A. Background Information

- Melamchi Water Supply Project (MWSP) is the comprehensive water supply project that aimed at contribution towards improving the health and well-being of the people of Kathmandu valley by diverting 170 MLD water from Melamchi River and alleviating the acute shortage of potable water in the valley. The key components of the project works are water intake structure (headworks), water diversion tunnel, water treatment plant, bulk distribution system and water distribution network development works.

- Melamchi Water Supply Project is one of the most important projects for Government of Nepal and has been declared a National Pride Project reflecting the high priority attached to it. The Project is financed by the Asian Development Bank (ADB) and ADB also attaches very high priority to this project.

- Asian Development Bank (ADB) approved the loan for the project on 21 December 2000 and it was effective from 28 November 2001. Government of Nepal and ADB recognized that there was necessity to change the scopes of the project after 6 years of project implementation. With the revision of project implementation arrangement the project has been split into two distinct Sub-projects. These are (i) the Melamchi River Water Diversion Subproject (Sub-Project 1) covering Water Diversion Tunnel (WDT) including all project activities in Melamchi Valley and Water Treatment Plant (WTP) in Kathmandu Valley and (ii) Kathmandu Valley Water Supply and Sanitation Project (Sub-Project 2) comprising water distribution system improvement activities in Kathmandu Valley.

- The residents of Kathmandu Valley are facing acute shortage of drinking water due to lack of sufficient water in the valley. The construction of 26-kilometer long tunnel, connecting headworks located near Rebarma in Sindhupalchowk, approximately 30 Kms North of Kathmandu and water treatment plant in Sundarijal Kathmandu, is the most critical component of the project. Melamchi Water Supply Development Board (MWSDB) has already completed implementation of all major components of the project under Sub-project 1, except water diversion works and water treatment plant. The construction of water treatment plant in Kathmandu Valley is under the bid evaluation process at present.

- The project components under Sub-Project 2 are at different stages of implementation, some of them are under procurement process.

- Melamchi Water Supply Development Board (MWSDB) is the implementing agency and Ministry of Urban Development, Government of Nepal, is the executing agency.

D. Access to Project Sites and Other Infrastructure

Melamchi Pul Bazar Camp site:

The main camp for the employer and the engineer are located at Melamchi Pul Bazaar (MPB) in Melamchi Valley. MPB is centrally located in Melamchi Valley with almost equal distance to the working sites. It is assumed that MPB will also serve as the main base for the Contractor, while the headworks and the adits will have small camps to serve the daily needs for construction and supervision.

For Adit Access Roads:

The adit access roads for the Sundarijal (1.6km), Sindhu (15.4km), Gyalthum (4.2km) and Timbu/Ambathan (20km) will require regular maintenance.

Power Supply:

As there is no power supply to the sites in Melamchi Valley and only Sundarijal outlet is connected to National Grid which is prone to load-shedding, thus the contractor will be required to make own arrangements for uninterrupted power supply through diesel generating sets.

Visit our website: http://www.melamchibazaar.org

Location Map

MWSDB, Kathmandu

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Visit our website: http://www.melamchiwater.org

Location Map

MWSDB, Kathmandu
B. Proposed Tender

The tunnel has been designed for 6 m³/s capacity to bring 510 million liter per day (MLD) water from Melamchi Valley to Kathmandu Valley and present project is designed for transferring 170 MLD water from Melamchi River. Additional 340 MLD water will be transferred through the tunnel with implementation of separate project later. The Melamchi Water Diversion Scheme (present contract package) includes construction of headworks and water diversion tunnel.

The tunnel construction work sites are located at four adit sites and connected by the outlet portal at Sundarijal in Kathmandu and Adits at Sindhu, Gyalthum and Ambathan in Sinduphaschok. The longest stretch of the tunnel construction section is of the length of 6.1 kilometer from Sundarijal portal site.

The contract for construction of headworks and tunnel was awarded on 19 February 2009 with intended completion date of 2 September 2013. Actual physical works started in April 2010. The earlier contractor could not achieve the satisfactory result in implementation of the contract plan and the Employer terminated the contract on 25 September 2012 for unsatisfactory performance of the contractor.

The Employer now intends to re-tender the package for completion of the project and expects to complete it within 36 months of awarding the contract. The remaining works to be completed under the package are (i) approximately 21 kilometer tunnel construction works (ii) headworks at Melamchi, (iii) supporting administrative and logistics works of residences/offices for the Engineer, the Contractor, storage depot, access roads restoration, and maintenance, etc.

The designated tunnel is of D shape and its cross section area is 12.7 m². The tunnel construction method employed by the earlier contractor was drill and blast method and it assumed to be the appropriate method for the remaining sections of the tunnel. The Employer has placed high importance in quality of work—timely completion, and cost. These criteria will be considered for selecting the prospective contractor.

The bidding will be carried out on the basis of ABB’s procurement procedures which include international competitive bidding (ICB) and multilateral development banks (MDB) harmonized 2010 edition of FIDIC Conditions of Contract for Construction. The earlier design and tender documents are currently being reviewed and modified, and efforts are being made to fairly allocate risks between the Employer and the Contractor. Any suggestions for improving the design and tender document from the potential bidders and other interested parties are solicited. Specifically, suggestions are solicited for changes in the design of tunnel shape and size, to ensure suitability and efficient mobilization of equipment for drilling, mucking and shortcreting with due consideration to the small cross sectional area (12.7 m²) of the tunnel or change in the tunnel cross section.

The project has developed infrastructures facilities for project works; these are fully functional site offices and infrastructure facilities for the Employer and the Engineer. The Engineer’s and the Contractor’s camps are also available at all working sites. The Engineer for the project is consortium of Poyry Infra AG, Poyry Environment Oy, Poyry Infra Oy and Hifab International Ltd in association with Multi Disciplinary Consultants (P) Ltd.

