's centralized management culture and decision making process have limited its capacity to effectively work in remote areas. DOR does not have adequate skills to carry out effective community level participatory road building operations, which is essential for its sustainability. DOR is also weak in the area of economic analysis in general and transport economics in particular.

The Institutional realities present a challenge to HMGN in ensuring organizational effectiveness of implementing organizations in particular to shoulder the responsibility of the wider road network development specially in remote areas. HMGN, therefore, should initiate more fundamental enhancements towards organizational structure, resources generation and effective utilization, accountability and incentive framework aimed at greater effectiveness of its organizations.

The policy and objectives of CAAN as enshrined in the related Act should be followed honestly and diligently. The Act states that “commercial principles shall be followed”. The part time CAAN Board, chaired by the Minister has not been effective, as desired. Provision to appoint/select an independent professional to chair the para-statal Board should be consciously applied to make such organizations more effective. There is also a need for reorientation of management and staff toward better service delivery, business efficiency and the result oriented execution of plans.

vi. Private Sector Participation

Private sector including community participation will be a critical element for the development of 'Fast Track' as well as 'Farm to Market' roads not only in view of the resource crunch HMGN is facing but also because this approach is considered appropriate for long term sustainability. Public-private partnership and 'participatory' approach is going to be the key for development in this century, world over. However, the private sector is not likely to deliver such projects without substantial support by the government in terms of enabling legislation, provision of land in case of 'Fast Track' road construction and other protections. [This particular area is being covered in detail by another study namely 'Prospects and approach in public-private partnership in transport infrastructure development conducted under this project].

The policy-action matrix is presented in Appendix-1.

5. THE NORTH-SOUTH CONNECTIVITY

5.1 General

The north-south transport connectivity with emphasis on tourism, trade, industry and agriculture, instead of administrative or political integration, needed to be given a policy thrust because the country has now basic road network in place and some are under construction and at advanced level of planning. The road not only needs to be productive and efficient but should contribute sufficiently towards integrated economic growth. Some north-south roads have potential to be developed as International Trade Route.

Tourism, trade, industry including hydropower and agriculture are some of the important economic sectors which must be catered to by the transport sector. Each of those sectors must give attention to the comparative advantages it has, keeping in view the topographical and ecological advantages and also keeping in view the domestic as well as international markets. Some fundamental changes, from subsistence approach to growth oriented approach needs to be envisioned.

Tourism, for example should develop certain tourist destinations keeping in view the ever increasing Indian tourists and potential tourists from China, besides its regular mountain and hill tourism. Similarly, agriculture should take advantages of the bio-diversity advantages, off-season agriculture, high altitude herbs and vegetable seeds. There are several relatively large table lands (Tars) with potential industrial and cash crop production areas which need to be given adequate connectivity. The transport network and services should be developed by twining with programs of all other such sectors.

There seems to be a total lack of program in twining the accessibility needs of the individual sectors like tourism, trade and industry and agriculture. Maps of districts, zones and regions showing the potential locations for sectoral development with or without transportation access should be mandatorily prepared by sectoral departments and ministries and sent over to MPPW and MOLD for inclusion in the overall transport plan and programs. There should be an iterative process during the decision making phase which should result in a coordinated sectoral program with enhanced benefit to the people at large.

Some 'Fast Track' routes, to be called "Expressway" in future, such as between Kathmandu and Terai, and Tinkune (in Kathmandu) to Banepa (taking in view of upcoming Bardibas-Sindhuli-Banepa road) should be considered solely on the basis economic rate of return mainly through savings in vehicle operating costs (VOC) and saving in travel time. The development of efficient and economic fast rack connectivity should now be included as part of transport policy elements.

The development of other modes of transport such as railways and airports including international airports should also be adequately considered during the process of development of strategy for transport connectivity.

5.2 International Connectivity

The trade between India and China is expected to increase from existing \$ 13 billion to over \$ 30 billion a year by 2010. India has requested Nepal to give 'traffic in transit' freedom for trade with China. Nepal has to accord the 'traffic in transit' freedom to India as per the existing transit treaty concluded between India and Nepal. The International connectivity should be seen as 'an opportunity' due to the fact that Nepal stands to be benefited in the course of exchanges of trade and services between these two Asian giants. The neutral location of Nepal provides advantages to both these neighbours for various activities and intercourses.

