

## Government of Nepal, Melamchi Sub-Project 2 Project Implementation Directorate Kathmandu Upatyaka Khanepani Limited

*Improvements in water, sanitation and sewerage management  
Lay the base for a developed society; make a city beautiful and efficient*

### Brief Statement of the Project Implementation Directorate

The history of drinking water supply in Nepal dates back to 122 years to the establishment of Bir (Dhara) drinking water tap system. Numerous systematic efforts have been made to supply drinking water to the residents of the Kathmandu Valley, but the supply has not met the demand due to increasing population. Currently, the drinking water supply in the Valley faces three problems: First is the dearth of source of water.



Pipeline being laid in Kathmandu as part of improving the distribution network

Second is the lack of proportional distribution as some areas receive plenty of water daily while others get water in an interval of a week or even 10 days. And the third is the century-old pipelines from which more than 40 per cent of water leaks. In order to address these problems, the Melamchi Water Supply Project under the Melamchi Water Supply Subproject 1 has accelerated the construction of a diversion Intake, a tunnel and a treatment plant at Sundarimal. In the first phase, the Project Implementation Directorate (PID) under the subproject 2 has begun the extension and construction of a 60-kilometer Bulk Distribution System (BDS), six reservoirs, and 670-kilometer Distribution Network Improvement (DNI) pipe laying works. The PID has targeted to complete the construction of BDS and reservoirs before mid-April 2016, the expected timeline for distributing Melamchi water to the valley dwellers. In addition to the first phase, two reservoirs in Bhaktapur and one in Kirtipur, BDS in and around the Ring Road will be constructed and the distribution network will be improved in those areas under additional financing. The PID believes that the construction of such infrastructure will render the drinking water distribution system more efficient and well managed, and the residents of the valley would have better access to clean and safe drinking water.

### Coordination among the Stakeholders for the Extension of Pipeline

The PID has accelerated the pace of pipeline extension work in line with the plan to distribute the water brought from Melamchi through a tunnel to each household of the valley. With an objective of laying the pipeline with minimum disruption in the use of roads, drinking water, electricity, telephone, and sewerage on the major roads and alleys in the busy cities such as Kathmandu Valley, the PID, prior to initiating the work, coordinated with the stakeholders and then begun laying pipes and it continues. The PID has adopted the following procedures

for the coordination among the stakeholders:

- The approved plan of pipeline extension and the information on the timeline for pipe laying as per the plan in a particular area along with the map is provided to the stakeholders, following the signing of agreement with contractors in order to advance the coordination process.
- Once the pipe laying schedule is received from the contractors, PID shall coordinate with the concerned units of the Department of Roads for necessary approval prior to extending pipeline.
- To coordinate with the Metropolitan Traffic Police Division to smoothen traffic and reduce possible inconvenience caused to pedestrians and the traffic in course of extending pipeline.



Coordination meeting with stakeholders for extension of pipeline at Arubari area in progress

- To coordinate with Kathmandu Upatyaka Khanepani Limited, Division of Roads, Nepal Telecom, Nepal Electricity Authority, and Kathmandu Valley Development Authority including the municipalities for necessary cooperation from these institutions while laying pipelines through meetings and interactions.

### Supplies of pipeline and other necessary items to Kathmandu accelerate

Ductile iron (DI) pipes and other construction materials required for the supply of Melamchi water have begun arriving Kathmandu. Currently, about 30 trucks of pipe and fittings materials are being delivered to Kathmandu daily from India. These materials are being stockpiled at Sundarighat and Dhobighat in Lalitpur and Sundarimal in Kathmandu districts. The high-density polythene pipe (HDPE PE 100) required for extending the pipeline is being produced in Nepal.



Construction materials stockpiled at Sundarighat in Lalitpur district

## Activities being carried out under the PID:

The PID with the support of the Government of Nepal and the Asian Development Bank (ADB) has been laying and extending pipelines; constructing reservoirs; developing infrastructure, and enhancing the capacity, rehabilitating and improving waste water treatment plants among others under the 'Kathmandu Valley Water Supply and Sanitation Project', 'Kathmandu Valley Water Supply Improvement Project', and 'Kathmandu Valley Waste Water Management Project'.

### Commencement of BDS and Reservoir Construction

The water received from Melamchi will be treated first at Sundarijal Water Treatment Plant and then collected in reservoirs which are under construction at different locations of Kathmandu Valley. The treated water from these reservoirs shall be distributed to individual consumers. For this, a 60-kilometer BDS in and around the Ring Road and 6 reservoirs at various places of the valley are being constructed. As of March 2015, the PID completed laying about nine-kilometer long DI pipeline from Sundarijal to Nayapati, Gokarna to Jorpati, Balaju-Sorhakhutte-Lainchaur, Balkhu and under the BDS



**Pipeline being laid at Mahankalchaur under the BDS**

The construction of 6 reservoirs at Arubari, Mahankalchaur, Bansbari, Balaju and Maharajgunj in Kathmandu, and Khumaltar in Lalitpur has been started. The directorate has targeted to complete the construction of those reservoirs before mid-April 2016.



