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NAGDHUNGA TUNNEL: A PIONEERING ACHIEVEMENT IN NEPAL'S ROAD INFRASTRUCTURE

Nepal, a mountainous landlocked nation, relies heavily on its road network for trade and transportation, with approximately 90% of trade facilitated through roads. The country's diverse geography presents significant challenges, particularly in constructing and maintaining roads that traverse its rugged terrain. In this context, the Nagdhunga Tunnel Construction Project emerges as a transformative initiative, promising to enhance road connectivity and boost economic growth in Nepal.

Situated in the Kathmandu-Naubise section of the Tribhuwan Highway, the Nagdhunga route serves as the primary trade corridor connecting the capital, Kathmandu, to various other cities and facilitating trade with India. This highway, characterized by a steep hill and numerous turns, experiences severe traffic congestion, leading to longer travel times and increased risk of accidents. Additionally, the presence of unstable slopes alongside the road raises the potential for closures due to landslides.

In response to these challenges, the construction of the Nagdhunga Tunnel offers a viable solution to improve road efficiency, enhance safety, and stimulate trade activities between Nepal and India.

The Nagdhunga Tunnel Construction Project is financed through an Official Development Assistance (ODA) loan from the Government of Japan, with the Japan International Cooperation Agency (JICA) providing approximately JPY 16.636 billion. . The construction works began in October 2019, and the project aims to improve transportation conditions around the Nagdhunga pass, thereby facilitating a smoother transportation network between Kathmandu and other key areas of Nepal.

After overcoming significant hurdles, including a temporary halt due to the COVID-19 pandemic, the project achieved a critical milestone with the successful breakthrough of the tunnel in April 2024. With over 78.2% of construction now complete, the project is on track for its anticipated completion by October 2025.

Once operational, the Nagdhunga Tunnel is set to deliver a range of significant benefits that will transform travel and commerce in the region. Stretching 2.7 kilometers with two lanes, the tunnel will reduce travel time, cutting the duration required to navigate the notoriously congested Nagdhunga Pass by up to two-thirds. Currently, travelers can face delays of more than 30 minutes during peak traffic, but the tunnel's design promises to alleviate these bottlenecks, ensuring smoother and faster commutes. Beyond time savings, the tunnel's construction is expected to enhance safety by offering a more stable route with a better gradient and stronger structural integrity, thereby reducing the risks posed by landslides and other geological hazards that have plagued the area. Environmentally, the tunnel will contribute to lower carbon emissions by minimizing travel times and reducing vehicle idling, which in turn will help reduce air pollution in the surrounding areas. Economically, the improved connectivity is expected to boost trade and economic activity between Nepal and India, further stimulating the region's growth and prosperity.

The Nagdhunga Tunnel Construction Project is significant not only for its immediate benefits but also for its role in advancing Nepal's tunneling technology. The project represents the first substantial effort to transfer modern tunneling techniques to Nepalese engineers, contractors, and consultants.

"The traffic management shall improve, saving travel time and reducing congestion after this tunnel comes into operation. In addition, we are expecting enhanced transportation efficiency and safety." claims Former Project Director of the Nagdhunga Tunnel construction Project, Department of Roads
Mr. Nabin Man Shrestha.

He further stated that, *"Through JICA's collaboration, Nepalese personnel are acquiring essential skills in tunnel design, construction, supervision, and maintenance. This knowledge transfer is crucial for future infrastructure projects, enabling Nepal to embark on more complex tunneling endeavors."*

The tunnel's construction employs high-tech methods similar to those used in Japan, ensuring that local engineers and contractors gain valuable experience. Furthermore, a comprehensive monitoring system will be established to continually assess road conditions, ensuring long-term maintenance and optimal performance of the tunnel.

The journey to completing the Nagdhunga Tunnel has not been without its challenges. The COVID-19 pandemic led to a pause in construction for almost 86 days. However, the project team obtained special permission to resume operations during the second wave, implementing stringent safety measures to protect workers.

Additionally, the geological conditions presented hurdles, including issues with weak rock formations. The construction team adapted to these challenges by reinforcing the tunnel structure and adjusting techniques in response to changing geological conditions.

Photo Courtesy :Mr. Nabin Babu Gurung

To ensure the long-term sustainability of the Nagdhunga Tunnel, the Department of Roads (DoR) is implementing several strategic measures. Public awareness programs will educate road users about the proper use of the tunnel, including emergency procedures.