After ascertaining mutually convenient time and date until 31 October 2012, interested parties are welcome to visit MWSDB office at Kathmandu to study the available records including the draft bidding documents and previous bidding documents for taking the notes, but these documents will not be made available for copying. MWSDB will also facilitate site visit for the interested parties.

As timely completion of the works is critical, an attractive bonus/incentive for early completion is under active consideration for inclusion in the tender document. To kick-start the project and facilitate cash flow of the prospective contractor, mobilization advance of up 20% of contract amount against bank guarantee may be considered. Similarly, adequate advance payment against supply of materials and equipment will also be considered.

The tunnel construction will be carried out with Drill and Blast method using the latest efficient and mechanized equipment for tunnel excavation, mucking, and support works (shotcrete and/or lining). Realizing that there are experienced and competent contractors available in tunnel construction industry, actual method will be left to the discretion of the contractor.

During the implementation of contract, the Government is fully committed to facilitate the contractor in obtaining approvals, permits, or licenses related to the project works in timely manner.

A meeting is planned for 30 October 2012 in Kathmandu for sharing the views and suggestion of the prospective bidders. Interested bidders are welcome in the meeting. The Bid Document will be finalized taking into account the suggestions from prospective bidders and professionals received. The invitation for bids (IFB) is likely to be published in second week of November 2012. The Government and ADB are committed to expedite the evaluation of the tender and the contract may be awarded in first quarter of 2013.

The Melamchi Water Supply Development Board (MWSDB) is looking for competent and experienced contractor with proven expertise to implement this complex project with high quality and in time.

C. Technical Details

Main Components: The project comprises of the following main components:

- Headworks diversion tunnel and temporary/permanent cofferdams on the Melamchi and Ribarma Rivers.
- Maintenance of the access roads at Headworks and four adits/outlets—Sundarijal, Sindhu, Gyalthum and Ambathan.
- De-eration shafts (DN300 casing, 2 nos., each 140m deep).
- Tunnel flushing system at Ambathan adit.
- River training and intake work at Ribarma with de-sanding basin.
- Ductile iron pipeline from tunnel portal to Water Treatment Plant: Pipe diameter 1.6 m and length 225 m.
- Upgrading of camps at Ambathan, Gyalthum, Sindhu and Sundarjal, including water supply, sanitation, power, telecommunications, etc.
- Operation and maintenance of camps at Melamchi Pul Bazaar, Ambathan, Gyalthum and Sundarjal, including water supply, sanitation, power, telecommunications, etc.

Project Location: An overview of the contract works location is shown on attached map.

Headworks: The Headworks are located inside the gorge below Khwakhan, just upstream of the confluence of the Melamchi Khola and Ribarma Khola, about 2.5 km north-west of Timbu at an elevation of approximately 1425 m.

Ambathan Adit: The excavated Ambathan adit is located about one km downstream from the intake site on the right bank of the Melamchi River at an approximate elevation of 1383 m.

Gyalthum Adit: The excavated Gyalthum adit is located on the left bank of the Gyalthum River about 9 km downstream from Ambathan adit junction at an elevation of approximately 1402 m.

Sindhu Adit: The excavated Sindhu adit is located on the left bank of the Sindhu River about 18 km downstream from Ambathan adit junction at an elevation of approximately 1390 m.

Sundarijal Outlet: The outlet portal is located at Sundarijal, northeast of Kathmandu city in the Kathmandu Valley.

Scope of Works

The detailed scope of works is as follows:

The Headworks: The main components of the headworks of the MDS are the earthworks and rock cuts, temporary cofferdams, diversion weir, the river training works, the intake, the settling basins and the Headworks diversion tunnel (required during construction and the long term maintenance or repair of the intake structures).

Diversison Tunnel: The Contract includes the construction work from the intake at km 0+000 to km 25+987 at Sundarijal Outlet. All the Adit tunnels are excavated and approximately 5000 meters of diversion tunnel is also excavated. The champagne at which the headings driven from each adit (and from Sundarijal) will meet headings excavated from adjacent adits depending upon the rate of progress of each heading.

Ambathan Adit: The excavated adit is 2980m long and intersects the main Diversison Tunnel at Km 0+789 and 0+830 (Y-shape junction). The remaining length of upstream tunnel is 161.5 meters, between the champagne 0+000 and 0+162, the cross section is 18.4 m². The design cross section of the Diversison Tunnel downstream is 12.7 m² (suggestions on shape and size of the section are welcome) and it is excavated up to the champagne 1+836.

Gyalthum Adit: The excavated adit is 331 meters long intersecting the Diversison Tunnel at Km 8+997 and 9+115 giving access for construction from two headings, upstream and downstream. The design cross section of the Adit is 18.4 m². The design cross section of the Diversison Tunnel is 12.7 m² (suggestions on shape and size of the section are welcome). The upstream excavation is at champagne 8+842 and downstream at 9+288.5. The excavated length of the Diversison Tunnel is 331 meters.

Sindhu Adit: The excavated adit is approximately 752 m intersecting the Diversison Tunnel at Km 16+584 and 16+654. The designed cross section of the adit is 18.4 m². The design cross section of the Diversison Tunnel is 12.7 m² (suggestions on shape and size of the section are welcome). The upstream excavation is at champagne 15+953 and downstream at 17+241, excavated length being 1256 meters.

Sundarijal Outlet: The Diversison Tunnel outlet is at Sundarijal at Km 25+986. The excavated has reached the champagne 23+797. The design cross section of the Diversison Tunnel is 12.7 m² (suggestions on shape and size of the section are welcome).