**A reservoir under construction at Khumaltar in Lalitpur**

### Where are the BDS and Reservoirs being constructed in the Kathmandu Valley?

Package	Reservoir	Areas for laying pipes
Package 0		Sundarijal, Nayapati, Gokarna, Baluwatar, Jorpati, Mahankalchaur
Package 1	Arubari (8,500 cubic meter), Mahankalchaur (8,000 cubic meter), Bansbari (9,500 cubic meter)	From Mahankalchok to Narayan Gopalchok via Chabahilchok, from Narayan Gopalchok to the reservoir at Bansbari, from Chabahilchok to Gaushalchok, from Kalanki (Seeta Petrol Pump) to Balkhu, from Ekantakuna to Talchikhelchok, From Mahankalchaur to the reservoir at Arubari

Package	Reservoir	Areas for laying pipes
Package 2	Maharajgunj (7,500 cubic meter), Khumaltar (9,500 cubic meter)	From Narayn Gopalchok to the reservoir at Balaju via Machhapokhari, from Narayan Gopalchok to Panipokhari, from Kalanki to Ekantakuna via Khasi Bazaar and Balkhu chok, from Talchikhel chok to the reservoir at Khumaltar, from Talchikhel chok to Gaushala chok via Bal Kumari and Tinkune, from Thapathali to the reservoir at Anamnagar via Maitighar, from Minbhavan chok to Tinkune chok, from Minbhavan chok to the reservoir at Minbhavan
Package 3	7,000 cubic meter	From Balaju – Machha Pokhari to Kalanki via Balajuchok, from Kalanki to Ekantakuna, from Balaju chok to Lainchaur via Naya Bazaar, from Lainchaur to Thapathali via Jamal, Tripureshwar, Thapathali to Ekantakuna via Pulchok



**Pipes being laid from Balaju to Lainchaur during the night for the BDS**

Under the fourth package, three reservoirs with the capacity of 3,000, 6000 and 6000 cubic meters will be constructed at Tigeni and Katunje of Bhaktapur and Kirtipur respectively. Discussions are being undertaken with the ADB regarding funding for the laying of 15-kilometer long pipeline connecting these 3 reservoirs. The nine reservoirs to be constructed at different locations of the Kathmandu Valley will have the capacity to store 65 million liters of water.

### The Improvement of Distribution System Gathers Speed

With an aim of distributing treated water to the residents of the valley in an accessible, leakage-free and equitable manner, PID is involved in the construction of Distribution Network Improvement (DNI) works. Distribution system will be improved through laying/extending 670 kilometers of pipeline for the core city areas in and around the Ring Road. The DNI has been divided into 3 packages and 11 service areas. The improvement work of the DNI is being carried out on the basis of District Metering Area (DMA). According to this division, one DNI is sub-divided into two DMAs. This is the smallest service area unit in the distribution network improvement activity by which performance and functioning of the distribution network may be monitored and evaluated.

## The Details of the DNI in the Kathmandu Valley

Package	Areas to be laid DNI pipes	Beneficiary households
Package 1	DNI 1 – Lainchaur, Tangal, Bhagabati Bahal, Naxal, Dilli Bazaar, Singha Durbar Gate, Maitighar, Bagmati River via Thapathali, Bishnumati River via Teku, and the areas inside New Road.	27,363
	DNI 2 – Dhobi Khola, Gaushala, Bhimsengola, Singha Durbar, Putali Sadak, Dilli Bazaar, Bhatbhateni, Handigaon and the areas inside Ratopull	
	DNI sector 6 – Pulchok, Mangal Bazaar, Gwarko, Satdobato, Mahalaxmishthan, Ekantakuna and the areas inside Jawalakhel	
Package 2	DNI 3 – Seto Pul, Old Baneshwar, Tilganga, Sinamangal, Tinkune, Madan Bhandari Path, New Baneshwar, Bijuli Bazaar, Dhobi Khola and the areas inside Seto Pul	35,724
	DNI 4 – Anamnagar reservoir, Maitighar, Dhobi Khola, Bijuli Bazaar, Prasutigriha Marga, the areas inside Maitighar via Thapathalichok	
	DNI 5 – Kupondole, UN Park, Shankhamul, Manohara Khola, Bal Kumari, Ring Road, Gwarko, Mangal Bazaar, Pulchok, Himalaya Hotel, all areas inside Kupondole via Jwagalchok	
	DNI 7 – Balajuchok, Sorhakhutte, Lainchaur, Kantipath New Road, Hanuman Dhoka, Bishnumati Pul, all the areas of Balaju via Indrayani Temple	
Package 3	DNI 8 – Teku Dovan, Kupondole, Kan Devastasthan, Pulchok, Jawalakhel, Ekantakuna, Bhani Mandal, Ring Road, Sanepa Pul, all the areas inside Teku Dovan via Bagmati River	20,468
	DNI 9 – Bagmati River, Tinkune, Koteshwarchok, Jadibuti Pul, Manohara Khola, all areas inside Shankhamul Dovan	
	DNI 10 – Banasthalichok, Balajuchok, Bishnumati Pul, Dallu and all the areas inside Banasthalichok via Bhagavanpau	
	DNI 11 – Kalanki, Soaltee mode, Kalimati, Teku Dovan, Balkhu and all the areas inside Kalanki via Ring Road	
<b>Total households</b>		<b>83,555</b>

