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NEPAL INFRASTRUCTURE SUMMIT 2019

Resilient Infrastructure for Sustainable Development

दिगो विकासका लागि मजबूत पूर्वाधार

11-12 September 2019, Hotel Hyatt, Kathmandu

SUMMARY REPORT







NEPAL INFRASTRUCTURE SUMMIT

(SEPTEMBER 11 AND 12) 2019

SUMMARY REPORT

मा. वसन्त कुमार नेम्बाङ्ग
मन्त्री
भौतिक पूर्वाधार तथा यातायात मन्त्रालय
सिंहदरवार, काठमाण्डौ, नेपाल

नेपाल सरकार



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चलानी नं. : १११



Message

I am pleased with the success of the third edition of Nepal Infrastructure Summit (NIS) 2019. I extend my congratulation to the Confederations of Nepalese Industries (CNI) for bringing forward the agenda of infrastructure development in Nepal. I believe the Summit provided a forum for all the stakeholders to share their ideas on infrastructure, commit investment, form alliances and develop solutions in order to address infrastructure constraints being faced by our country especially with regards to the thematic areas of transport, Tourism, Agriculture, Energy and Urban Infrastructure.

Our Ministry has always supported CNI for organizing NIS and will continue in further days as well. We extend our commitment in creating a good enabling environment for investment associated with infrastructural development and are optimistic that by creating conducive environment for public private partnership will enable us to reap rich dividend and drive our nation on the path to progress through overall development of the infrastructure sector.

Basanta Kumar Nembang

FOREWORD



I am extremely delighted to validate the grand success of Nepal Infrastructure Summit 2019 (NIS 2019) by valuable words and in sights from our Keynote Speakers and Panelists on the theme 'Resilient Infrastructure for Sustainable Development' that have added value to the visions of leading decision makers and industrialists. NIS 2019, third in the series, came out successful in attracting to the event an overwhelming number of distinguished guests, foreign delegates, and other participants.

NIS 2019 has put forward the opinion that Nepal, being one of the vulnerable countries to climate change and geophysical disasters, needs to ensure that infrastructures be constructed in much more resilient way. Only through capacity building, financing, governance framework, public private participation and project implementation, management and monitoring will the goals of Nepal becoming a Middle-Income economy by 2030 be achieved. Unlike past two years' summits, NIS 2019 has come out different with the inclusion of national-level interactions with Chief Ministers in all the seven provinces of Nepal regarding infrastructure development plans, future strategies and necessary action plans, and signing of an MOU with provincial governments to

necessary action plans, and signing of an MOU with provincial governments to set up a 'Provincial Partnership Investors Forum (PPIF)', which aims to promote investment in all provinces.

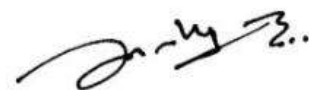
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This report focuses on reflecting the crux of this mega event. We are confident that the overwhelming support we received from stakeholders- both public and private sector institutions in Nepal, CNI associates, development partners and partner institutions both from Nepal and abroad- will come as a great aid in finalizing the required policy changes in Nepal , while at the same time calling for the action to implement various Resilient Infrastructure Projects for delivering economic activities, improved connectivity and enhancing industrial development in Nepal.

I would like to express my gratitude to Ministry of Physical Infrastructure and Transportation (MoPIT) for its immense support in making this event a grand success, with CNI as its main organizer for the first time ever. In addition, the contribution and role of Investment Board Nepal (IBN) and Youth Community for Nepalese Contractors (YCNC) as co-organizers has been significant for the success of this event. On behalf of CNI, I would like to express my gratefulness to our institutional partners, sponsors, CNI officials and media personnel for their determined efforts without which, organizing this event would not have been possible.

It is my belief that only with strategic investment in resilient infrastructure can Sustainable Development Goals (SDGs) be achieved and Nepal's transition to a middle-income country be realized. In this context, I would like to request all stakeholders to focus their efforts on it.



Satish Kumar More
President

Confederation of Nepalese Industries (CNI)

OPENING SESSION

“INAUGURAL AND OPENING PLENARY”

Chair

Mr. Satish Kumar More
President, Confederation of Nepalese Industries

Summit Highlight

Mr. Birendra Raj Pandey
Vice President, Confederation of Nepalese Industries

Chief Guest

- Rt. Hon'ble Mr. Nanda Bahadur Pun, Vice President, Government of Nepal

Guest of Honor/Key Note Address

- Hon'ble Dr. Han, Seung-soo, Former Prime Minister, Republic of Korea

Guest of Honor/ Special Address

H.E. Mr. Raj Kumar Singh

Minister of the State (IC) of the Ministry of Power, New and Renewable Energy; and the Ministry of State Skills Development and Entrepreneurship, Government of India

Address

- Hon'ble Mr. Raghubir Mahaseth, Minister of Physical Infrastructure and Transport, Government of Nepal
- Hon'ble Mr. Binod Kumar Chaudhary, President Emeritus, Confederation of Nepalese Industries
- Mr. Jingdong Hua, Vice President, The World Bank
- Mr. Woonchong Um, Director General, Asian Development Bank
- Mr. Hari Bhakta Sharma, Immediate Past President, Confederation of

Vote of Thanks

Mr. Anand Subedi

President, Youth Community for Nepalese Contractors

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SESSION SUMMARY

The opening plenary was chaired by Mr. Satish Kumar More, President of CNI, who conveyed the objective of the Summit - to facilitate discourse on resilient infrastructure for sustainable development, and to attract large scale private investment in areas of Nepal's core needs and strengths.

Mr. Birendra Raj Pandey, Vice President, CNI, briefed the audience on the Summit. He stated that the Summit would act as a platform to facilitate Nepal in pursuing its dream of attaining sustainable infrastructure which would then act as an engine for growth, development, and employment opportunities.

Mr. Hari Bhakta Sharma, Immediate Past President, CNI, delved into the journey and accomplishments of the Nepal Infrastructure Summit since it was first organized in 2014. Since then, it has been used as a platform to discuss sustainable models for the country, which are thereafter acted upon by the public and private sector. Development of sustainable infrastructure will in turn make our industries more competitive, thereby helping the country in overcoming challenges of migration of talent and global climate change.

After spending several decades on political struggle and systematic change, Nepal has entered the epoch in which it was declared a democratic republic nation with a stable government. The priorities for the country today are peace, sustainable development, and financial and social transformation for all the citizens. These will develop Nepal into an advanced and prosperous nation, staying true to our slogan - Prosperous Nepal, Happy Nepali.

It is also understood that this can only be achieved through investment in priority sectors. The focus areas are agriculture, tourism, hydropower, ayurvedic herbs, transport, connectivity, industry and infrastructure development with the aim of developing these sectors for better economy. However, the utmost priority is on infrastructure development without which development of other sectors is difficult.

Through this forum, we hope to get educated on the steps to be taken to become prosperous and also receive detailed information on priorities, opportunities for projects and steps taken to attract foreign investment.

Nepal's economy is moving forward. To meet the growth targets, 60% of investment from the private sector is required. It is an appeal to private and foreign investors to take notice of the vast opportunities Nepal possesses through the discussions taking place at the Summit. The government has taken several measures to ensure that investment is secure and profit making.

Infrastructure investment will create livelihood options and also curtail the workforce drain of the Nepalese people. Development of railway, cross border transmission lines will also benefit our neighboring countries. Nepal is home to multiple religions, languages, cultural, geographical diversity, natural beauty, and hence is a premier tourist destination. In order to capitalize on our natural and cultural heritage, the Visit Nepal 2020 campaign has been launched. Along with exploring the investment opportunities, the participants of the Summit may also explore the nature and beauty of the country.

Guest of Honor/ Special Address - H.E. Mr. Raj Kumar Singh, Minister of the State (IC) of the Ministry of Power, New and Renewable Energy; and the Ministry of State Skills Development and Entrepreneurship, Government of India

Infrastructure development is not only a facilitator but also a major lever for economic growth, creating demand, job creation and realizing dreams and aspirations. Two countries, Nepal and India, share unique ties of cooperation, characterized by open border and deep rooted people to people connect in kinship and culture.

