Presentation on
The role of the Asian Highways network in enhancing road transport connectivity among BBIN countries

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Under-Secretary

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Shillong, India
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PART A:
Nepal’s national experience on developing sustainable and resilient road infrastructure network

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vi. Traffic Count and Traffic volume
vii. Surface Distress Index (SDI) of NH
viii. International Roughness Index (IRI) of NH
NEPAL at a glance

- **Area**: 147181 Sq.m. (0.03% of the world and 0.3% of Asia)
- **Capital**: Kathmandu is the capital city of Nepal; remarked as a “city of temples” in the world.
- **Land-linked** country between India and China
- **Elevation**: 60 to 8848.86 m. (Mt. Everest)
- **Home to Mt Everest**, the highest mountain on earth
- Nepal is the birthplace of **Gautam Buddha- “Light of Asia”**
- The country has never been colonized by another country and does not have independence day.
- **Nepal's flag**, known as a double-pennon, is the most distinctive in the world.
- **Home to eight of the world's ten tallest mountains.** (>8000m)
The Federal system is established with three tiers, Federal Government, Provincial Level, and Local Level.

- 7 Provinces
- 77 Districts
- 753 local levels (including 6 metropolises, 11 sub-metropolises, 276 municipalities and 460 rural municipalities) each with their own executive body.
- 6,743 wards under 753 local levels
Nepal’s Administrative Boundary

- 7 Provinces
- 77 Districts
Nepal’s National Highway

- 80 numbers of National Highway
- Total Length of National Highway = 14913 KM
- Road Density per 100 Km² = 7.58

<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blacktopped</td>
<td>6836.45Km</td>
<td>46%</td>
</tr>
<tr>
<td>Gravel</td>
<td>1116.36Km</td>
<td>8%</td>
</tr>
<tr>
<td>Earthen</td>
<td>3226.12Km</td>
<td>22%</td>
</tr>
<tr>
<td>Under Construction</td>
<td>487.24Km</td>
<td>3%</td>
</tr>
<tr>
<td>Planned</td>
<td>3050.11Km</td>
<td>21%</td>
</tr>
<tr>
<td>Total</td>
<td>14913Km</td>
<td></td>
</tr>
</tbody>
</table>

Legend

- **sm_2020_21_ver01**: district boundary
- **district boundary**: district boundary

National Highway Lenth by Type(Km)
Nepal’s Bridge on National Highway

- Total numbers of Bridges = 1656
Nepal’s Bridge on National Highway

- Total Length of National Highway = 14913 KM
- Total No’s of Bridges = 1656
Nepal’s Major National Highway

- East-West Highway (NH01) = 1027.63 Km
Nepal’s Major National Highway

- East-West Highway (NH01) = 1027.63 Km
- Postal Highway (NH05) = 1016 Km
Nepal’s Major National Highway

- East-West Highway (NH01) = 1027.63 Km
- Postal Highway (NH05) = 1016 Km
- Midhill Highway (NH03) = 1779.58 Km
Nepal’s Major National Highway

- East-West Highway (NH01) = 1027.63 Km
- Postal Highway (NH05) = 1016 Km
- Midhill Highway (NH03) = 1779.58 Km
- Madan-Bhandari Highway (NH09) = 1150.29 Km
Nepal’s Major National Highway

- **East-West Highway (NH01)** = 1027.63 Km
- **Postal Highway (NH05)** = 1016 Km
- **Midhill Highway (NH03)** = 1779.58 Km
- **Madan-Bhandari Highway (NH09)** = 1150.29 Km
Nepal’s Major National Highway

- East-West Highway (NH01) = 1027.63 Km
- Postal Highway (NH05) = 1016 Km
- Midhill Highway (NH03) = 1779.58 Km
- Madan-Bhandari Highway (NH09) = 1150.29 Km
160 Traffic Counts Stations along NH
Traffic Volume along NH
Surface Distress Index (SDI) along NH

The length of surveyed road in terms of Good, Fair and Poor is presented in Table 3-1. The details of SDI scores of national highways are presented in Appendix A.