The Directorate, under as part of the Distribution Network Improvement activity, completed laying 210 kilometers pipelines at the core areas of the city by mid-March 2015 at Maitidevi, Ghattekulo, Bhimsengola, Sinamangal, Old Baneshwar (Pancha Kumari Marga), Katyayanichok, Prayag Marga, New Baneshwar, Koteshwar, Thapathali, Anamnagar, Banasthali, Chamati Planning, Sanepa and Man Bhavan. 14,431 households of these areas are connected with new pipelines. Likewise, 32-kilometer of roads have been reinstated following the completion of pipe laying in various places of Kathmandu.

Under the DNI first package, pipelines will be laid at Gyaneshwar, Ratopul, Kalopul, and Naxal via Bhatbhateni by the end of July, 2015. Pipelines are being laid from Setopul to Sinamangal, Madan Bhandari Path, and Babar Mahal to Prasuti Griha Marga and from Tanka Prasad bent road at Ghattekulochok to the reservoir at Anamnagar under the second package. Under the third package, laying of pipelines at Banasthali and Chamati Planning areas is being planned.



A restored lane at Anamnagar following the completion of laying pipes.

## Work for Waste Water Management Commences

Considering the possible difficulties in waste water management due to the increment in water supplied from Melamchi, the PID accelerated the capacity enhancement, rehabilitation, and construction of wastewater treatment plants in the valley with a priority. For the rehabilitation and improvement of the wastewater treatment plant in Guheswori, a tender has been called and the evaluation for selecting contractors is undergoing. The engineering design is being undertaken for wastewater treatment plant in Sallaghari, Bhaktapur; Kodku at Balkumari and Dhobighat of Lalitpur in accordance with the plan to construct new wastewater treatment plants. Similarly, the process of acquiring about 40 hectare of land at Khokana has begun in order to construct a new treatment plant. Similarly, the engineering design for the 52-kilometer interceptor along the Manohara and Hanumante rivers, the tributaries of the Bagmati River, is ongoing while the study for improving the old sewerage and extending the new one has also been begun.

### The security situation in the project areas during construction work

The PID has taken up with due diligence the matter related to the security of the workers, local people, the personal and public property of the project areas during the construction of reservoirs, laying of pipelines and other construction work. The contractors as per the directives of the Directorate have been adopting the following security measures at the construction sites:

- Cordoning the construction site with safety ribbon or rope
- Placing a notice board on construction site 50 meters ahead and back
- Providing safety materials like boots, gloves, helmet, jacket, glasses, and mask among others and to ensure their proper use
- Putting a small bridge/crossing or plank over the trench to ease the commuters
- Ensuring the safety of personal and public property in and around the construction sites
- Making the first aid kits available at the construction sites



Workers using safety materials during construction work.)

### Convention of community meetings in project areas

The PID has so far conducted 350 community meetings with direct participation of the local people with an objective of addressing social, environmental and other problems so that the project could be completed within the stipulated timeframe. About 5,000 people participated in those meetings and among the participants 28% were women, 39% indigenous nationalities, 3% Dalits, and 58% from other communities. The Directorate has been facilitating the process of forming 'Ward Level Facilitation Mechanism – TLO' with a view to garnering people's participation in BDS, DNI and reservoirs areas among others during the construction work in respective areas. Till date 7 such groups have been formed in DNIs 2,3,4,5,6,9, and 10. The local people have selected women, Dalits, Indigenous nationalities, Muslim, Madhesi and others from poor and marginalized communities as their representatives to these groups in a proportionate manner.



An interaction with the local people on constructing Service Reservoir Tank at Arubari.

And they have been supporting the construction of the project by disseminating information on the social and technical aspects of the project.