India is also Nepal's largest trading partner with a total bilateral trade in 2018/19 of over USD 8 billion dollars. More than 150 Indian companies together form one of the largest investor communities in Nepal. The two countries' trajectories are similar with relatable constraints including infrastructure. The goal is to build a relationship that reflects shared priorities and bond between people.

Given its proximity to Nepal and similarity in their economies, Bihar can provide excellent examples on mobilizing private sector investment. In the past 5 years, Bihar has added 125,000 MW of energy generation capacity and 81,000 MW of installed capacity for renewable energy. This has been made possible through establishment

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of Ultra mega power projects and Special Purpose Vehicles along with a regulatory mechanism that allows for following of commercial principles.

India has also taken strides toward regulating and easing the process for private sector participation. With the overhauling of Companies Act, making it more transparent, and revamping the Bankruptcy code and other such initiatives, India has climbed up to 77 rank in two years in the Ease of Doing Business Ranking of the World Bank. Results of these initiatives can be seen through private sector investment of up to 80% in connecting the whole country into one grid.

India has and will continue to help Nepal in its path towards self-sufficiency. The cross-border Indo-Nepal Transmission Line project from Dhalkebar to Muzaffarpur was implemented through a JV company. The Ambassador to Nepal from India is personally overseeing the project for constructing 78 secondary schools in Nepal. On account of having surplus power India has been providing electricity to Nepal.

And while support from India will continue, Nepal should strive to be self-sufficient. The Arun Hydropower project is one great example in achieving this objective, power being a critical infrastructure. Upon completion of this project, it will add NPR 1000 Cr every year in revenues. Prioritizing hydropower generation has proved to have a positive impact on per capita income. India assisted Bhutan with the technical expertise to set up hydropower projects and now Bhutan sells the surplus to India. This has increased Bhutan's per capita income by a factor of 3.

Finally, private sector participation comes when investors have the confidence in the market, where they can invest in structures that are insulated from politics and interference. Credit providing agencies must be forthcoming and have the confidence to lend. For that, the private sector needs to be more committed to financial and ethical standards.

Address - Mr. Woonchong Um, Director General, Asian Development Bank

The Summit serves as a backbone of improvement in development and cooperation in the

The Summit comes at a backdrop of improvement in democracy and economy in the country, with significant efforts towards introducing economic reforms. Nepal is at the cusp of transformation with focus on economic and social development, and ADB is proud to have supported and witnessed the fast growth in the region over the years.

As per the 2017 study conducted by ADB, investment of infrastructure relative to GDP is higher in improving economies. Nepal's investment falls somewhere towards the mid to lower end of the spectrum. Asia will need USD 1.7 trillion dollar per year from now until 2030. South Asia would require contributing 8.8% of their GDP, mostly in the power and transport sector. Since Nepal is vulnerable to climate change and geo physical disasters, its investment requirement would be higher.

ADB has aligned its newly developed strategy for 2030 with Nepal's development targets - prosperity through inclusive, resilient and sustainable development. Nepal's target of achieving SDG by 2030, and prosperous nation by 2043 will require relying on foreign investment and knowledge, due to its limited capacity. The government needs to consistently institute investment friendly policies and develop bankable investment projects and ADB would be behind to support this agenda.

Address - Mr. Jingdong Hua, Vice President, The World Bank

While the total savings in the world runs in USD several hundred trillion, it is how all the stakeholders work towards leveraging these savings to finance the infrastructure gaps and development financing needs. For this, the value proposition for Nepal should be communicated to the world. While Nepal is landlocked, it is not idea locked, but idea rich. It has vast tourism potential with 6 highest peaks in the world, and the birthplace of Buddha. It has a committed and stable government in place to achieve the SDG goals and make Nepal a middle-income country by 2030.

Analyzing the history of infrastructure financing in OECD countries and countries who have moved from lower income to middle income has demonstrated that infrastructure financing is profitable and can attract large amounts of private sector investment.

In order to assist Nepal in attracting investment, the World Bank Group's newest country partnership dovetails with the country's investment plan for infrastructure financing and economic growth. The World Bank Group has committed USD 2.6 billion for 25 projects. IFC has also committed USD 800 million to USD 1.2 billion to make a difference in pushing the private sector in the forefront of bringing prosperity.

World Bank Group's Nepal Infrastructure Sector Assessment report on the financing needs of Nepal, launched at the Summit, highlights several policy reform suggestions. The need of the hour is regulatory reforms and capacity building in the right enabling conditions, with the objective of improving Nepal's credit rating. Further, enabling

conditions, with the objective of improving Nepal's credit rating. Further, enabling capital market and financial systems is key, as it play a major role in connecting domestic and international savings to infrastructure financing to economic development.

Address - Hon'ble Mr. Binod Kumar Chaudhary, President Emeritus, CNI

Mr. Chaudhary pointed out that the Summit comes at an opportune time, when the Prime Ministers of India and Nepal inaugurated the 69 km long Motihari-Amlekhgunj petroleum product pipeline. It is hoped that the same level of speed and commitment is extended in other projects.

Investment in infrastructure, especially power, also has huge positive impacts on the trade balance of a country. As a result of Nepal importing power from India, the trade deficit has reached Rs. 1400 billion. Nepal must undertake projects such as the

Arun 3 Hydropower project and explore opportunities to sell power to its neighboring countries. Further, given its strategic location between two economic giants, Nepal must use it to its advantage and act as facilitator of trade between India and China.

Lastly, while it is a known fact that private sector participation is essential to attain Nepal's development needs, their contribution thus far cannot be ignored. Nonetheless, in order to further make it attractive for the private sector to invest in developmental activities, each of the provinces should create a unique identity for itself. Federated Nepal must use this to its advantage.

Address - Hon'ble Mr. Raghbir Mahaseth, Minister of Physical Infrastructure and Transport, Government of Nepal

With the formation of all levels of federal government in Nepal, the priority of Nepal now is prosperity and development, which is further substantiated by the country's slogan – Prosperous Nepal, Happy Nepali. In order to achieve double digit growth in the economy, the focus must be on priority sectors such as irrigation, energy, urban development, transport, water supply and sanitation. For this, solidarity from the government, private partners and development partners is crucial to achieve the status of middle-income country.

The Ministry of Physical Infrastructure and Transport is focusing on improving intra and regional connectivity in Nepal. It is in the process of finalizing a plan for constructing 4 to 6 east west highways after having completed the construction of 6 North-South highways. Along with this, focus on transport management is also being prioritized, wherein safety, redefining of transport routes and non-motorized transport are being planned. The government is also in the process of buying 300 electric public buses to reduce pollution and use of petroleum products. Also, the establishment of Transport Management Authority is in the final stages.

With the help of Government of India, operation of railways to Jainagar, Janakpur, Jagmani and Biratnagar will commence soon. The DPR for the East West Electrified Railway from Kakarbhitta to Kanchanpur has been complete and the construction of railway tracks is in progress. Other feasibility studies on railway from Kathmandu is also in progress. Lastly, feasibility of waterways linking Nepal to India is in progress. Both the governments are in the process of identifying Indian inland waterways for Nepal bound cargo through the Ganga.

Address - H.E. Dr. Han, Seung-soo, Former Prime Minister, Republic of Korea

Owing to geo physical disasters, such as the devastating earthquake in 2015 and flooding in 2017, Nepal has experienced stagnating growths in the past years – 7.9% in 2019 to 6.3% in 2018. Nepal's vulnerability to climate change and disasters is estimated to cost 1.5% to 2% of Nepal's GDP. Nonetheless, the efforts made so far cannot be

ignored. Capital expenditure in infrastructure has exceeded 4% of the country's GDP since 2015, where sectors such as water, communication, transportation and electricity have been prioritized. Following the devastating earthquake, USD 193 million has been invested in reconstruction, and USD 158 million has been invested in redevelopment of schools. These will not only improve infrastructure, but also build a stronger human capital by expansion of access to quality education.

Since Nepal is a land locked country with 70% mountainous terrain, transport is dominated by road and air. Road transport is important to improve trade, tourism, economic growth and social development. The South Asia Sub-regional Economic Cooperation Highway Improvement Project has invested USD 180 million for Nepal's east west highway which is Nepal's primary domestic and international trade route. Along with such projects, the need of the hour is to focus on improving accessibility of resources across the country.