India has some of its own active border points such as Dharchula, Sikkim (Nathula pass) and Ladhak through which it conducts trade with China. But apparently, the existing trade route of Nepal namely Kathmandu-Kodari-Lhasa and the route through Rasuwagadhi (Keirung) which might be opened soon, after completion of 18 km Syabrubesi-Rasuwagadhi road, are more attractive to India atleast in the near term, for her surface trade with China.

The elevation of border crossing points at Kodari and Keirung are relatively lower than the India-China border crossing points. Nepal must take advantages provided by the existing Kodari crossing and shortly after by Keirung and develop additional adequate infrastructure and other necessary systems that will sustain and attract for the international intercourses not only between India and China but also, in the long run, between Central and South-East Asia.

5.3 The Asian Highway

The Asian Highway AH 42 starts at Birganj in Nepal and passes through Pathalैया, Hetauda, Narayanghat, Mugling, Naubise, Kathmandu, Bhaktapur, Dhulikhel, Panchkhal, Lamosangu, Barabise and Kodari which ultimately connects Lhasa in Tibetan Autonomous Region of China. The total length of AH 42 in Nepal is 390 km.

Another Asian Highway AH 2 in Nepal is the East-West Highway (Mahendra Rajmarg) from Kakarbhitta in the Eastern border to Gadda Chowki (Mahendranagar) in the west. The total length of this highway is 1028 km. The overlap section of AH 2 and AH 42 is between Pathalैया to Narayangarh, which is around 106 km in length.

The Asian Highway AH1, AH2 and AH5 are of sub-regional importance and Nepal has proposed to connect these largely East-West oriented highways by North-South Asian

Highways. AH 1 connects Dhaka in Bangladesh to Kolkata, Barahi, Varanasi, Kanpur and Delhi in India and Islamabad in Pakistan. AH2, as mentioned before traverses along Nepal's East-West Highway and connects Dhaka and Delhi. If AH2 is connected to AH 1 at Barahi (state of Jharkhand) in India, then AH1 would have connected to AH5 at Lanjhau via AH42 through Lhasa. AH5 passes through Shanghai of China. Beijing-Lanjhou-Xining-Lhasa railway link is also expected to be in operation in 2006.

India is massively developing its national highway system and plans to connect to Asian Highway System. Industrially developed western and south western region of India, if connected to AH 2 (EWH of Nepal), the north-south highways of Nepal particularly the existing AH 42 link and Rasuwagadhi (Keirung) link (to be constructed soon) will be of particular importance for India-Nepal-China trade. Rasuwagadhi is connected to Chinese Highway G219 which in turn connects Kasghar at western end of China with Lhasa. This Chinese Highway G219 could also be used to be connected to Pakistan via Chinese territory.

Another future International link could be Butwal (AH2) via Pokhara-Baglung-Jomsom-Korela and onward to Chinese highway G219. For all these transport connectivity to be materialized, Nepal must seek a Trade and Transit Treaty with China as well. The sooner, it can achieved, Nepal will be well placed for a long term plan to place itself in the international trade route. The notion of land lockedness then would have been thrown into oblivion and entirely different scenario would have emerged.

5.4 The Conceptual Framework

The prominently dominant North-South road connectivity development has been conceptualized with the following three major considerations, while the environmental considerations will be given priority attention in all those elements. They are:

- (i) Consolidate the effective utilization of the existing North-South road network by connecting the existing and potential agriculture centers which has comparative biodiversity advantages (such as off-season agricultural activities), trade & market centers, settlements larger than 2500 population, tourist destinations and potential areas and corridors for industrial and hydropower development to the Strategic Road Network. This activity is expected to contribute to poverty alleviation besides enhancing other economic activities. DoLIDAR/DDCs will be primary responsible public institutions for this activity;
- (ii) Development of feeder roads to link unconnected hills and mountain district headquarters with peoples' participation preferably by not using foreign loan fund, except those already committed to be taken up by foreign assistance. DOR is to be the responsible institution. These roads are likely to be justified in the grounds of

inclusive development, administrative integration and social justifications, hence these roads should be developed in stages initially with the model adopted in Green Road Approach. Adequate maintenance and upgrading of the existing Strategic Road Network, is of utmost importance and DOR should give proper and adequate attention; and

- (iii) Improvement and development of identified Asian highways in Nepal as ‘International Trade Route’ mainly to connect Asian Highway Network in India and China eventually as a link between Central Asia and South and South-East Asia. These roads have to be developed and maintained in ‘International Highway’ level, therefore should also be given adequate attention.