Moreover, a robust operation and maintenance system will be developed in coordination with the DoR's maintenance division and the capacity development consultant. This framework aims to keep the tunnel in excellent condition and will serve as a model for future projects.

"Nepal's collaboration with Japan, particularly through JICA, has led to significant advancements in road construction and infrastructure development. Some notable achievements include the 160 km BP Highway -Sindhuli Road and Kathmandu-Bhaktapur Road Spanning 9.1 km. Hence, it can be assured that Nagdhunga tunnel will also be a world class construction in the history of Nepal's infrastructure.",
adds **Mr. Shrestha.**

A VITAL LIFELINE DURING DISASTERS

The recent heavy rainfall from 26 to 28 Sep 2024 caused significant destruction in Kathmandu and across Nepal, leading to widespread landslides and flooding. Many roads were severely damaged, blocking all routes to the capital and stranding thousands of travelers and goods supplies.

In this critical context, the under-construction Nagdhunga tunnel emerged as a vital alternative. A major landslide near the Jhyaple Khola (Stream) on the Tribhuvan Highway disrupted traffic, making the tunnel essential for transportation and logistics.

On 28 Sep 2024, the tunnel allowed buses, ambulances, and supply vehicles to pass, with Chandragiri Municipality providing buses to transport stranded passengers. Humanitarian access was granted due to road closures, with security measures in place for all vehicles.

Between 28-29 Sep, more than 2,000 individuals were safely transported. Police and construction safety officers and technicians ensured traveler's safety during transit.

Since its breakthrough in April 2024, the Nagdhunga Tunnel has been facilitating emergency access, particularly for ambulances during blockades.

The Nagdhunga Tunnel marks a pivotal moment in Nepal's road transport history, representing the beginning of a new era characterized by improved efficiency, safety, and technological advancement. As the project nears completion, it stands as a testament to the collaborative efforts between Nepal and Japan, exemplifying a commitment to developing world-class infrastructure.

The completion of the Nagdhunga Tunnel will not only transform travel dynamics in the region but also pave the way for future infrastructure projects, enhancing Nepal's growth and development trajectory. With this initiative, Nepal is poised to harness the advantages of modern tunneling technology, ensuring that the benefits extend far beyond the tunnel itself, contributing to the broader goals of economic resilience and sustainable development.

-Ms. Brinda Singh, Public Relations Officer

CHAMPIONING EQUALITY: JDS INITIATIVE FOR GENDER MAINSTREAMING

On October 27, 2024, the Project for Human Resource Development Scholarship (JDS) and the JDS Alumni Association of Nepal (JDSAAN) hosted a Gender Mainstreaming Program titled "The Changing Form of Professional Challenges and Solutions."

Former Chief Secretary, Ms. Lila Devi Gadtaula, Government of Nepal.

Former Chief Secretary of the Government of Nepal Ms. Lila Devi Gadtaula emphasized the importance of integrating gender considerations into policymaking to foster equitable societies. Ms. Radhika Aryal, Secretary at the Ministry of Communication, and Information Technology joined her in addressing the professional challenges faced by women in the civil service.

Ms. Radhika Aryal, Secretary, Ministry of Communication and Information Technology, Government of Nepal.

High-ranking female officials participated and were engaged in discussions, sharing insights and strategies for overcoming these hurdles. Designed to support JDS female returnees, the program provided valuable networking opportunities aimed at enhancing their professional growth and participation in JDS.

Home Secretary Mr. Gokarna Mani Duwadee reaffirmed JDSAAN's commitment to collaboration with JDS and JICA to improve skills and foster bilateral relations between Nepal and Japan.

JICA is committed to promoting gender equality and enhancing capacity development initiatives by encouraging women candidates to participate in its training programs. This effort aims to boost women's participation in capacity development, fostering a more inclusive environment for all.

Mr. Gokarna Mani Duwadee, Home Secretary, Government of Nepal, and president of JDSAAN.

JICA'S COOPERATION IN IMPROVEMENT OF COMMUNICATION AND BROADCASTING: RADIO NEPAL.

THE PROJECT FOR THE IMPROVEMENT AND DEVELOPMENT OF MEDIUM WAVE RADIO BROADCASTING NETWORK

Radio Nepal, established in 1951, was the only nationwide radio station for people to listen across Nepal, whether in the village or in urban setting - for news, views, and entertainment. JICA supported Radio Nepal to establish the Medium Wave (MW) transmission in Dharan, Bardibas, Kathmandu, Pokhara, Surkhet and Dipayal radio stations.