Nepal's urban population growth stands at 6% annually as compared to Nepal's overall population growth of 1.4%. This emphasizes the need to focus on urban development as growth in urban population poses severe strains on basic facilities such as drinking water, sanitation, transport, drainage, etc. The Melamchi Water Supply project which will help repair 1.6 km of water pipes and 15 water treatment plants connecting 66,000 households to piped water supply, is a prime example of projects that need to be undertaken.

Nepal's target of achieving SDGs by 2030 will only be achieved through infrastructure, social, economic governance and cross cutting strategies. The National Planning Commission has estimated that between 2016 and 2030, the investment requirement of achieving the SDGs is 48% of the GDP on an average. Resource mobilization of public

private sector as well as cooperatives and household is imperative. Through directed efforts and strategies, Nepal can become a role model for countries to prioritize infrastructure investment.

The CNI's collaboration with the Institute for Integrated Development Studies (IIDS) in the form of the Study Report "Nepal Infrastructure 2030: Investments and Financing Needs", was also revealed at the Opening Plenary. The study highlights the infrastructural state of Nepal and estimates the investments required under different growth scenarios. It is a timely publication. It is hoped that the findings and recommendations of this report will be useful to all stakeholders, both public and private, involved in the development of the industrial sector in Nepal.

SESSION 1

"SETTING UP THE CONTEXT: THE INFRASTRUCTURE OUTLOOK"

Chair

Hon'ble Dr. Baburam Bhattarai
Former Prime Minister, Government of Nepal

Keynote Speakers

- Hon'ble Prof. Dr. Puspa Raj Kadel, Vice Chairman, National Planning Commission, Government of Nepal
- Mr. Woo Chong Um, Director General, Asian Development Bank

Panelists

- Mr. Lal Shankar Ghimire, Former Revenue Secretary, Ministry of Finance, Government of Nepal
- Mr. Elias George (Retd. IAS), Partner & National Head – Infrastructure, Government & Healthcare, KPMG in India
- Dr. Govinda Pandey, CEO, Rockfield Technologies, Australia

- Dr. Gowindu Pandey, CEO, Rockfield Technologies, Australia
- Mr. Vishnu Kumar Agarwal, Vice President, Confederation of Nepalese Industries

Moderator

Dr. Bindu Lohani

Former Vice President, Asian Development Bank



SESSION SUMMARY

- The discourse on infrastructure development has transformed itself from development to sustainability. Given this, the role of private sector in economic development cannot be ignored. It is expected that 50% of the total investment requirement will come from the private sector (which is around NPR 56

billion). Similarly, private sector is also expected to invest one third of the total requirement in hydropower, and to facilitate this, the Power Summit was organized in 2016.

- The government has initiated actions to create a conducive environment for the private sector. Initiatives such as Public Private Partnership (PPP) Act, Nepal Infrastructure Bank, etc. have become a reality. Separate cells to regulate start-ups and facilitate investment is operational along with hedging rules and a clear provision for repatriation. If, under the circumstances that there are nearly 5 million labors working abroad, Nepal provides them opportunities, they will come back. The tax rate has become predictable. Nepal's GDP will reach USD 30 billion next year; it stands at the 40th in terms of population out of which middle class is growing significantly, and there is political stability. Hence, Nepal should not be ignored as an investment destination.
- However, despite growing importance of the private sector, its participation is almost nil in sectors other than energy. Suggestions for a more effective and implementable one window policy need to be incorporated in investment policy,

there by creating a suitable environment with predictable return for the private sector. Further, initiatives such as Start-up Nepal, in line with India's flagship Start-up Indian initiative can be explored. The Indian initiative has been effective in creating entrepreneurial ecosystem in India.

- We all know Asia is vulnerable to climate change; USD 1.7 trillion is required each year for infrastructure development in Asia. ADB addresses these by ensuring 75% of its investments to projects which are relevant in terms of climate change. ADB has planned a cumulative financing of Rs. 80 billion in disaster risk resilience.
- Given the requirement of delivering resilient infrastructure, designing it will require new skills. Formal, technical and vocational education is required to improve the skills available in Nepal.
- By 2020, 20 to 40 billion devices will be connected to internet. While the world is making advancements in technology and IoT, in comparison the infrastructure industry in Nepal is lagging. Giving examples of infrastructure challenges in the western world – 70% of bridges in Australia are 50 years old, and since sustainability was not taken into account, the cost of managing such bridges is

going to be a lot. It is said that 2000 bridges are under construction in Nepal – and so we need to learn from the developed world and adopt modern technology. Digital and technology transformation for Nepal needs to be focused through 1) skills development 2) collaboration – b2b, b2university, collaboration with other regions and 3) start-up culture & access to capital.

- With Nepal’s natural endowments, tourism here has been and should continue to be one of the drivers of the economy. Nepal has a fresh slate to work on in the field of tourism. Three basic parameters must be considered in this context: 1) access 2) information and 3) basic infrastructure.
- PPP is also an important and effective tool for investment if used properly. Learning from India’s example, for PPP to succeed the government must ensure –1) allocation of risk appropriately between private and public sector, and 2) access to long term finance, in the conditions where we cannot rely on banks and FDI, resulting in the need to develop bond markets.
- Another area of improvement is project management. In Nepal, projects are not planned properly beforehand. Hence, there is delay in their implementation.

The concept of the National project bank and project implementation and governance framework may be implemented at the highest level, to ensure timely competition.

- By 2030, we will need up to 9.5% of GDP to be spent on infrastructure to achieve 7.5% growth. Currently, investment in infrastructure is much lower than other south Asian countries. Resilient infrastructure comes at a price. We will need an additional USD 2 billion if we need to make them resilient. The goal of the private sector should then be profit with quality & governance. Project bank to identify viable projects (like India investment grid developed by Indian Government), and development and upgradation of infrastructure will have a long way to go.
- Lastly, internal connectivity (Koshi Gandaki and Karnali corridor) and connectivity with bordering countries is crucial for the development of Nepal. Areas around Kathmandu need to be developed to accommodate the growing population of the valley. Connection between Terai and Madhesh, is equally crucial. Nepal

needs to take advantage of its location between two economic giants, India and China, and be the bridge between them.

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SESSION 2

“INFRASTRUCTURE AND REGIONAL CONNECTIVITY”

Chair

Hon’ble Mr. Yogesh Kumar Bhattarai

Minister of Culture, Tourism and Civil Aviation, Government of Nepal

Keynote Speakers

- Dr. Swarnim Wagle, Former Vice Chairman, National Planning Commission, Government of Nepal
- Mr. Noritada Morita, Former Director-General of Asian Development Bank

Panelists

- Mr. Shanker Das Bairagi, Secretary, Ministry of Foreign Affairs, Government of Nepal
- Mr. Dinesh Kumar Ghimire, Secretary, Ministry of Energy, Water Resources and Irrigation, Government of Nepal
- Mr. Sanjay Poudyal, Deputy Resident Country Director - Millennium Challenge Corporation, Nepal
- Mr. Ovidiu MIC, Head of Cooperation, European Union Delegation to Nepal
- Mr. Sanny Ramos Jegillos, Senior Adviser, Disaster Risk Reduction and Recovery Crisis Bureau, United Nations Development Program
- Mr. Rajeev Malhotra, Ex- Chief Regional Planner, National Capital Region Planning Board, Government of India

Moderator

Mr. Davinder Sandhu

Partner & Transport Sector Leader, Head, International Financial Institutions, KPMG in India



SESSION SUMMARY

- While there are 40 landlocked countries in the world, only 6 are considered rich; the defining characteristic of these being so rich is that they are in the heart of Europe, the largest economic market of the world. Similarly, of 10% of the population of the world who live in landlocked countries, 80% are poor. And lastly, the transportation costs to landlocked countries is exorbitant – cost of transportation from Madrid to Dar-e-Salaam is USD 700, and from there to Kigali is more than double the amount.
- Hence, transport infrastructure is also crucial for a landlocked country: it reduces trade costs, lowers price volatility, integrates market, brings economies of scale, and savings can be diverted into other areas, which spurs growth, and fosters externalities.
- For Nepal, the most important mode of connectivity is land. None the less, it has the lowest road density in South East Asia. It has 40,000 km of adequate roads, while the rest are hard to maintain. The need of the hour is high quality expressways and roads, connecting Nepal and its neighbors.
- Air connectivity is another important mode of transport. Multiple service agreements have been entered, but only a handful are operationalized. Traffic rights for 8 million are distributed, but only 3 million are in use. This shows the potential that still remains untapped. Similarly, while developing railways is a long-term goal, Nepal must start with piecemeal segments connecting province 2, 3, and 5 for economic agglomeration.