5.5 The Connectivity Approach

Hence, the North-South transport corridors should be developed keeping in view the following elements: (a) development of feeder roads/district roads to link large settlements and agriculture and other potential areas with the SRN; (b) development of feeder roads to link unconnected district headquarters with peoples’ participation; (c) construction of cross-border links with China; (d) construct a new direct link between Kathmandu and the Terai (also known as “Fast Track connection”); (e) construction of broad gauge railway links with Indian Railway System and initiation of East-West electric railway system; and (f) upgrade mountain STOL airstrips and provide efficient and dependable communication and navigational facilities.

Link to Large Settlements, Agriculture Production Centers, Centers of Trade, Tourism, Industry and Area of Potential Economic Activities

There are 1,328 settlements out of the total of 3,840, which have population equal or more than 5,000. All these settlements are still not fully connected with vehicular transport. Population is the driving force to generate the demand for transport access. A policy thrust to connect all settlements with population more than 2,500 should be adopted. A national directive should be given to DoLIDAR and DDC to include this parameter in their development of District Transport Mater Plans, based on comprehensive Road Sector Program.

Similarly, DDCs should identify potential agriculture production centers for different agriculture products and also potential centers of touristic destinations and industrial centers. These potential centers should be connected by road infrastructure and again these potential centers of agriculture production, touristic destinations and industrial centers should be included in the selection criteria parameters, while preparing DTMPs.

Twenty year Road Plan developed by Nepal Engineering Consultancy Center Ltd. (NEPECON) for Department of Roads in July 2002 have identified 10 road links, totaling a length of 235 km, to connect centers of tourism and recreation; 4 road links, totaling a length of 119 km, to connect growth centers of trade; 3 road links to connect areas of hydropower potential and 6 road links to centers of pilgrimage and religion (see Annex-5). Potential Cement Industries areas in Surkhet and Dang districts could also be considered as candidate road connectivity projects to enhance direct economic activities All these links should be further studied and feasibility ascertained before taking it up.

Tourists from India to Nepal is expected to grown once the law and order situation improves. Besides pilgrimage purposes, many Indian tourists come to Nepal for holidaying and entertainment. Possibilities of developing towns like Dhankuta including Bhedetar in the Eastern region, Palpa in the western region, Dandeldhura in the Far-West as 'hill stations' with entertainment (casino) package could lure a large number of tourists from India. The roads leading towards such potential destinations could be made more safe and comfortable by improving and widening the existing roads.

Links to Unconnected District Headquarters

Currently, there are 10 districts unconnected by strategic Road Network. In the Eastern Region, all remaining unconnected district headquarters namely, Sankhuwashabha, Solu Salleri, Bhojpur and Diktel will be connected within couple of years, as those roads are being taken up with donor support (provided the on-going conflict in the area will not induce stoppage of the work being carried out).

In the Western Region, construction of roads to connect headquarters is carried out with the help of Royal Nepal Army (RNA). Beni-Jomsom and further to China border is expected to be completed within two years. Chame of Manang will be connected to SRN under the Transport Connectivity Sector Project to be financed by Asian Development Bank (ADB). The project preparation for the Transport Connectivity Sector Project is underway under ADB TA NEP : 4347. The Transport Connectivity Project has identified 14 road links with a total length of about 300 km (see Annex-4). Cautious approach towards investing the loan money to link unconnected district headquarters is recommended, loan money should be invested as far as practicable only where the economic objectives are met with.

In the mid-western region, Jajarkot, Kalikot (Manma) and Jumla will be connected within another couple of years, which is being taken up partly with the help of Royal Nepal Army. Dolpa (Dunai), Mugu (Gamgadi) and Humla (Simikot) will have to wait for some more years to be connected with SRN. However attempt to connect Simikot with China border is being made by local people with the help of DDC. This model of development of transport connectivity should be encouraged for other mountain districts as well.

In the far-west region, the roads to connect the headquarters of Bajura (Martadi), Bajhang (Chainpur) and Darchula (Darchula) is under construction, but the progress has been rather slow. As far as practicable those low volume roads should be constructed with people's participation and taking Green Road Approaches.

Simply connecting district headquarters and giving access to isolated population may not meet the development objectives. Hence it is recommended that an Integrated Road Sector Program be developed to provide optimum accessibility to the population.

