

Project Administration Manual

Project Number: 43448
October 2013

Nepal: Bagmati River Basin Improvement Project

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Project Administration Manual Purpose and Process

The project administration manual (PAM) describes the essential administrative and management requirements to implement the project on time, within budget, and in accordance with Government and Asian Development Bank (ADB) policies and procedures. The PAM should include references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the PAM.

The executing and implementing agencies are wholly responsible for the implementation of ADB financed projects, as agreed jointly between the borrower and ADB, and in accordance with Government and ADB's policies and procedures. ADB staff is responsible to support implementation including compliance by executing and implementing agencies of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

At Loan Negotiations the borrower and ADB shall agree to the PAM and ensure consistency with the Financing Agreement. Such agreement shall be reflected in the minutes of the Loan Negotiations. In the event of any discrepancy or contradiction between the PAM and the Financing Agreement, the provisions of the Financing Agreement shall prevail.

After ADB Board approval of the project's report and recommendations of the President (RRP) changes in implementation arrangements are subject to agreement and approval pursuant to relevant Government and ADB administrative procedures (including the Project Administration Instructions) and upon such approval they will be subsequently incorporated in the PAM.

Abbreviations

ADB	–	Asian Development Bank
BRBIP	–	Bagmati River Basin Improvement project
DDC	–	district development committee
DMF	–	design and monitoring framework
DOI	–	Department of Irrigation
DSS	–	decision support system
DWIDP	–	Department of Water Induced Disaster Preparedness
EARF	–	environmental assessment and review framework
EIA	–	environmental impact assessment
EMP	–	environmental management plan
FFEW	–	flood forecasting and early warning
GON	–	Government of Nepal
HPCIDBC	–	High Powered Committee for the Integrated Development of the Bagmati Civilization
ICB	–	international competitive bidding
IEE	–	initial environmental examination
IPP	–	indigenous peoples plan
IPPF	–	indigenous people planning framework
IRBDMP	–	integrated river basin development master plan
IWRM	–	Integrated Water resources Management
KVDA	–	Kathmandu Valley Development Authority
MOF	–	Ministry of Forestry
MOI	–	Ministry of Irrigation
MOUD	–	Ministry of Urban Development
NCB	–	national competitive bidding
NGO	–	nongovernment organization
PAM	–	project administration manual
PIU	–	project implementation unit
PPTA	–	project preparatory technical assistance
PCMU	–	project coordination and management unit
PMDSC	–	project management design and supervision consultant
PSC	–	project steering committee
QCBS	–	quality- and cost-based selection
RBO	–	river basin organization
RRP	–	Report and Recommendation of the President
SOE	–	statement of expenditure
SPS	–	Safeguard Policy Statement
SPRSS	–	summary poverty reduction and social strategy
TOR	–	terms of reference
VDC	–	village development committee
WECS	–	Water and Energy Commission Secretariat

I. PROJECT DESCRIPTION

A. Project Rationale

1. The Bagmati River Basin (BRB) has a cultural and economic significance to the people of Nepal. The water flowing in the Bagmati River is considered holy and is used for cultural and ritual ceremonies practiced at the many significant temples located along its banks. The river flows through Kathmandu which is the administrative and economic center of the country as well as Nepal's gateway for tourism. It provides most of the city's drinking water in its upper basin, hydropower generation in the middle basin, and large-scale irrigation in the lower basin.

2. BRB is considered the most water stressed basin in Nepal. The basin is seeing a decline in water resources availability owing to natural and anthropogenic causes while experiencing significant increases in fresh water demand to meet the expanding population and industrial sector, and demands for irrigated agriculture. The rapid and unplanned expansion of Kathmandu City has placed tremendous pressure on the water resources of the upper BRB. In the absence of appropriate solid waste and waste water management, the river has become the main waste collector drain: it now contains high levels of fecal contamination, pathogenic bacteria, bacteriological and physicochemical pollutants. The absence of pollution safety measures has created serious health hazards to local people, livestock, and aquatic flora and fauna, while its physical deterioration has led to a loss of cultural and recreational amenity for the local communities whom no longer respect or cherish the river environment. Rapid urbanization has also led to increased demands on the valley's water supply distribution. During dry season, around 80% of the upper Bagmati River flow is diverted for domestic use leaving very little flow for irrigation and other sectors including environment. Current utilization of surface water is only 10% as water in rainy season is untapped due to absence of seasonal storage facilities. As a result, municipal authorities, individuals and companies continue to extract groundwater at an unsustainable rate. Ground water extraction is estimated to be 4 to 5 times higher than the natural recharge and the water table has retreated by 35 meters (m) in the last 20 years. The situation is further aggravated by: (i) the conversion of the recharge areas into residential areas, and (ii) upstream catchment degradation. In the Kathmandu valley, the river is biologically dead and made of heavily polluted sewage water that endangers the health of the capital's population and downstream water users. Throughout the basin, frequent floods and river bank erosion are the main threat to infrastructure, agricultural land, people's lives, and their livelihoods.