- Connectivity is equally important from a tourism perspective as well since we need to connect inaccessible but pristine areas of Nepal. But, to connect such areas, we will need modern technology. Tourism should be used as a strategic lever to get Nepal out of the LDC status.
- Similarly, connectivity for electricity transmission is crucial to manage imbalances in demand for electricity. East west transmission is also required within the length of Nepal. In 2018, Nepal has come up with a roadmap for energy sector wherein concerned people have identified a number of upcoming and additional projects that demand a production of 15000 MW by 2030. The plan is to utilize 10,000 MW for consumption while exporting the excess. However, the current peak load is 1300 MW, which means that an increase of more than 10 times the current consumption is anticipated.

- Hence, the government may need to bring about policy interventions to create the load. These interventions can be in the area of cooking, electrifying the transport sector, replacing heating system with electricity, and uses in the fertilizer and cement industry. Nepal has also identified the requirement of neighboring industries. Nonetheless, a more detailed and year wise roadmap for transmission, consumption and export augmentation to utilize the expected energy generation of 15,000 MW of energy by 2030 is the need of the hour.
- Organizations such as Millennium Challenge Corporation are focusing on the missing segment of transmission backbone which is being implemented. Currently, only 0.75% of the electricity generated is traded in the region. Hence, Nepal should focus on trading to utilize the energy generation - trade more build less and bring the number up to 10 to 20%.
- Another area of intervention of MCC is maintenance of infrastructure. There needs to be a maintenance regime using the best technology. Hence, MCC has come up with a matching dollar concept. For every dollar spent by the Ministry of Finance in maintaining roads, MMC provides 2 dollars, with a maximum of USD 15 million per year for three years.
- In order to build resilient infrastructure, more than USD 12 trillion is required by 2030 to achieve SDGs. The impact of disasters is huge causing USD 29 billion in damages every year. 25% of the capital cost is lost to disasters. Hence, there is a need to push disaster resilient infrastructure through three levers: 1) policy measures, 2) financing mechanism and 3) risk information.

SESSION 3

“INFRASTRUCTURE DEVELOPMENT POLICIES AND FINANCING”

Chair

Hon'ble Dr. Yubaraj Khatiwada
Finance Minister, Government of Nepal

Keynote Speakers

- Mr. Jingdong Hua, Vice President & Treasurer, The World Bank
- Mr. Radhesh Pant, CEO, VRock & Company

Panelists

- Mr. Sunil K.C., CEO, NMB Bank
- Prof. Dr. Tae Yong Jung, Professor, Yonsei University
- CA. Krishna Acharya, President, Institute of Chartered Accountants of Nepal
- Mr. Ashish Garg, Convener, Infrastructure Committee, Confederation of Nepalese Industries

Moderator

Mr. Sameer Jain

Partner & Lead, Urban Transformation – Infrastructure Government & Healthcare, KPMG in India



SESSION SUMMARY

- As per the National Planning Commission Report on the financial strategy for Nepal to achieve the SDG's, the country will require over Nepalese Rupee 2000 Billion annually. However, infrastructure development in Nepal is largely fulfilled by government grants, with private sector participation limiting itself to energy or hydropower project only.
- Hence, the need to bring transformation around policy, institution, partnership and institutional mechanism to identify and implement invaluable new sources of finance in infrastructure financing is a necessity, and this will require active contract between 3 tiers of government in Nepal, Private sector, banking, IFI and many more.
- Additionally, Public Finance Institutions such as the Employers Provident Fund which has USD 3 billion in assets need to be evaluated to participate in infrastructure investment. There is thus a need to explore possibility of investments from these funds into infrastructure development with strong governance.
- Analyzing the bond market in Nepal, as compared to developed economies, shows that there is a lot that needs to be done. The US capital market is 200% of its GDP. The China bond market is USD 13 trillion, and the equity market is USD 7 trillion, which is 125% of its GDP. While these economies have reached the aforementioned quantum, developing a capital market requires over a decade of dedicated interventions, and the World Bank is here to support the efforts of Nepal.

- Nepal has 151 Banks and Financial Institutions (BFIs), of which, 28 are commercial banks. BFIs are managing 30 billion of capital. In the hydropower sector, BFIS have invested 1 billion dollars. It is seen that in Nepal, the largest share of commercial bank lending goes to non-infrastructure sectors and have very minimum exposure to investment in infrastructure and energy sector (16%).
- Banks need long term instruments to collect resources and should venture into capital market. Credit rating agencies have come in place, sovereign guarantees for

capital market. Credit rating agencies have come in place, sovereign guarantee for bonds will be provided. Nonetheless, policy level changes to augment exposure of banks investment in non-energy infrastructure sector, resulting in long term and low-cost fixed lending should be reconsidered.

- Lastly, it has also been established that Foreign Direct Investment in the infrastructure sector is required. However, risk mitigation mechanisms need to be put in place to instill confidence in the investors. Currency risk mechanism and country rating will increase the bankability of project finance model.

SESSION 4

“OPPORTUNITIES IN PROVINCES”

Rt. Hon'ble Krishna Bahadur Mahara
Speaker, House of Representative, Government of Nepal

Panelists

- Hon'ble Mr. Sher Dhan Rai, Chief Minister, Province 1, Government of Nepal
- Hon'ble Mr. Lalbabu Raut, Chief Minister, Province 2, Government of Nepal
- Hon'ble Mr. Dormani Poudel, Chief Minister, Province 3, Government of Nepal
- Hon'ble Mr. Shankar Pokharel, Chief Minister, Province 5, Government of Nepal
- Hon'ble Mr. Mahendra Bahadur Shahi, Chief Minister, Karnali Province, Government of Nepal
- Hon'ble Mr. Trilochan Bhatta, Chief Minister, Sudurpaschim Province, Government of Nepal

Moderator

Dr. Shankar Prasad Sharma
Former Vice Chairman, National Planning Commission, Government of Nepal





SESSION SUMMARY

- **Karnali Province** - Key opportunity areas are animal husbandry, fish farming, agro economy, herbs, and tourism. The Karnali Province is home to the Rara Lake and Se Phoskundo Lake, which are major tourist attractions. The presence of Kailash Mountain and Kakre Bihar can augment religious tourism. Plans to build an airport in Surkhet is also in place. Connectivity within Nepal is also a must for economic agglomeration.
- **Province 1** - Basic investment environment has been set and the ground work has been done at the province level - vision of the first 5-year plan, annual plans and budgets prepared; in the process of preparing a project bank. Water resources in the province are abundant, with about 22,000 MW capacity in province 1. The Arun hydropower project (700 MW), Koshi high dam, and Biratnagar Airport (feasibility ongoing to make it an international airport) are a few projects, to name. Similarly, plans for satellite cities, smart cities, SEZ, tourism cities, and international standard convention hall are taking shape. The provincial government has acquired 600 ha of land for industrial park. Tax exemptions and subsidies are being drawn out.
- **Province 2** - Agro based economy should be promoted in Province 2. Need to contain the manpower of this region by providing opportunities within the province is something that should seriously be taken into consideration.
- **Province 3** - Four industrial districts are within this province. The only international airport is in the province. With the largest population, special importance should be assigned to the province as it is connected to the national capital. Coordination

between the three tiers of government must be strengthened. The Province will provide the incentives to attract investment in the industrial corridors.

- **Province 5** Province 5 is in the preliminary stage of planning and strategizing; periodic planning ongoing -with up to 63% investment requirement from the private sector. 1000 biga of land has been acquired by the province, and another 500 will be acquired to accelerate industrial establishment. Road construction, agriculture, industrial development, herbal farming etc. are some of the projects that will be included in the shelf of projects.
- **Province 7** - Province 7 connects all three terrains of Nepal - Terai, Hills and Mountains. It is also connected to India and China. Agriculture, hydropower (Pancheswhor, West Seti), tourism are foundations of the province. There is a scope for medicinal herbs as well.
- Given the various niches in each of the provinces, plans and strategies should be developed keeping these strategic advantages in mind. In order to promote competitive federalism, a Competitive Federal Index can be developed in the lines of what is being implemented in Vietnam or in India through Ease of Doing Business in States.
- It was pointed out that regular dialogue mechanisms with provinces is also required to obtain feedback and suggestions at the local level. In order to address this, the formation of the Provincial Investment Partnership Forum (PIPF) was announced, which will ideate and expedite projects for each of the provinces.