Table 3-1: Summary of pavement condition of National Highways

<table>
<thead>
<tr>
<th>Condition of Road</th>
<th>Length (Km)</th>
<th>Share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>2056.229</td>
<td>32%</td>
</tr>
<tr>
<td>Fair</td>
<td>3169.376</td>
<td>44%</td>
</tr>
<tr>
<td>Poor</td>
<td>1706.855</td>
<td>24%</td>
</tr>
<tr>
<td>Total</td>
<td>7154.441</td>
<td>100%</td>
</tr>
</tbody>
</table>

The distress survey of additional 210.91 Km right lanes of different road links of national highways has been carried out. The details of SDI scores of right lanes are presented in Appendix A1.
International Roughness Index (IRI) along NH

Major Findings
The survey has covered 7134.41 Km of National Highways for IRI. Detail of the IRI values have been provided in a separate volume.

IRI of National Highways

From the above chart, it can be observed that the most of the pavement condition with relation to IRI are in bad condition for National Highway. In case of National Highway, 10% pavement falls under good condition while 26%, 31% and 33% falls under fair, poor and bad condition respectively. The Details of IRI scores are given in Appendix A.

The Details of IRI scores are given in Appendix A and B.

Table 3-1: Summary of Pavement condition (IRI) of National Highways

<table>
<thead>
<tr>
<th>Quality of Road Pavement</th>
<th>Length (Km)</th>
<th>Share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>736.906</td>
<td>10%</td>
</tr>
<tr>
<td>Fair</td>
<td>1823.486</td>
<td>26%</td>
</tr>
<tr>
<td>Poor</td>
<td>2227.192</td>
<td>31%</td>
</tr>
<tr>
<td>Bad</td>
<td>2346.806</td>
<td>33%</td>
</tr>
<tr>
<td>Total</td>
<td>7134.41</td>
<td>100.00%</td>
</tr>
</tbody>
</table>
PART B:
Asian Highway Routes in Nepal – Progress, Status and Issues

i. Asian Highway in South Asia
ii. Asian Highway Routes in Nepal
iii. Funding Source on Nepal’s AH
iv. Issues on Nepal’s AH
v. Challenges on Nepal’s AH
vi. Photographs of ongoing works on Nepal’s AH
vii. Current conditions/status on Nepal’s AH
Asian Highway Routes in Nepal

- To Lhasa (AH5)
- To Barhi (AH1)
- To Dhaka (AH1 & AH2)
- To Delhi (AH1 & AH2)

Legend:
- AH02
- AH42

1027.63 KM
283.60 KM (Excluding 105.84 KM overlap on AH02)
AH02-Route

- Kakarbhitta
- Itahari
- Dhalkebabar
- Pathlaiya
- Hetauda
- Narayanghat
- Butwal
- Kohalpur
- Atariya
- Mahendranagar (Gaddachauki)
- Bramhadevmandi
- Joins Dhaka, New Delhi and Islamabad
<table>
<thead>
<tr>
<th>S.No</th>
<th>Funding Agency</th>
<th>Major Activities on the AH Routes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Government of Nepal</td>
<td>❑ Improvement from 2-lane to 4-lane / 6-lane</td>
</tr>
<tr>
<td>2</td>
<td>World Bank (WB)</td>
<td>❑ Improvement from 2-lane to 4-lane / 6-lane</td>
</tr>
<tr>
<td>3</td>
<td>Asian Development Bank (ADB)</td>
<td>❑ Improvement from 2-lane to 4-lane / 6-lane</td>
</tr>
<tr>
<td>4</td>
<td>Japan International Cooperation Agency (JICA)</td>
<td>❑ Tunnel Construction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>❑ Intersection Improvement</td>
</tr>
<tr>
<td>5</td>
<td>People’s Republic of China</td>
<td>❑ Road Maintenance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>❑ Slope Stabilization / Emergency Works</td>
</tr>
</tbody>
</table>

30/11/2023 Nepal
1- **WB funded Projects**
<table>
<thead>
<tr>
<th>S.No.</th>
<th>Projects</th>
<th>Status</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Strategic Road Connectivity and Trade Improvement Project (SRCTIP)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>1.1 Improvement of the existing Nagdhunga-Naubise-Malekhu-Mugling road</strong> to 2-lane standard : 94.663 KM <strong>(AH-42)</strong></td>
<td>Under construction</td>
<td>10 % Physical progress</td>
</tr>
<tr>
<td></td>
<td>**1.2 Upgrading of the Kamala-Dhalkebar-Pathlaiya road from 2-lane to 4-lane : 130 KM <strong>(AH-02)</strong></td>
<td>Bid Preparation</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td><strong>Accelerating Transport and Trade Connectivity in Eastern South Asia Nepal Phase-I Project (ACCESS)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>**2.1 Butwal-Gorusinge-Chanauta Road : 50 KM <strong>(AH-02)</strong></td>
<td>Bid Preparation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>**2.2 Tinau Bridge (Green Resilient Urban Bridge) <strong>(AH-02)</strong></td>
<td>Bid Preparation</td>
<td></td>
</tr>
</tbody>
</table>
WB Funding in AH