Construction of Cross Border Links with China

There are nine official border crossing points with China, besides number of informal local crossing points. The only vehicular road link crossing is along Kathmandu-Kodari (Arniko Highway) at Kodari. The Kodari crossing handles approximately 8% (value) of Nepal's total trade. Last 6 km of Arniko Highway to Kodari is gravelled road. The first 35 km of Friendship Highway from the border, within Tibet, also crosses an unstable geological area and is in poor condition subject to frequent slides and closures like in Nepal side. The Kodari crossing has difficult approach roads on both sides of the border and there are limited space for parking and has become seriously congested in recent years. Since the passenger bus service between Kathmandu and Lhasa has also been started, Kathmandu-Kodari highway should be improved to an 'International Highway' level immediately and other infrastructures including ICD at Tatopani area should be initiated as early as possible. More efficient system for border clearance both for men and goods must be ensured to lure international traffic.

Another cross border link construction is now in advance stage of development. The 18 km link between Syabrubesi and Rasuwagadhi (Kerung) is being taken up with the assistance of govt. of China. It is expected to complete the construction within another three years time. In the meantime, to make this cross border link more effective, Galchhi-Trisuli road is being developed. Trisuli-Syabrubesi upgrading and Kathmandu (Tinpiple)-Okharpauwa-Kolphu road (Transport Connectivity Project) construction is being considered, which will enhance the effectiveness of this border crossing. Both these roads could be developed for 'International Transit Route' as International Highway.

Other northern border crossing roads, proposed for future connections in order of priority are given in Table 5.1. Except the Jomsom-Korela (China border) road which is under construction, other roads connecting China border should be kept on hold, may be for another ten years, till trade and transit experiences matures and clear Tripartite (Nepal-China-India) agreement is in place. However links to remote areas of northern districts from China for localized trade and other interactions, like Simikot-Hilsa (Yari) should be encouraged to be developed through local level initiatives.

However, it will be pertinent to realize that, whereas developing cross border link with China for bilateral trade is quite important to Nepal, the development of highway route(s) for international trade and for Nepal to become a ‘transit country’ is a different matter. Opening up our highways for International trade in the present global environment including WTO regime raises many issues which could have multifaceted impacts in the political, socio-cultural and economic aspects of the country. Nepal must remain vigilant all the time and must identify the expected goal of such ventures. There are bound to be some positive as well as negative fallouts. Nepal must be able to predict, to a large extent, of such impacts. Nepal should also devise ‘tools’ to avoid or minimize any perceived negative impacts. For all these to be identified it is advisable to conduct a detailed study on the implication of developing Nepal as a ‘transit country’.

Table 5.1: Future Road Connections with China*			
S.No.	Name of Roads	Length (km)	Remarks
1	Jomsom-China Border	115	(Now under construction by RNA)
2	Khandbari-Kimathanka	290	
3	Simikot-Hilsa	88	(Under construction DDC/Food for Works Program)
4	Darchula-Tinkar	90	
5	Taplejung-Olangchungola	192	
6	Lamabagar-China Border	19	

* Source: Mater Plan for SRN, 2002-2002; DOR; June 2004.

Construction of ‘Fast Track’ Connection between Kathmandu and Terai

A ‘Fast Track’ connection between Kathmandu and Terai had been a subject of discussions and study since 1974 (Kathmandu-Birganj Corridor Feasibility Study, March 1974). A ‘Fast Track’ route will reduce substantially the distance, time and cost of transportation between Kathmandu (the capital city) and the Terai. The length of this ‘Fast Track’ route is expected to be around 90 km. The feasibility study was carried out in 2003, the cost estimated is \$ 80 million (2003) with EIRR at 23.38%. The present road length between Kathmandu and Pathalैया (Terai) via Mugling is about 256 km.

The existing routes via Mugling and Narayanghat as well as Tribhuvan Rajpath is not only torturously long but also is subject to frequent closure / disruption during the monsoon season. The population of Kathmandu (only metropolitan city) is increasing rapidly at over 4% per annum and the traffic in the Kathmandu-Terai route is growing at about 10% annually. The traffic carrying capacities of the existing roads will be exhausted within couple

of years requiring expensive improvements and widening of the road. The Fast Track route will also facilitate the development of an effective 'transit link' between India and China by reducing the length of the Nepal Section of AH42 by about 170 km. The total length of AH42 is 1500 km (Barahi in India via Kathmandu to Lhasa in China).

Previous studies have examined different routes in this corridor; the present route options appears to be (a) tunnel route via Hetauda (inner Terai); (b) Bagmati corridor route to link with East-West Highway plus options to connect Hetauda; and (c) Railway link to Birganj.