“DELIVERING INFRASTRUCTURE PROJECTS”

Chair

Hon'ble Mr. Raghbir Mahaseth
Minister of Physical Infrastructure and Transport, Government of Nepal

Keynote Speakers

- Prof. Dr. Govinda Raj Pokharel, Former Vice Chair, National Planning Commission

Panelists

- Hon'ble Mr. Sushil Bhatta, Member, National Planning Commission
- Mr. Gopal Prasad Sigdel, Joint Secretary, Ministry of Physical Infrastructure and Transport
- Mr. Rabi Singh, President, Federation of Contractors' Associations of Nepal (FCAN)
- Dr. Er. Hareram Shrestha, Past President of Nepal Engineering Association (NEA), Society of Consulting Architectural and Engineering Firms (SCAEF)
- Dr. Ghana Shyam Gurung, Country Representative, WWF Nepal

Special Address

H.E. Dr. Subin Pinkayan
Chairman, AIT Board of Trustees, Former Minister of Foreign Affairs of Thailand

Moderator

Mr. Deependra Nath Sharma
Former Secretary, Ministry of Urban Development, Government of Nepal



SESSION SUMMARY

- Nepal is in need for better trunk infrastructure with respect to Electricity, Road, Telecom, Water Infrastructure, etc. to create a better environment for delivering infrastructure projects. The strategic advantage of Nepal has to do with having an open border with India which also means that quality infrastructure has significant scope in Nepal.
- Additionally, enabling factors which may be summarized as Digital Infrastructure, Energy Infrastructure & Availability of private and concessional funding for infrastructure need to be considered to increase the demand of the infrastructure.
- Given limited resources, there should be a strategic approach to selection of projects depending on use cases. Nepal should prioritize the infrastructure based on the cases which are Strategic, Developmental, Financial, Technological, and Marginal in nature.
- The common issues in Nepal with respect to delivering infrastructure projects are
 1. Lack of Construction Material
 2. Lack of Enforcement of land acquisition and forest clearance
 3. Lack of Capacity
 4. Low availability of skilled labour
 5. Ensured funding
 6. Unclear modality of delivery
 7. Lack of inter ministry coordination

- To strengthen the bankability of projects, the following criteria should be deemed important:
 1. Projects must be viable to the needs of the country.
 2. Projects must be technically and financially feasible to implement.
 3. Project feasibility study and design should be done by well recognized body.
 4. Project construction should be controlled by good reputation organizations.
 5. Project delay and cost overrun due to contractor must be brought to a minimum.
 6. Post construction monitoring should be done by professionals.

- The government needs to be involved in front end planning, and efforts need to be placed in streamline or setting up right process for proper planning, feasibility, detail study with advisories. From April to August, the Public Procurement Act has been already amended three times and it still requires to overcome all the hurdles faced by the Nepali contractor community.

- Nonetheless, newer and innovative steps are being taken by the government to tackle the problems to deliver infrastructure projects. For instance, new liability contracting provisions have been introduced for greater accountability from everyone involved. Recent projects funded by ADB on highways have this provision added in the contracting.

- Nepal government has to facilitate the contractors with the opportunity and also has to build confidence with contractors for infrastructure development. Nepal government has to facilitate the contractors with the opportunities to develop the confidence in the contractors.

- Nepal should also focus more on the industry sector. Issues like government policy, proper consultancy and many more need to be properly dealt with. In Nepal, some service providing agencies are getting more and some agencies are not getting any projects at all, which has to be balanced. Best case practices from neighboring countries should be studied to draw learnings that can be adopted in the local context.

- Nepal is targeting to achieve an 8% growth rate for the current year. Countries which were financially troubled in the last 30-40 years have developed only because of their tourism. Hence, Nepal must focus on boosting tourism, while complimenting it with tourism infrastructure.

SESSION 6

“CREATING OPPORTUNITIES FOR PRIVATE SECTOR”

Chair

Dr. Ram Sharan Mahat

Former Finance Minister, Government of Nepal

Keynote Speakers

- Hon'ble Mr. Binod Kumar Chaudhary, President Emeritus, Confederation of Nepalese Industries
- Mr. Andrew Goodland, Program Lead, The World Bank Group

Panelists

- Mr. Gyanendra Lal Pradhan, Executive Chairman, Hydro Solutions
- Mr. Shantanu Chakraborty, Director, Infrastructure Finance Division, South, Central and West Asia, Asian Development Bank
- Ms. Lisa Honan, Head of Department for International Development (DFID) Nepal
- Mr. Charles Rochford Callanan, United Nations Office for Project Services (UNOPS)

Moderator

Mr. Mohit Bhasin

Partner & Lead, Economic Development Advisory – Infrastructure, Government & Healthcare, KPMG in India



SESSION SUMMARY

- We all know well that Nepal's investment requirements are huge, to the tune of 32% of the overall GDP of Nepal. It is also known that private sector investments are required to achieve the target of 8% GDP growth. That said, public investment will remain essential for projects that are not viable or have no precedence for private financing or it could come in the form of viability gap financing.
- Nepal can draw upon the learnings from India to attract private sector investment, as the situations in both the countries are comparable. In federal Nepal, the formation of 7 provinces has led to ample opportunities for investment. These provinces may find their niches and attract investments in these sectors, thereby creating a competitive yet cooperative environment.
- A comparative strength study for these provinces may be undertaken, which includes the capacities, niche areas for investment, and financing needs. India, along the lines of the World Bank Ease of Doing Business, has created a sub national ranking framework for their states. A similar exercise for Nepal will help domestic and international investors streamline their investments based on the demand and investment framework in each of the provinces.
- The World Bank Group's 'Nepal Infrastructure Sector Assessment' report launched at the Summit makes a strong argument for this being an opportune time to mobilize private sector investment in Nepal. The report analyses gaps in the current business environment, while making recommendations for strengthening the government, public investment management, developing a strong framework,

strengthening the financial sector, and addressing environmental and social concerns.

- The report focuses on three key sectors - energy, transport and urban development - and examines opportunities for private sector solutions.
- Energy is a strategically important sector, not only to support higher rates of economic growth but also as source of export revenue. From 2010 to 2017, the energy sector received investments that were approximately 500 million per year. The World Bank estimates that in order to keep pace with the demand, investments need to accelerate from USD 1.3 to 2.1 billion annually between 2018 and 2040.
- For large scale projects, the domestic private sector doesn't have the capacity to mobilize large amounts of long-term financing. Hence, there is a need to create a level playing field for the private sector by operationalizing an independent regulator and completing the sector restructuring process.
- There is also an urgent need to strengthen the financial viability of the energy sector to improve its creditworthiness. Ensuring cost-effective tariffs, reducing transmission and distribution losses, and strengthening the framework for electricity trade with new regulations and guidance will help achieve this goal.
- The contribution of the import of energy to Nepal's trade deficit of USD 12 billion, is around 15% currently. With increased production of electricity and substituting uses of cooking gas with electricity and increasing local demand, the hydropower sector can substantially reduce Nepal's trade deficit. Since the size of the project can be altered to suit the investors' risk profile and capacity, hydropower sector offers an array of opportunities for domestic and international investors as well. Nonetheless, there are certain areas that need to be improved - lower interest rates, one window system, forward looking policies, double PPA, shorter approval period and reliable security system at site.
- Similarly, the road sector needs around USD 1.5 billion per annum until 2025 to meet the investment backlog. Development of airports can attract international private sector for efficient and safe airport management. Urban transport is another crucial sector wherein an exercise for planning and prioritizing for road improvement, including the strategic road network needs to be undertaken.