3. Until now the planning, development and management of water resources in BRB has been generally ad-hoc, uncoordinated and reactive. Government agencies have operated in isolation leading to ineffective investments and inequitable allocation of water for human needs, productive use, and the environment. This hampers the government's development efforts to improve water security in the basin. The government now recognizes the importance of addressing these problems by moving away from this silo-management approach and embracing the principals of IWRM. The current Water Resources Act (1993) has sought to quantify existing use and allocation rights.¹ Subsequent strategy and planning documents² recognized the importance of IWRM and established the need for holistic and systematic management and development of water resources. They also ensured conservation of resources and protection of the environment. The Bagmati River Basin Improvement Project

¹ The Act provided only 18 months to assess existing water rights. As this could not be completed within this period subsequently water use could not managed, monitored or allocations enforced.

² Water Resources Strategy (WRS, 2002) and National Water Plan (NWP, 2005)

(BRBIP) will support the effort in developing appropriate legal and institutional frameworks for operationalizing the IWRM approach and develop a model that can be replicated in the other basins of the country.

4. In 2009, the government approved the Bagmati Action Plan (2009-2014)³ to address the poor state of the river and its tributaries in Kathmandu Valley. The Plan has the vision of “a clean, green and healthy river system that is full of life and valued by all” and provides a long list of interventions that collectively aim to restore and conserve the river environment in the valley. Some of these interventions are already being implemented by the High Powered Committee for the Integrated Development of the Bagmati Civilization (HPCIDBC) but due to lack of capacity and funds many of the plan recommendations are still to be implemented. The government has also sought to address drinking water scarcity and improve wastewater management in Kathmandu Valley through several ADB-financed projects.⁴ However, while these projects will address the immediate human needs, they do not resolve other critical priorities of the basin inhabitants nor provide a long-term sustainable management framework for BRB.

5. Where the Bagmati River enters the Tarai plain, frequent floods and river bank erosion have become the main threat to people’s livelihoods. The worst recent flood, in 1993, claimed 789 lives, affected 30,200 people and caused major damage to houses and public infrastructure in the lower reaches alone. The BRBIP will support the development and implementation of a flood forecasting and warning system for the entire Bagmati Basin.

6. Such priorities were identified and developed under the Capacity Development TA “Supporting Investment on Water Security in River Basins”⁵ which strategically assessed current and planned interventions from a river basin perspective. The TA produced a basin strategic investment road map and initiated studies aiming at resolving critical priorities. In particular, it produced a water balance and quality model to assess the interventions that are required to restore the environment in the Upper Bagmati River (UBR) and achieving bathing standards at Pashnupatinath and Gokarna. Interventions identified include: (i) physical restoration of the urban riparian environment and social mobilization to reconnect riverine communities with their river; (ii) increasing water availability in the river during the dry season to raise the river’s assimilative capacity; and, (iii) strategic placement of wastewater treatment facilities with higher treated effluent standards. The need for a flood forecasting and early warning system was also identified as a critical priority, particularly in the lower basin where communities are regularly suffering from extreme flood hazards.

B. Impact and Outcome

7. The project expected impact will be increased water security in the BRB. The expected outcome will be improved river environment and flood management.

³ Government of Nepal, 2009

⁴ ADB. 2011. *Technical Assistance to Nepal for Preparing the Kathmandu Valley Urban Environment Improvement Project*. Manila (TA 7936-NEP), later renamed to Kathmandu Valley Wastewater Management Project; ADB. 2000. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to Nepal for Melamchi Water Supply Project*. Manila (Loan 1820-NEP); Kathmandu Valley Water Supply Augmentation through Public-private Partnerships; ADB. 2012. *Country Operations Business Plan: Nepal, 2013–2015*. Manila.