A detailed feasibility report of the corridor is now needed to be conducted encompassing all options including possibility of private sector participation with Build-Operate-Transport (BOT) mechanisms (BOT Act is already in place, though still remains to be tried). Detailed Project Report (DPR) of the selected route should be prepared within a time line of 18 months and the 'Fast Track' should be completed within another 4 years to avoid expensive improvements of the existing routes.

Construction of Broad Gauge Railway Link with Indian Railway System

Since most of our international trade is with India or through Indian sea port, it is imperative that the inland transport cost has to be reduced so that the international trade becomes more cost effective. The Broad Gauge Railway Link with Indian Railway system should be our policy thrust to avail this competitive advantages. There exists a Broad Gauge Link via Birganj Inland Clearance Depot (ICD). This link has to be made more efficient than the prevailing status by entering into meaningful discussions with India.

Similar Railway links should be planned to connect Kakarbhitta, Biratnagar, Bhairahawa and Nepalganj, as the Indian Railway system develops its Broad Gauge lines closer to the respective border points.

Once these border towns are connected with Broad Gauge Railway lines, Nepal should plan for a East-West Broad Gauge Electric Railway System to be developed in a staged manner, keeping in view the financial viability of different sections of the system.

The Intermodal Transport Development will be an important area for Nepal, in future, and development of ICDs at different nodal points like Kathmandu, Larcha (near Tatopani in Arniko Highway), Rasuwa Gadhi and other points should be considered while developing the 'transit route' for international trade.

Upgradation of Mountain Airports

Nepal is one of the most attractive destination for mountaineering and trekking. More than 25% of total tourist arrivals falls under this category. Nepal has ample number of airports

(around 40) in the hills and mountain regions. These airports not only serve the domestic air passengers but also the adventure seeking mountaineering and trekking tourists.

But most of these airports are STOL strips with unpaved runways (Jumla, Jomsom and Lukla runways are asphalt paved) and have less dependable communication and navigational aids. Nepal being a mountainous country, it is essential that these airports be made more safe and dependable. Upgrading the runways and equipping them with latest communication and navigational aid equipment will enhance not only the domestic connectivity but also boost the tourism trade. Frequent cancellation of air flights, due to 'bad weather' must be reduced to an acceptable level. Satellite communications and GPS systems including radar surveillance systems to cover the whole country's territory should be established.

6. CONCLUSIONS AND RECOMMENDATIONS

The north-south connectivity, as a policy was initiated during the Fourth Plan (1970-75) in the guise of development of regional growth axis. The north-south connectivity also got de facto implementation through the policy of connecting district headquarters by north-south roads primarily following the north-south drainage patterns.

Over 17,000 km of road network is in place but needs effective utilization for all-round development. Department of Roads is responsible for Strategic Road Network comprising national highways and feeder roads. DoLIDAR and local governments are responsible to develop and manage district, urban and village roads. Nepal has more than 50 airports/ airstrips to provide air connectivity including tourism requirements.

Mechanisms to give transport access to large rural settlements, potential pockets for agricultural development, potential tourist destination locations and trade and industrial centers, should now be established urgently.

The north-south connectivity including the links to China should be taken as a new found opportunity and development policy(ies) should be oriented to take the advantages offered by locational and topographic comparative advantages. Time has come to move ahead in the changed economic context in-country as well as in the economic development scenario of neighbours in the north as well as the south by developing the connectivity.

Based on the strategic analysis made above and based on discussions with several stakeholders, the following recommendations can be made:

A. General

- Review Nepal Transport Policy 2001, and prepare a coherent, integrated and holistic Transport Sector Policy framework focusing on the transport need and wider economic considerations. Add 'Expressway' and 'International Highway' categories in the Road Classification.
- Promulgate a new Integrated Transport Act, which should include major elements of transport sector policy framework including updated comprehensive road classifications and responsibilities. Detailed regulations be prepared to avoid misinterpretation and misrepresentation.
- Reform organizational strengthening process of implementing organizations like DOR, DoLIDAR and CAAN.