- Urban development in a newly federated country with an annual urbanization growth rate of 3.2% between 2010 and 15, needs to be managed efficiently. Municipalities now have assumed responsibility for various municipal services and they need to address the backlog in infrastructural needs. Nonetheless, institutional constraints and weak financial health due to low revenues and inadequate financial management systems act as constraints for efficient implementation. Hence, the government must address issues of improving credit worthiness of local governments, encouraging PPP and creating policy, and regulatory support for local borrowing.
- The most critical element international investors look for while making investment decisions is consistency and transparency in the regulatory framework, that doubles a project for the 20 to 25 years. By default, a hydropower project will require very long engagement by the stakeholders. A project which can stand the test of time and change in regimes should be awarded in a transparent, cost-effective manner. Hence, certainty in the regulatory regime and independence of the regulator are key factors. Similarly, mechanisms to hedge foreign currency risk need to be implemented in practice.
- Lastly, managing the environmental impacts of projects by improving the capacity of institutions to conduct environmental and social impact assessments will help international funding agencies make an informed decision.
- Also, building resilient infrastructure is the most crucial element for a disaster-prone country like Nepal. In the current scenario in Nepal, if we imagine infrastructure as a pipeline, with individually connected pipes starting from the idea, to allocation of the infrastructure projects, to procurement, delivery, and maintenance of the asset, that pipe right now is leaking at every joint. And so, we are losing around 40% of the capital costs. When we look at the 8% of the government expenditure that is being pushed into infrastructure, Nepal needs to fix those leaks and use resilient infrastructure approaches to absolutely maximize the value.
- Hence, Nepal should collaborate with international financial institutions in getting technical assistance for economic and policy reforms, thereby creating a favorable environment for the private sector. For instance, assistance in moving the World Bank's Ease of Doing Business rank, which is a benchmark for assessing the investment climate for international investors should be taken up.

SESSION 7

“PUBLIC PRIVATE PARTNERSHIP FOR PROSPERITY”

Chair

Hon'ble Mr. Barshaman Pun 'Ananta'

Minister of Energy, Water Resources and Irrigation, Government of Nepal

Keynote Speakers

- Mr. Maha Prashad Adhikari, CEO, Investment Board Nepal (IBN)
- Mr. Moazzam Mekan, Principal Investment Officer, International Finance Corporation

Panelists

- Mr. Bo Seuk Yi, CEO, Upper Trishuli-1 HEP, 216MW, NWEDC
- Mr. Sanjay Singh, Senior Vice President, Frost & Sullivan
- Dr. Upendra Mahato, Founder Chairman, Non-Resident Nepali Association
- Mr. Pradip Kumar Shrestha, Managing Director, Panchakanya Group
- Mr. Bhaban Bhatta, President, Non-Resident Nepali Association

Moderator

Mr. Vikas Gaba

Partner, Power and Utilities – Infrastructure, Government & Healthcare, KPMG in India



SESSION SUMMARY

- **Need for ppp:** According to CNI study, Nepal needs to invest 8% to 10% of its GDP in infrastructure till 2030 for sustained growth. Mobilizing these investments will be a arduous task and the Government of Nepal is looking at PPP modalities for raising these funds.
- **Conducive policy and regulatory environment:** Stability and predictability of the policy and regulatory provisions is essential for long-term PPP investments. Nepal is making efforts in this direction: it has enacted the PPP and Investment Law, introduced new financing options like viability gap funding, introduced process for PPP projects under unsolicited route, developed competitive bidding route ,etc.
- **Streamlining process to accelerate project execution:** Infrastructure projects, especially hydro projects, have long gestation period (approx. 6 to 7 years and similar timelines for pre-planning). Agencies need to streamline processes, especially those related to clearances and approvals, to de-bottleneck and shorten these timelines. Nepal needs to focus on a unified infrastructure policy with single window clearance to streamline asset operations.
- **Risk sharing under PPP projects:** Suitable allocation of risks between private and public is the cornerstone of a well-designed PPP Project. The risk sharing regime defines the roles and responsibility of the government and private sector in a PPP Project.

- Building in resilience in infrastructure projects: Nepal is a climate vulnerable country. Resilience needs to be built into the infrastructure planning and implementation. Suitable guidelines need to be developed and duly considered in the infrastructure development process.
- Pre-project planning and due diligence of the project by the government/ public entity is imperative to develop investor attractive projects: A well-structured, financially viable project, with adequate value for money (VFM) can be considered under PPP framework.
- Strategic plan and roadmap to achieve 15000 MW target – Long range energy planning, with pragmatic estimates of domestic demand needs to be undertaken to feed into an implementation plan for achieving 15,000 MW by 2030. The implementation plan needs to be both inward (domestic consumption) and outward (export) focused.
- Cross Border Energy Trade (CBET) has a substantial role to play in meeting the 15,000 MW target by 2030. The target includes 5000 MW to be supplied to the neighbouring countries. Both India and Bangladesh are expected to have electricity demand deficits, which can be met by Nepal. Implementation plan for the target needs to identify multi-entity agreements and plan concomitant transmission infrastructure.
- Expansion of PPP opportunities beyond energy (beyond hydro): Beyond hydro sector, PPP projects can be developed in sectors such as airports, environment, water and sanitation, waste management, urban development, transport etc. Reference projects need to be taken up, and lessons disseminated to scale up projects in these sectors.

PPP calls for shared responsibility and prosperity, where all stakeholders need to come together and make strong reference cases that will work in Nepal and then can be scaled up. The country has started its journey for developing the infrastructure sector with policy reforms, improving ease of doing business, developing a compendium of projects for reference of the private sector. The momentum has been built, and this needs to continue to ensure continuous investment flows.

“CLOSING PLENARY”

Chair

Mr. Satish Kumar More

President, Confederation of Nepalese Industries

Panelists

- Mr. Birendra Raj Pandey, Vice President, Confederation of Nepalese Industries
- Mr. Akhil Bansal, Deputy CEO, KPMG in India
- Hon’ble Mr. Binod Kumar Chaudhary, President Emeritus, Confederation of Nepalese Industries
- H.E. Dr. Subin Pinkayan, Chairman of AIT Board of Trustees, Former Minister of Foreign Affairs of Thailand
- Hon’ble Mr. Martika Prasad Yadav, Minister of Industry, Commerce and Supplies, Government of Nepal
- Mr. Vishnu Kumar Agarwal, Vice President, Confederation of Nepalese Industries



KEY TAKEAWAYS

Nepal has met the technical criteria to graduate from UN-defined status of a Least Developed Country (LDC) and is expected to embark on this transition in 2021. By 2030, Nepal expects to meet almost all the SDGs, and become a lower middle-income country with a respectable average per capita income. Ultimately, the final goal of becoming a Developed country is set to be achieved by the year 2043.

While meeting these targets and achieving the Government's slogan of "Prosperous Nepal – Happy Nepali" may seem monumental, they can be realized if the country invests adequately in infrastructure and sets in motion a process of capital formation and economic growth that is broad-based, job-creating, and sustained.

The third Nepal Infrastructure Summit discussed the key infrastructure requirements for the country, and the focus areas to facilitate private sector investment were summarized above.

These were internal and regional connectivity, internal roads, hydropower potential, tourism, digital disruption, energy, and skill upgradation, to name a few. While the Summit touched upon topics such as healthcare, water & sanitation, management of urbanization, it maintained they are equally important and need to be developed.

Conclusion: Suggested Actionables

Given the infrastructure requirement for the country, it is imperative that it focus on certain key strategic levers identified throughout the course of the Summit, which will help achieve the goals of becoming a Middle-Income economy by 2030. Briefly, they are:

1. Capacity

- Rigorous institutional capacity building at provincial, district and municipal level to ensure federalism is to be implemented.
- Formal, technical and vocational education required for new skills in relation to designing and delivering resilient infrastructure is to be expedited. Initiatives in mission mode may be launched by the Government (Sector Skill Council–National Occupation Standards Framework).
- To foster the ecosystem of innovation and entrepreneurship, Government can launch Start-up Nepal as a program, in-line with India’s flagship Start-up India initiative and draw learning from this program.
- Training institutes such as Engineering Staff College, and Technicians Training Centre is to be set up.