The production and music studios in these radio stations were constructed to support the initiative for the development of communication/media sector and radio broadcasting in Nepal through Japanese Grant Aid, which eventually increased the coverage of Radio Nepal to 75% by population.

This production studio allowed Radio Nepal to broadcast not only programs from the central studio of Kathmandu, but also record programs outside Kathmandu studios to produce local programs in local languages and broadcast them in regional areas for few hours everyday.

This locally produced regional programs made people feel closer to Radio Nepal. Since there were very few music studios to record songs at that time, the music studio in Radio Nepal gave ample opportunity to singers, song writers and musicians of Nepal to record their songs. Therefore, Radio Nepal houses a big collection of old Nepali melodious songs.

After the year 1990, Nepal saw the emergence of FM stations, television, variety of print media and online news. Despite this, the popularity of Radio Nepal remains intact. In times of natural disasters like the earthquake of 2015, when several of communication means were disrupted, Radio Nepal central studio was used for communication with people affected by earthquake and had people willing to support through Radio Nepal live programs. Radio Nepal officials were confident of the Radio Nepal infrastructure and thus the operation continued to serve in such difficult circumstances.

Radio Nepal Music Studio Building built with Japanese Grant Assistance

Recording-in-progress Radio Nepal Music Studio

Recording-in-progress Radio Nepal Music Studio

JICA PARTNERSHIP PROGRAM ENDS THREE KEY PROJECTS IN NEPAL AS 2025 APPROACHES

As of December 2024, the JICA Partnership Program (JPP) is implementing 11 projects. However, three JPP projects are set to conclude by February 2025. Given below are the brief details of those three projects.

PILOT PROJECT ON ACCESSIBLE COMMUNICATION SUPPORT FOR HARD OF HEARING PATIENTS AT KATHMANDU HOSPITAL

by All Japan Association of Hard of Hearing and Late-Deafened People (Zennancho)

Project duration: January 2022 – December 2024

Patients with hearing impairments are often overlooked compared to those with visible disabilities, which makes it challenging for them to receive appropriate attention and effectively communicate in healthcare settings. To address this issue, Zennancho, in collaboration with its local partner SHRUTI and the Department of ENT at Tribhuvan University Teaching Hospital (TUTH), developed an earmark symbol and healthcare guidelines for hospital staff. These tools are now being used by the ENT department at TUTH to improve patient diagnosis. Furthermore, SHRUTI has conducted several training sessions for medical professionals at Civil Hospital, KIST Hospital, and Patan Hospital on how to communicate effectively with hard of hearing patients. The aim is for this guideline to be adopted by hospitals across the country.

TECHNICAL COOPERATION PROJECT FOR SYSTEMATIZING WATER SERVICE AND DISTRIBUTION MANAGEMENT IN POKHARA CITY

by Sapporo Waterworks Bureau (SWB)

Project duration: February 2022 – January 2025

In collaboration with Nepal Water Supply Corporation (NWSC), SWB developed a Standard Operating Procedure (SOP) to manage daily water quality control tasks aimed at providing safe water in Pokhara. SWB also produced instructional video materials to demonstrate effective water quality control methods. Some staff members had the opportunity to participate in training sessions in Sapporo, including on-the-job training. As a result, NWSC is now working to enhance water quality through the implementation of the SOP.

STRENGTHENING AGRICULTURE EDUCATION IN HIGHER SECONDARY SCHOOLS IN NEPAL

by Nagano Prefecture with Shinshu University

Project duration: February 2022 – February 2025

Agriculture is one of the key industries in Nepal, benefiting from the country's diverse geography, ranging from the Himalayas to the Terai. In collaboration with the local partner, AST Foundation Shinshu University has implemented the Research Project and Home Project in three target schools: Amar Singh Secondary School in Mustang District, Swet Baraha Secondary School in Kavre District, and Nepal Model Secondary School in Chitwan District. The Curriculum Development Center (CDC) is currently revising agricultural education guidelines, incorporating the outcomes of this project. Agriculture teachers are highly motivated to use the Home Project and Research Project methods, and students are actively engaged in these initiatives.

Recently, these three projects simultaneously organized its closing ceremonies.