- Restructure NPC and line ministries to include effective programme coordination mechanisms.
- Prepare realistic Medium Term Expenditure Framework and 10 year Road Sector Investment Plan showing financial implications of proposed Road Sector Program.
- Prepare enabling environment to attract private sector participation and donor funds

B. North-South Connectivity

- Improve and maintain Arniko Highway to an 'International Highway' Level.
- DoLIDAR and DDCs identify feasible road links which enhance agriculture, tourism, trade and Industry based on 20 year road plan and DTMPs. DOR give adequate priority to link the growth centers (Agriculture, tourism, trade and industry) while completing the on-going SRN network.
- 18 km long, Syabrubesi-Keirung link be started as soon as possible. Jomsom-Mustang-Korela link to be completed as soon as possible. No further investment be made on China border link for another ten years.
- Improve Galchhi-Trisuli-Syabrubesi road to 'International Highway' level.
- A comprehensive feasibility study of 'Kathmandu-Terai' Fast Track connectivity be carried out as soon as possible and complete the Detailed Project Report (DPR) of selected model route within 18 months time period.
- Conduct a detailed study on the implication of developing Nepal as a 'transit country'.
- Initiate earnestly to develop broad gauge railway connections to Indian Railway System and plan for East-West Electric Railway System. Activate/ Establish a 'Railway Cell' in MPPW immediately.
- Make BOT laws attractive to private sector facing in infrastructure development including alternate International Airport(s).
- Upgrade and Equip mountain airports to make it more safe and dependable.

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APPENDIX-1
POLICY ACTION MATRIX – TRANSPORT CONNECTIVITY

S.No.	Constraints/Issues	Recommended Action	Activities	Indicators	Responsible Agencies	Time Frame
Policy & legal						
1	Lack of coherent and integrated Transport Sector Policy and Implementation Strategy	Review existing Transport related policies including NTP, 2001; Local Infrastructure Development Policy; Transport Management Policy; Civil Aviation Policy etc. and formulate an integrated Transport Sector Policy and implementation strategy.	Form a Task force to prepare an Integrated Transport Policy.	Draft of Integrated Transport Policy and implementation strategy prepared.	MPPW, MOLTM, MOLD and MOCTCA	Immediate (within 1 year)
2	Lack of policy to generate financial resources	<ul style="list-style-type: none"> • Add provisions in Policy document to raise financial resources for development • Road Board Act revised to include provisions to raise financial resources. 	HMGN decides to review the policies and Acts.	Policy and Act revised.	MPPW	Immediate
3	Lack of harmonization of Policies and Acts.	Harmonize Policies and Acts.	HMGN decides to harmonize.	Policies and Acts harmonized	MPPW, Ministry of Law	Immediate
4	Lack of classification of 'Expressway' and 'International Highway' in existing Policy and Act	Include new classification of 'Expressway' and 'International Highway' in Policy and Act.	Road classification Reviewed and redrafted.	Road classification amended.	MPPW, DOR	Immediate
5	Lack of Transportation Regulatory Body.	Create a Transport Regulatory Commission.	Form Task Force to Draft Regulatory Commission Act	Regulatory Commission formed	MPPW	Intermediate
Institutional						
6	Lack of Program Coordination	Review Central Coordinating organizations structures and specify coordination function; restructure organizational setup accordingly.	HMG give directives to relevant Ministries to restructure the organizational structure.	Central Coordinating Organizations Structure reorganized	MOGA, NPC, MPPW, MOAC, MOICS etc.	Immediate

S.No.	Constraints/Issues	Recommended Action	Activities	Indicators	Responsible Agencies	Time Frame
7	Lack of capacity of implementing organizations to plan, design and implementation	Training to be part of program in all implementing organizations	Identify and prioritize areas of training needs.	Training imparted and organizational efficiency increased.	All implementing organizations from Central Govt. to local govt. entities.	Continuous program
8	Lack of Incentives to attract private capital, creativity and technology	Provide income tax holiday for 10 years.	BOT Policy Act reviewed.	BOT Policy and Act attracts investors.	MPPW	Immediate/intermediate
9	Lack of specific directives to DoLIDAR/DDC to include appropriate criterias in the Road Selection process.	Specific directives provided for proper attention to programs with economic benefit.	Specific directives provided	DoLIDAR/DDC give adequate attention to roads linking large settlements, potential areas of agriculture, trade, tourism & hydropower.	MOLD	Intermediate
10.	Lack of appropriate cell to look after other modes of Transport viz. Railways/Waterways.	Form a dedicated cell to look after Railways/Waterways	Restructure MPPW organization	Dedicated Railway/Waterways Cell formed	MPPW	Intermediate
Administrative and others						
11.	Improve and maintain Arniko Highway to an 'International Highway' Level.	Designate Asian Highway Network in Nepal, as International Highway.	Carry out feasibility studies of Arniko Highway and establish Project Office.	International Highway Project Office established and feasibility study initiated.	MPPW & DOR	Immediate
12.	Initiate 'Kathmandu-Terai' fast track connectivity.	Approval by NPC/MOF/MPPW to conduct feasibility study.	Conduct feasibility and prepare DPR.	DPR prepared.	MPC, MOF, MPPW & DOR	Immediate
13.	Establish 'Railway Cell' in MPPW and operationalize.	Administrative Approval to establish 'Railway Cell' in MPPW.	Prepare Detailed TOR for Railway Cell.	'Railway Cell' established and made operational.	MPPW	Immediate
14.	Developing Nepal as a 'Transit Country'	Conduct a detailed comprehensive study on the implications of developing Nepal as a 'Transit Country'	Prepare Detailed TOR for the study	Comprehensive report on 'Developing Nepal as a Transit Country' available	MOF, MPPW & NPC	Immediate