2. Financing

- Huge infrastructure financing is required that can be met through collaborative contribution from private sector, BFIs, government, IFIs and many more.
- Broad basing financing options is required to include new mechanisms (e.g. viability gap funding, project financing, OpEx models etc.) and new sources of finance (e.g. climate funds, targeted FDI approaches).
- Policy level changes to augment exposure of banks’ investment in non-energy infrastructure sector – long term and low-cost fixed lending is to be attended to.
- Robust fund management of EPF (Employee Provident Fund), CIT (Citizen Investment Trust) with possibility of investments in infrastructure development with strong governance is to be seriously considered.
- Role of new institutions such as Nepal Infrastructure Bank, HIDCL is to be spelled out to catalyze investment in private sector

3. Policy and Governance Framework

- Collaborative Governance Framework is to be implemented to enable smooth functioning of 3 tiers of Government and promote regional collaboration
- Opportunities at province level – identify niche and build strategies around it – is to be cashed. One Province One Product/ One District One Proposition is to be materialised.
- Promoting competitive but cooperative federalism by developing Private Sector Development Framework for job creation, which can take inspiration from Provincial Competitive Index (Vietnam, India’s model of Smart city & sub-national Ease of Doing Business Framework) can be implemented

- Creation of Provincial Investment Partnership Forum (PIPF) at the center to enable private participation at province level is to be expedited.

4. Public Private Participation

- Creating conducive environment with predictable return for private sector to invest in the infrastructure sector in addition to energy is to be given priority.
- Developing private sector engagement framework to seek their inputs on policy and regulatory matters on time-to-time basis is to attract due attention of concerned sections. For example, in India several Ministers have their own CEO advisory panel which meets on a periodic basis
- Working towards improving World Bank’s Ease of Doing Business, an important element which defines investors’ perception (current rank 110 out of 190 countries) – business climate reforms is to find its full expression.
- Develop risk financing strategies for development of resilient infrastructure

5. Project Implementation, Management & Monitoring

- Introducing the concept of the National Project Bank, which will facilitate in the review of project implementation at the highest level is to be quickly enacted.
- Pushing disaster resilient infrastructure through three levers 1) policy measures, 2) financing mechanism and 3) risk information is to be put to practice.
- Developing Project Implementation and Governance Framework for the monitoring delivery of large infrastructure projects is to be given due attention.
- Developing Standard Operating Procedures (SOPs) and criteria for large infrastructure projects is not to be overlooked.
- Taking an integrated approach towards the development of Trinity Infrastructure - Telecom, Energy and Transport is to be expedited.

ANNEXURE

Summary of Study Report “Nepal Infrastructure 2030: Investment and Financing Needs”

1. Infrastructure and its Role in Development

Nepal is one of the poorest and slowest growing economies. Its economic growth has hovered around an average of 4% in the last twenty years. The need of the hour is to invest in resilient and sustainable infrastructure since infrastructure of low quality tends to deteriorate faster, making it far expensive to maintain and to replace later. The World Bank (2014) also emphasizes the importance of 3 “I”s – Investment, Infrastructure, and Inclusion to take a major development leap toward the middle income status, and to achieve annual real GDP growth rate of around 7%.

This study identifies the priority sectors that will aid in economic growth and sustainable development. These sectors are as follows:

- Access to energy (electricity, fuel, etc.) is important in productive activities and improving the standard of living
- Transport infrastructure contributes to the economy through connectivity by facilitating the movement of goods and services and by providing access to health, education, markets, and services. Synergies created by connecting people, location, goods and services will lead to job creation and industrial hubs.
- Water and sanitation play an important role in economic growth through improvement in health and productivity resulting from access to safe drinking water and proper management of sanitation.
- Urbanization and growth of a country go together. Very few countries have reached income levels of USD 10,000 per capita before reaching about 60% urbanization. In other words, urbanization is necessary to sustain growth.

2. Current State of Infrastructure Development in Nepal

The current state of infrastructure of the country is far from satisfactory. As per the Global Competitiveness Report 2017-18, compiled by the World Economic Forum, Nepal's infrastructure score stands at 17 out of 100, whereas India, Bangladesh and Pakistan's scores are 51.4, 31.5 and 35.1 respectively. This also has a negative impact on Nepal's GDP per capita (USD 849) which is also comparatively lower.

Past investment trends in capital expenditure also has not been up to the mark. The total capital expenditure in the priority sectors in the six fiscal years 2011/12 to 2016/17 has average at USD 7.03 billion. To put this in context, the estimated investment need following the top-down method for the time period 2019 and 2030 is USD 29.72 to 48.34 billion. The studies by Andres et al. (2014) and Bhattacharya (2010) prove that

the estimate of spending required on infrastructure from this level of spending is low. This also reflects on the current state of priority sectors, which is highlighted below.

Energy

- Firewood is the largest source of energy (68%) in Nepal, whereas electricity constitutes only 4% of the total energy supply.
- With a huge hydropower generation potential (economical) of around 43,000 MW, Nepal so far has only been able to generate less than 1,000 MW. According to the Nepal Electricity Authority (NEA), there are 88 hydropower plants in operation with a combined generating capacity of 967.85 MW.
- Furthermore, there are 113 hydropower plants of varying capacities at different stages of construction, expected to generate 3,080 MW. Nepal has a potential of generating approximately 1,830 MW of electricity from solar and 3,000 MW of electricity from wind energy.

Lastly, Nepal loses nearly 30% of the total electricity generated. To put it in context, the average electricity loss of OECD countries is 6% (ADB, 2017).

Transport

- Nepal's transport infrastructure is dominated by road networks, which provide for the movement of approximately 90% of all passengers and freight. The road network has grown from 276 km in 1956 A.D. to around 69,000 km in 2017 A.D.
- The road networks in Nepal is dominated by fair weather roads which are seasonal and operational only during rainy season; only 33% of total road networks are all-weather roads.
- Although Nepal's total (paved and unpaved) road density (48.78 km/100 sq. km) is larger than that of other mountainous countries such as Bhutan (20km/100 sq. km) and Pakistan (32km/100sq km), effective transport service is limited only to around 50 % of the networks.

Water and Sanitation

- The current reported coverage for basic water supply and sanitation is 95% and 98% respectively (NPC, 2019). These figures may seem good if analysed on a stand-alone basis, but as of 2017, only 27% of water supply has been safely managed, a slight improvement from 24% in 2000 A.D. (WHO & UNICEF, 2017).
- While 58% of the population in the urban areas has piped water services, the figure is only 41% for rural areas.
- Nepal has come a long way in improving access to basic sanitation with coverage raised to 97% in 2019A.D. from 62% in 2011. However, CBS (2011) states that only 30% of the urban households are connected to sewerage or septic tank. This implies that wastewater has not received a priority.

- Water treatment systems in Nepal are rare, the sewers are discharging openly into natural bodies. A Sewerage Master Plan for Kathmandu projected to the year 2030 — Kathmandu Valley Wastewater Management Project — has been prepared under an ADB Loan of USD 817 million.

Urbanization

- In 1981, there were 23 municipalities which were home to 6.4% of the total population of the country. With 293 municipalities in the country today, about two-thirds of the national population are estimated to live in municipalities.
- The National Urban Policy, 2007 (DUDBC, 2007) cites the following two reasons for rural areas not adequately benefiting from urbanization in Nepal: (i) minimal investments from public and private sectors in small towns, resulting in inadequate provision of physical infrastructure and low economic growth; and (ii) inadequate road networks and communication facilities resulting in weak rural-urban trade linkages.
- Haphazard urban growth across the country has expanded habitation even in unsafe and geologically fragile areas, including river banks and landslide-prone slopes. Lack of affordable housing in urban and urbanizing areas has resulted in the growth of informal settlements and urban slums, often situated in marginal lands with poor housing quality and limited access to basic services and infrastructure.
- On top of that, poor quality of infrastructure has made both the infrastructure and the dependent population more vulnerable to climate risks.

3. Challenges in Infrastructure Development

Clear policies, political stability, choices in financing options, and investment-friendly bureaucracy are the foundation of overall infrastructure development in any country. The foundation also constitutes investment in infrastructure by the private sector. However, these are clearly lacking in Nepal and the country has a low level of

infrastructure development as discussed in previous sections. There are numerous problems and challenges at all levels and stages of infrastructure development. The study, presumably not as comprehensive as it should be, has identified the following challenges in infrastructure investment and development in the country.