### ADB Mission inspects the Activities of the Project

On March, 2015, Mr Hun Kim, Director General of the ADB for the South Asia Region, interacted with Mr Tej Raj Bhatt, Project Director; Mr Anil Bhadra Khanal, Deputy Project Director; other officials of PID and representatives of the Consultants, and inquired about the progress of the project. Following the interaction, Mr Kim visited the project site at Bhimsengola and inspected the pipeline laying works under the DNI. Similarly, an ADB Mission visited Nepal from 25 January to 4 February 2015, acquired information regarding the activities of the Directorate and monitored the ongoing activities during their visit. The mission led by Mr Manoj Sharma, Urban Development Specialist at the ADB Head Office in Manila, inspected the ongoing construction of reservoirs at Bansbari, Balaju and Khumaltar, construction materials stockpiled at Sundarighat, and the proposed site for the construction of sewerage treatment centre at Sundarighat and gleaned information from the officials about the work.



Mr Hun Kim, Director General of the ADB inspecting the pipeline laying.

### Frequently Asked Questions

❁ Will the construction of necessary infrastructure be completed by 2016, the date designated for supplying Melamchi water to the Kathmandu Valley?

**Answer:** In the first phase, 60 kilometers of pipelines for BDS will have been laid and 6 reservoirs will have been constructed two months before the designated date i.e. by mid-February 2016. It has been targeted to complete most of the (80 percent) Distribution Network Improvement works.

❁ What should the consumers do in order to obtain the Melamchi water at their households?

**Answer:** In order to distribute the water from Melamchi, the households within the KUKL service area and those that have regularly been paying the tariff would have pipelines laid to their doorsteps. Those landlords who do not have a tap connection yet have to complete the required process for availing the water supply to their houses.

❁ Should the consumers pay money for availing the water supply to their doorsteps?

**Answer:** No. Pipelines would be laid to the individual households of the consumers for free of cost. The PID expects uninterrupted cooperation from the people during the period of pipeline extension.

❁ How can the leakage be minimized after the extension of the new pipelines in the Kathmandu Valley?

**Answer:** In course of the construction of BDS and DNI, high standard DI and HDPE PE 100 pipes of various sizes which are produced using ultra-modern technology will be laid in the main and feeder roads of the Kathmandu Valley, depending upon the condition of road and population density. As the HDPE PE 100 pipes used to connect with the taps of the consumers are joined to their required lengths using the electro-fusion technology, the Directorate expects to bring down the leakage up to 15%. Similarly, the DNI work is carried out on the basis of DMA according to which one DNI is divided into two DMAs. Each DMA consists of one bulk meter for a cluster of 2,000 to 2,500 population and every household will have one meter each. As this system records the supply and consumption of water with high accuracy, the information on leakage can be acquired easily.

❁ What sort of strategies has the Directorate adopted for laying pipelines on the streets of the Kathmandu Valley, which are in the process of expansion and construction?

**Answer:** PID has adopted following strategies to lay pipelines in the roads of Kathmandu Valley:

- ❁ Laying of pipeline in the currently expanded roads shall be done in coordination with the Road Expansion and Rehabilitation Project and as far as possible pipe laying works shall be completed prior to the construction of roads.
- ❁ Pipelines for distribution network will be laid on the footpath as far as possible.
- ❁ Pipes will be laid on either side of more than 7-meter wide roads in order to minimize the damage.
- ❁ Pipes in the recently blacktopped roads will be laid only at the end of the project. The roads will be restored once the laying of pipes is completed.

❁ What sort of process has the project adopted to restore the roads once the pipes are laid?

**Answer:** The project lays pipes in the roads for which it has obtained approval letter from the respective road offices in coordination with the stakeholders. Once pipelines are laid, the trenches are filled with soil. Then pressure test is carried out in order to ascertain leakage in the pipes. This test is done to avoid frequent digging of the road and filling up the ditches. As the Kathmandu Valley faces acute shortage of water, it carries water on tanks to conduct the pressure test. If any leakage is found through the test, such pipes are replaced and pressure test is done again. If there is no leakage then the road is restored.

Construction of such projects for the benefit of general public is a once in a life time affair. Ministry of Urban Development and Project Implementation Directorate/ Kathmandu Upatyaka Khanepani Limited apologise for any inconvenience caused to the general public, caused as a result of activities being carried out towards implementing this project of general concern and benefit, and seek cooperation from all fronts for its smooth and successful completion.

The Directorate has been connecting households with new pipelines for the common people free-of cost. We would like to request you immediately inform the Directorate, if some asked for money to connect pipes at your home, in course of laying pipes in your areas. This apart, if you have any complaint against the Project or if you require more information about the Project, please contact at the following address.

#### Contact Address

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**For complaints and suggestions: [www.kuklpid.org.np](http://www.kuklpid.org.np)**