Annex-2
Designated National Highways

S.No.	Designation	Name of the Highway	Total Length* (km)
1	H01	Mahendra Rajmarg	1028
2	H02	Tribhuvan Raj Path	160
3	H03	Arniko Rajmarg	113
4	H04	Prithvi Rajmarg	173
5	H05	Narayangarh-Mugling Rajmarg	36
6	H06	Dhulikhel-Sindhuli-Bhittamod Rajmarg	198
7	H07	Mechi Rajmarg	268
8	H08	Koshi Rajmarg	111
9	H09	Sagarmatha Rajmarg	265
10	H10	Siddhartha Rajmarg	181
11	H11	Rapti Rajmarg	196
12	H12	Ratna Rajmarg	113
13	H13	Karnali Rajmarg	220
14	H14	Mahakali Rajmarg	320
15	H15	Seti Rajmarg	66

* Length is rounded to km.

Source: Nepal Road Statistics, 2002

Annex-3 Designated Feeder Roads

S.No.	Designation	Name of Road	Total Length* (km)
1	F ₀₁	Birtamod-Chandragadhi	13
2	F ₀₂	Damak-Gaurigunj	22
3	F ₀₃	Bhardaha-Rajbiraj	18
4	F ₀₄	Rupani-Kunauli	23
5	F ₀₅	Chauharwa-Madar	27
6	F ₀₆	Nawalpur-Malangwa	27
7	F ₀₇	Chandranigahapur-Gaur	44
8	F ₀₈	Bardaghat-Surajpur	23
9	F ₀₉	Sunwal-Parasi	9
10	F ₁₀	Jitpur-Khunuwa	33
11	F ₁₁	Gorusinghe-Sandhikharka	69
12	F ₁₂	Chanauta-Krishnanagar	20
13	F ₁₃	Bhaluwang-Liwang	108
14	F ₁₄	Chakchake-Phuthan	25
15	F ₁₅	Lamahi-Tulsipur	47
16	F ₁₆	Bhuregaun-Gulariya	32
17	F ₁₇	Junga-Rajapur	28
18	F ₁₈	Birgunj-Kalaiya	12
19	F ₁₉	Bhaise-Bhimphedi	12
20	F ₂₀	Palung-Kulekhani	21
21	F ₂₁	Kathmandu-Dhunche	118
22	F ₂₂	Balkhu-Dakchhinkali	16
23	F ₂₃	Satdobato-Tikabhairab	12
24	F ₂₄	Satdobato-Phulchoki	23
25	F ₂₅	Maharajgunj-Budhanilkantha	5
26	F ₂₆	Chabahil-Sankhu	13
27	F ₂₇	Jorpati-Sundarijal	7
28	F ₂₈	Bhaktapur-Nagarkot	23
29	F ₂₉	Banepa-Khopasi	10
30	F ₃₀	Panchkhal-Helambu	63
31	F ₃₁	Dolalghat-Chautara	25
32	F ₃₂	Lamosangu-Ramechhap	125
33	F ₃₃	Tamkoshi-Jiri	38
34	F ₃₄	Malekhu-Dhading	18
35	F ₃₅	Anbukhareni-Gorkha	25
36	F ₃₆	Dumre-Besisahar	43
37	F ₃₇	Bharatpur bypass Road	4
38	F ₃₈	Fikkal-Pasupatinagar	11
39	F ₃₉	Biratnagar-Rangli	24
40	F ₄₀	Hile-Tehrathum	48
41	F ₄₁	Pokhara-Saragkot	5
42	F ₄₂	Pokhara-Beni	90
43	F ₄₃	Bartung-Tamghas	80
44	F ₄₄	Bhairahawa-Lumbini	23
45	F ₄₅	Lumbini-Taulihawa	25
46	F ₄₆	Nepalgunj-Gulariya	35
47	F ₄₇	Chhinchu-Jajarkot	107
48	F ₄₈	Birendranagar-Dailekh	67
49	F ₄₉	Khodpe-Chainpur (Bajhang)	110
50	F ₅₀	Satbanj-Jhulaghat	42
51	F ₅₁	Silgadhi-Sanfebagar	67

* Length is rounded to km.