- Lengthy approval processes in licensing, construction, and operation of projects.
- Multiple policies with overlapping authorities with multiple acts and policies on sectorial infrastructure, domestic investment, and foreign investment.
- Inability to mitigate risks with respect to political factors; ambiguous laws and regulations; risks of fluctuations in environment, and interest rates and exchange rates; and risks to the constant revenue stream.
- Limited financing options and lack of clear guidelines on raising capital for infrastructure projects
- BOOT Model as the only form of public private partnership.

4. Infrastructure Investment Needs and Gaps

The aforementioned sections highlight the need and importance of infrastructure investment. This section analyses the requirements and estimates the infrastructure investment needs. Estimate of infrastructure needs and gaps 2030 is generated using the following two methods.

1. Top Down (Macroeconomic) Method - The top-down method estimates infrastructure investment needs using a relationship between GDP and the variables that represent the level of infrastructure: road density (kilometre of road/1000 sq.km), kilowatt of electricity generated per capita, and percentage of population with access to drinking water and sanitation. This method has been used to estimate the investment needs under three different GDP growth scenarios: normal growth at 5%, optimistic growth at 7.5% and highly optimistic growth at 10% per annum. Investment need (as a percentage of estimated GDP under three growth scenarios) ranges from 8.14 to 9.23% for baseline estimates and from 8.66% to 9.85 for climate adjusted estimates.

2. Bottom-up Method - Bottom-up method estimates the need of investment in the selected infrastructure sectors based on demand for relevant end-use services in ongoing projects, projects in the pipeline, sector development plans and strategies, and the targets that need to be met by 2030.

Summary of factors considered for bottom-up estimation of investment needs Sector

Projects and Target Considered till 2030

- Meeting universal energy access target as a part

Energy	<ul style="list-style-type: none"> of SDG: 13,000 MW • Completing identified projects in the pipeline: 15,000 MW • Meeting the maximum demand of electricity forecast for 2030 by the Water and energy commission secretariat (WECS): 18,000 MW
Transport	<ul style="list-style-type: none"> • Giving continuity to current programs • Projections based on SDG targets • Upscaling investment to achieve economic growth and prosperity • Climate proofing
Water & Sanitation	<ul style="list-style-type: none"> • Estimation based on cost per capita for programs in water and sanitation projects based on the sector Development plan (SDP) and SDG • Climate resilience and social development factors

Urban Development	<ul style="list-style-type: none"> • Estimates on needs based on the estimates of town Development fund (TDF) which are based on the National urban Development strategy (NUDS) • considers four scenarios: meeting 100%, 90%, 75%, and 60% of infrastructure needs of NUDs by 2030 • Baseline and climate change-adjusted estimates
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The investment gap in each priority sector (which for the years 2019-2030 was calculated by considering the estimated infrastructure investment need and projection of available funds for investment in infrastructure by 2030) is high relative to the GDP and budget of the country as the source of fund for investment is public investment through capital expenditure allocation in the priority sectors.

The investment gap in the transport is USD 48.88 billion, and in urban development, it is USD 51.57 billion (maximum gap in range). In water and sanitation, the gap is USD 11.77 billion and in energy, USD 19.06 billion (maximum gap in range). If the government wants to fill this estimated investment gap through public expenditure, then it can do it only by additional borrowing, since increasing the revenue to boost up economic growth to fill the gap or reducing expenditure in other categories is not a viable option.

Sectors	Estimate from Top-Down Method in USD billion	Estimated Infrastructure Stock under three GDP growth scenarios	Estimate from Bottom-Up Method in USD billion	Project Considered in Bottom-Up Method
Energy	1.52-1.79	0.44,0.47 and 0.51 Kw of electricity generated per capita	23-36	Bottom-up estimation considers achieving 13000, 15,000, and 18,000 MW with combination of RoR and storage projects
Transport	22.76-41.06	381.1, 455, and 542 km per 1000 sq. km of land area	84.88	primarily considers road upgrading, expansion, and construction projects. construction of additional 120,000 km of road by 2030 to meet the SDGs.

Water and Sanitation	5.45-5.55	100% of population with access to water and 45.8% of population with access to sanitation	31.89	Based on targets of SDGs and sector Development plan
Urban Development	N/a	N/a	40.05-75.84	Bottom-up estimation considers achieving 60, 75, 90, and 100 % of targets set by NUDs

5. Role and Opportunities for the Private Sector

There is no denying to the fact that Infrastructure projects requires a lot of capital investment. The estimates on investment needs and gaps running to billions of dollars create scenario for active roles and opportunities for the Private Sector.

In the Energy sector, there will be a need of up to USD 36 billion investment by 2030. To fill the existing investment gap of USD 19.06 billion, there is an enormous opportunity for private sector to step in by upscaling their role from supplying of 324 MW to becoming a major energy supplier.

Similarly, in the Transport sector, the investment gap by the year 2030 has been estimated to be USD 48.88 billion, and there lies a huge scope for the private sector to enter into PPP agreements with the government and/or to finance projects on their own.

In the Water and Sanitation, the estimated investment need is of USD 31.89 billion, and an investment gap of USD 11.77 billion is substantial. Opportunities to enter into BOOT contract or PPP agreements with the government for investment are clearly available for the Private Sector. Private players have also been welcomed to sub-contract services to improve operation and performance, and reduce the costs of the existing systems.

Urban development sector requires huge investments which cannot be met by the government alone. With rapid expansions in urban areas and receiving more investments from government and development partners for such areas, it is an appropriate time for the private sector to increase their presence in the sector's development.

6. Way Forward for Infrastructure Development in Nepal

Apart from investments, the need for major policy and institutional reforms should also be emphasized. Speaking about reforms in General Policies and Strategies, a need for unified national infrastructure policy and a single-window clearance system is now long due, for facilitating infrastructure investment by speeding up the process of obtaining permits and approval of solicited and non-solicited proposals.

Moreover, to create an environment conducive to facilitating investment in infrastructure by the private sectors, it is essential to set up new institutions in federal Nepal. In Nepal, it is not easy to acquire private land for large projects, since the compensation demanded is often much too exorbitant, which leads to the need for Enactment of new Land Acquisition, Resettlement, and Rehabilitation Act and replace the existing Land Acquisition Act (1977), along with effective enforcement of the Public Private Partnership and Investment Act (2019), Foreign Investment and Technology Transfer Act (2019), and Industrial Enterprise Act (2016).

Exclusively, policies and strategies for Energy Sector have seen a paradigm shift. The recently enacted Nepal Electricity Regulatory Commission Act (2014) has helped in unbundling of operations- generation, distribution, and transmission. Yet, there is a need for Electricity Regulatory Authority to be made functional as an independent auditor.

For resolving issues of Transport sector, strategies such as Revisioning of current road classifications (from administrative hierarchy basis to functionality basis), Changes in practice of road construction for widening and alternative alignment, establishing backbone economic connectivity corridor to facilitate economic growth, doubling urban road density should find their full expression.

To get Nepal to meet targets to be ODF by 2021, provision of basic water supply to

To get Nepal to meet targets to be ODF by 2021, provision of basic water supply to all, wastewater treatment facilities, and many other targets, for which strategies like involvement of private sector, repair, maintenance, and rehabilitation of systems, designing, building, and upgrading of new systems are the areas that need our serious heed.

Enforcement of the PPPI Act-2019 with provisions of VGF stands crucial for Urban Development Sector, along with the need to clearly define the role of the private sector in the Urban Development Act. In house funding sources, which comprises of revenues, BFIs, Insurance companies, EPF, CIT also needs reform for maximum benefit.

Nepal needs to follow the examples of other countries to make effective use of the mechanisms already in place and set up new financing instruments to fund infrastructure projects, such as bond financing (green bonds, Long-term infrastructure bond series, Thematic Bond-Panda Bonds, Thematic Bond-ADB Water Bond, Municipal Bond); Infrastructure Development Fund (Regional Infrastructure Development Fund, ASEAN Infrastructure Fund); Infrastructure Development Financial Institutions; Private Equity/Private Equity Firms, FDI; Diaspora Financing; Viability Gap Funding; ADB Local Currency Borrowings; Blended Financing. In addition, Nepal needs to prioritize and select projects, with better coordination with concerned parties, while raising construction capacity through new technologies and using modern equipment and advanced construction techniques.

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