Legend
- Red: Nagdhunga_Mugling
- Green: Kamala_Dhalke_Pathlaiya
- Brown: Butwal_Goru_Chanauta
- Black: Mugling_Narayanghat
- Purple: Birgunj_Pathlaiya
- Pink: AH02
- Light Green: AH42

Nepal

0 25 50 100 150 200 Kilometers
2- ADB funded Projects
<table>
<thead>
<tr>
<th>S.No.</th>
<th>Projects</th>
<th>Status</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SASEC Roads Improvement Project (SRIP)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Upgrading of the Narayanghat-Butwal road from 2-lane to 4-lane: 113 KM (AH-02)</td>
<td>Under construction</td>
<td>35% Physical progress</td>
</tr>
<tr>
<td>2</td>
<td>SASEC Highway Enhancement Project (SHEP)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>Kakarbhitta-Laukahi: 120 KM (AH-02)</td>
<td>Procurement in progress</td>
<td>71 No’s of Bridges</td>
</tr>
<tr>
<td></td>
<td>(<a href="https://www.adb.org/projects/52097-003/main">https://www.adb.org/projects/52097-003/main</a>)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>SASEC Highway Improvement Project (SHIP)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1</td>
<td>Upgrading of the Kamala-Kanchanpur road from 2-lane to 4-lane: 86.82 KM (AH-02)</td>
<td>Under construction</td>
<td>25% Physical progress</td>
</tr>
<tr>
<td>3.2</td>
<td>Pathlaiya-Hetauda-Narayanghat: 100KM (AH-02)</td>
<td>Design Ongoing</td>
<td>22 No’s of Bridges</td>
</tr>
<tr>
<td>3.3</td>
<td>Butwal-Gorusinghe-Channauta: 50KM (AH-02)</td>
<td>Design Completed</td>
<td>32 No’s of Bridges</td>
</tr>
</tbody>
</table>

30/11/2023 Nepal
3- JICA funded Projects
<table>
<thead>
<tr>
<th>S.No.</th>
<th>Projects</th>
<th>Status</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nagdhunga Tunnel Construction Project <em>(AH-42)</em></td>
<td>Under construction</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Tinkune-Koteshwor-Jadibuti Intersection Project <em>(AH-42)</em></td>
<td>Pre-feasibility study</td>
<td></td>
</tr>
</tbody>
</table>
1) Nagdhunga Tunnel Construction Project (AH-42)

Objective of the Project:
To reduce traffic time and enhance traffic safety and economic activities of Kathmandu by improving the alignment and increasing traffic capacity.
2) Tinkune-Koteshwor-Jadibuti Intersection Improvement Project (AH-42)
4- China funded Projects
<table>
<thead>
<tr>
<th>S.No.</th>
<th>Projects</th>
<th>Status</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Arniko Highway Maintenance Project- Phase II (AH-42)</td>
<td></td>
<td>Various maintenance activities on different chainage going on.</td>
</tr>
</tbody>
</table>
Issues on Asian Highway/Corridor

➢ A Missing link on the **AH02** Connection beyond Mahendranagar via Brahmadevmandi through Tanakpur Banbasa (India) does not exist.

➢ The GoI has taken initiative to support and Construct this portion but no progress has been made for a long time.

➢ The GoN has started Construction of 4 lane Motorable bridge on Mahakali river (Mahendranagar) for connection of the same link which is about to be completed.

➢ The **AH02** link over Koshi barrage has to be diverted through upstream of existing alignment where new bridge is under construction.