** Overlap with MRM not considered.

Source: Nepal Road Statistics, 2002; Master Plan for SRN 2002-2007, DOR, June 2004.

Annex-4
Transport Connectivity Project – Candidate Roads

S.No.	Candidate Roads	Length (km)	Remarks
1.	Phidim-Taplejung	86	Road Upgrading
2.	Okhaldhunga-Diktel	60	" "
3.	Sunkosi-Okhaldhunga	17	" "
4.	Tamakosi-Manthali-Khurkot	69	" "
5.	Baglung-Beni-Jomsom	96	" "
6.	Kathmandu-Suryabinayak	10	Road Improvement/Widening
7.	Bhaktapur-Changunarayan	6	" "
8.	Okhaldhunga-Salleri	47	New Construction
9.	Besisahar-Chame	65	" "
10.	Chyangthapu-Gopetar-Myanglung	160	" "
11.	Ramechhap-Okhaldhunga	140	" "
12.	Ring Road-Tinpiple-Okharpauwa-Kolphu	25	" "
13.	Syaprubesi-Trishuli-Galchhi	80	Widening and Upgrading
14.	Jomsom-Mustang	115	New Construction

Source: Inception Report; Transport Connectivity Sector Project ADB TA NEP: 4347; Asian Development Bank; Nov. 2004

Annex-5
**Proposed Access Roads to Centers of Tourism; Trade; Hydropower
Potential Sites and Pilgrimage**

S.No.	Candidate Roads	Length (km)	Remarks
A.	Tourism:		
1.	Fikkal-Shree Anto	16	
2.	Shree Anto-Baudh Dham	22	
3.	Ilam-Maipokhari-Sundakpur	72	
4.	Kichakbadh-Mechi Rajmarg	3	
5.	Mulpani-Changunarayan-Nagarkot	15	
6.	Burtibang-Dhorpatan	40	
7.	Syangja-Panchmul	33	
8.	Juphal-Jajarkot Dunai Road	4	
9.	Talarauna Khola (Achham)-Khaptad	20	
10.	Bhatgaun-Kotbhairab-Khaptad NP	10	
B.	Trade:		
11.	Gopetar-Chyangthapu	37	
12.	Khurkot-Manthali	11	
13.	Khurkot-Nepalthok	32	Part of Bardibas-Banepa Road
14.	Sindhuli-Khurkot	39	Part of Bardibas-Banepa Road under Construction
C.	Hydropower Potential:		
15.	Nunthala-Lamidanda-Namche	115	
16.	Manma-Godwali	48	
17.	Patan-Pancheswor	62	
D.	Pilgrimage:		
18.	Ramdhuni-Chatara-Dharan	5	
19.	Greater Janakpur Road (Circumbulatory)	80	
20.	Jomsom-Kuktinath	26	
21.	Lumbini Circumbulatory Road	12	
22.	Bhingri-Sworgadwari	7	
23.	Dang-Swargadwari	45	

Source: 'Twenty Year Road Plan': NEPECON for Dept. of Roads; July 2002.

Annex-7
List of Persons Interviewed

1. Mr. Kamal Pandey, DDG, Dept. of Roads (DOR)
2. Mr. Pawan M. Shrestha, Director, ADB Project Directorate
3. Mr. Krishna K. Shrestha, Joint Secretary, MOAC
4. Ms. Bandi Nima Sherpa, First Vice President, Treking Agents Association of Nepal (TAAN)
5. Mr. Hari Prasad Kharel, Secretary, TAAN
6. Mr. Tek B. Dangi, Executive Director, Nepal Tourism Board (NTB)
7. Mr. Hikmat S. Ayer, Manager, NTB
8. Dr. Dev Shakya, Executive Director, Agro-Enterprise Centre, FNCCI
9. Mr. Naindra P. Upadhya, Joint Secretary, Ministry of Industry, Commerce and Supplies
10. Mr. Sohan Shrestha, DG, DoLIDAR
11. Mr. Sungsup Ra, Nepal Resident Mission
12. Mr. Bipul Singh, Economics Officer, NRM/ADB
13. Mr. Suresh K. Regmi, Executive Director, NEPECON
14. Several NEA Members during interaction on 24th June