POKHARA'S NEW WATER TREATMENT PLANT AND OTHER FACILITIES INAUGURATED, ENSURING CLEAN WATER FOR ITS RESIDENTS

The construction of water supply facilities in Pokhara has been completed, with the inauguration ceremony held on November 29, 2024. Mr. Pradeep Kumar Yadav, the Minister of the Ministry of Water Supply (MoWS) officially inaugurated the event.

During the inauguration, Honorable Minister Pradeep Yadav expressed his gratitude to JICA and the Government of Japan for the significant support in providing clean water to the citizens of Pokhara. He emphasized that further efforts should be made by Nepal Water Supply Corporation (NWSC) to address the ongoing water demand issues and highlighted the importance of monitoring, supervision, and the proper operation of the constructed facilities.

Mr. Dhana Raj Acharya, the Mayor of Pokhara Metropolitan City (PMC), expressed his satisfaction that, for the first time, clean and safe drinking water is being treated and distributed across 19 different wards within Pokhara. He called for the development of new plans to address the ongoing water shortage and assured that the city would provide any necessary support for these initiatives.

Ms. Tanaka Tomoko, JICA's Senior Chief Representative, applauded the support by all counterparts for the completion and highlighted that this project marked another milestone to strengthen friendship between people of Japan and Nepal. She further emphasized that post completion, the responsibility now is of Nepalese counterparts to utilize the facilities at its fullest in order to provide clean water to the people of Pokhara.

The Government of Japan and Government of Nepal signed the Bilateral Agreement for the Grant Assistance for the 'Project for Improvement of Water Supply in Pokhara' in 2017. This allowed for grant assistance of up to 4.813 billion yen and facilities such as 41 MLD water treatment plant, grit chamber and sedimentation tank, overhead tank, two water reservoirs, 8.2km of transmission pipes and total 88.3km of distribution pipes were constructed.

Despite being the second largest city after Kathmandu and the topmost tourist destination of Nepal, Pokhara never had water treatment facilities. Water was supplied to people without adequate treatment. Considering the situation the Project was commenced as a crucial measure to ensure safe supply of treated water to the people of Pokhara.

Under this project, the water from the Mardikhola spring is processed through grit chambers before being brought to the treatment plant built in Purunchaur situated along Mardi River, where it undergoes purification. Subsequently clean drinking water which passes the national drinking water quality standards is distributed to the residents.

At the same time, the project aims to reduce water leakage, adjust the water supply pressure, reduce the non-revenue water ratio, and take other measures to increase the collection rate of water tariffs and improve the operation system.

These measures are expected to improve the water supply services overall that are overseen in the target area by the Pokhara branch of the NWSC.

JICA has been a long and consistent partner of Government of Nepal in water supply and sanitation sector since 1970s. Since then, JICA has been supporting Government of Nepal to improvise the sector via several infrastructure projects as well as institutional strengthening projects through diverse cooperation schemes like grant assistance, technical cooperation, and concessional loan.

JICA'S COOPERATION ON THE POWER SECTOR DEVELOPMENT PLAN FOR ROADMAP 2035 OF NEPAL

JICA's Technical Cooperation Project, "The Project for the Integrated Power System Development Plan of Nepal" was initiated in Feb 2021 with the Ministry of Energy, Water Resources and Irrigation (MoEWRI) aiming to enhance the capacity of the governmental stakeholders for power system planning and to enhance the capacity of the regulatory and organizational frameworks necessary for smooth and sustainable development of power sector in Nepal.

The project organized its closing ceremony on Sep 27, 2024, in presence of Secretary, Mr. Suresh ACHARYA, senior officials of MoEWRI related government officials and representatives from different Development partners. There were altogether 73 participants at the ceremony.

At the end of the ceremony, Mr. MATSUZAKI Mizuki, Chief Representative of JICA Nepal Office, handed over the Report to Mr. Sandeep Kumar Dev, Joint Secretary, MoEWRI.

The Integrated Power System Development Plan was created by MoEWRI with technical support by JICA to integrate the several masterplans formulated in Nepal by different organizations.

Additionally, the masterplan was created to harmonize with the "Energy Development Roadmap and Action Plan 2035" of MoEWRI. The implementation of the Development Plan shall lead to the realization of Roadmap which has a goal of enhancing power capacity and increase in export to the neighboring countries by 2035.

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