➢ The **AH42** link passing through Kathmandu valley has to be diverted through Koteswar to Kalanki (**via Kathmandu Ring Road**)
Challenges on Asian Highway/Corridor

❖ Investment (Funding) on Infrastructure.
❖ China Nepal Border (Kodari) **AH42** is fully closed by China after Earthquake in Nepal in 2015 and new Trade Route Kerung-Rashuwagadi Border had been started.
❖ Support from the donor agencies: International donors, such as ADB, the World Bank, the Japan Bank for International Cooperation etc, would give priority attention to Asian Highway routes.
❖ Topography: Topography of the Nepal's landmass is furrowed by mountain ranges and rivers flowing from north to south
❖ Improvement of trade infrastructure such as development of economic corridor, border infrastructure, SEZs, Ports.

AH42 = 389.44 Km *
AH42 (new via Rasuwa-Kerung) = 321.98 Km *
*105.84 Km Pathlaiya-Narayanghat overlap section is included
Pictures of Ongoing works on Narayanghat-Butwal Road (AH-02)

Binder Layer  Binder Layer  Embankment  Base laying

Base Compaction  Back Filling @ CD  Box Culvert Concreting  Culvert Reinforcement
Pictures of Ongoing works on Kamala-Kanchanpur Road (AH-02)

- Embankment Construction
- Subbase Construction
- Diversion
- Piling Work
- Pile Cap Construction
- Culvert Construction
## Current Condition on Asian Highway/Corridor

<table>
<thead>
<tr>
<th></th>
<th>Design (KM)</th>
<th>Procurement Process (KM)</th>
<th>Construction Ongoing (KM)</th>
<th>Completed (KM)</th>
<th>Total planned length (KM)</th>
<th>Total length (KM)</th>
<th>Remaining length (KM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AH 02</td>
<td>150 KM</td>
<td>250 KM</td>
<td>199.82 KM</td>
<td>0 KM</td>
<td>599.82 KM</td>
<td>1027.63 KM</td>
<td>427.81 KM</td>
</tr>
<tr>
<td>AH 42</td>
<td>-</td>
<td>-</td>
<td>110.47 KM</td>
<td>73.31 KM</td>
<td>183.78 KM</td>
<td>283.60 KM</td>
<td>99.82 KM</td>
</tr>
</tbody>
</table>

- Elevated / Grade separated highways along major settlements has been initiated in **AH02**
Current ongoing works in AH

- Suryabinayak-Dhulikhel
- Maitighar-Suryabinayak
- Kamala-Dhalkebar-Pathlaiya
- Nagdhunga-Mugling
- Butwal-Gorusinge-Chanauta
- Narayanghat-Butwal
- Kamala-Dhalkebar-Pathlaiya
- Butwal-Gorusinge-Chanauta
- Suryabinayak-Dhulikhel
- Kakarbhitta-Laukahi
- Kamala-Kanchanpur
- Pathlaiya-Narayanghat
- Nagdhunga-Naubise-Malekhu-Mugling
- Malekhu-Narayanghat
- Suryabinayak-Dhulikhel
- Nagdhunga-Narayanghat
- Butwal-Gorusinge-Chanauta
- Nagdhunga-Narayanghat
- Malekhu-Mugling
- Budhanilkantha
- Kamala-Dhalkebar-Pathlaiya
- Pathlaiya-Hetauda-Narayanghat
- Kamala-Kanchanpur
- Kakarbhitta-Laukahi

Legend:
- Suryabinayak_Dhulikhel
- Maitighar_Suryabinayak
- Kamala_Dhalkebar_Pathlaiya
- Nagdhunga_Mugling
- Butwal_Gorusinge_Chanauta
- Narayanghat_Butwal
- Kakarbhitta_Laukahi
- Kamala_Kanchanpur
- Pathlaiya_Narayanghat
- Butwal_Gorusinge_Chanauta
- Mugling_Narayanghat
- Birgunj_Pathlaiya

Nepal
50
Butwal-Gorusinge-Chanauta (50 KM)
Narayanghat-Butwal (113 KM)
Pathlaiya-Hetauda-Narayanghat (100 KM)
Kamala-Kanchanpur (86.82 KM)
Kakarbhitta-Laukahi (100 KM)
Kamala-Dhalkebar-Pathlaiya (130 KM)
Nagdhunga-Naubise-Malekhu-Mugling (94.663 KM)
Maitighar-Suryabinayak (11.79 KM)
Suryabinayak-Dhulikhel (15.80 KM)
Kamala-Dhalkebar-Pathlaiya (100 KM)
Kakarbhitta-Laukahi (100 KM)
Thank you