⁵ ADB. 2010. *Regional Technical Assistance for Supporting Investment on Water Security in River Basins*. Manila. (TA 7547-REG).

C. Outputs

8. The expected outputs of the Project are:

- (i) **Output 1: Established systems and capacity for integrated and participatory river basin management.** This output will include: (a) legal and institutional strengthening for IWRM and formation of a river basin organization (RBO); (b) mobilization and awareness raising of basin stakeholders; (c) capacity building and technical training for raising the RBO's competence; (d) establishment of a Central Water Resources Information system including a Decision Support System (DSS) and an operational water quality monitoring network; and (v) preparation of a 15-year participatory Integrated River Basin Master Plan.
- (ii) **Output 2: Improved riverbank environment in urban areas.** This output will include: (a) 7.2 km of river corridor constructed with aesthetic river walls and recreational amenities, (d) rehabilitation of two former irrigation regulator structures, (e) improving the river channel profile around 2 cultural sites and stabilize temple ghats, (f) removal and safe disposal of contaminated and accumulated riverbed material at key sites, (f) riverbank stabilisation at Sundarijal where existing housing structures are under threat of river bank erosion, (g) enhancement and management of the riparian banks (green zones with foot and bicycle paths), and (h) enhancement and beautification of the riparian banks (green zones with foot paths and amenities areas)

Further to the riparian river works in the Upper Bagmati the project provides for additional riparian river improvement works in other tributaries to the Bagmati River, including the Bishnumati River. The project will assess the feasibility for these works, providing designs of same aesthetic quality as for the Upper Bagmati, and implement the works.

Non-structural interventions will include: (i) Mobilization of local communities for adopting river stretches for river environment protection which will include prevention of disposal of solid waste along the stretches, (ii) implementation of a Communication strategy Action Plan for awareness raising and community ownership of the river, (iii) a Gender Action Plan addressing gender needs and issues; and (iv) mobilizing the private sector by project closure to maintain at least 2 km of the river stretch as a pilot

- (iii) **Output 3: Increased water availability in the basin during dry season and watershed conservation.** This output will include: (i) the construction of a dam downstream of the existing Dhap within the Shivapuri National Park with a storage capacity of 850,000 m³ to enable dilution of wastewater effluents and increase environmental flows in Upper Bagmati during the dry season, (b) detail design of a Nagmati Dam with the potential capacity of 8 million cubic meters (c) installation of rain water harvesting by 2500 households to provide 45,000 m³ of safe water supply and recharge 135,000 m³ groundwater, and (d) 12.5 ha of outward sloping agricultural land prone to soil erosion will be stabilised by establishing community interventions to increase water retention and reduce soil erosion.
- (iv) **Output 4: Functioning flood forecasting and early warning system for the**

Bagmati River Basin. The provision of a Flood Forecasting and Warning System for the Bagmati Basin.

- (v) **Output 5: Efficient project management with effective stakeholder communication.** This output will be achieved by setting up Project Coordination and Management Unit (PCMU) supported by a Project Management Design and Supervision Consultancy (PMDSC), which besides supporting the PCMU will assist in overseeing and supervising construction, as well as supporting the formation of an RBO.

II. IMPLEMENTATION PLANS

A. Project Readiness Activities

N.	Actions	Who	When
1	Approve Loan Fact Finding Aide Memoire	MOUD/MOF	20 June 2013
Project Management - Finance			
2	Appoint a Project Director	MOUD	Completed
3	Appoint WECs and DOI head of PIU	WECs/DOI	Completed
4	Project Confirmed as P1 project	MOUD/MOF	Completed
5	Include 1 st year implementation budget (incl. retro-active actions) in red book	PCMU, DOI, WECs	Completed
6	Appoint project management unit (PMU) staff (stage 1)	MOUD/MOF	Completed
7	Appoint WECs and DOI PIU staff (stage 1)	DOI/WECS	15 October 2013
8	PCMU/DOI PIU office established	MOUD/HPCIDBC	15 October 2013
Environment Safeguards			
1	Request permission to MFSC to conduct the EIA	MOUD with Support from PPTA and DOI	15 May 2013
2	Finalize ADB EIA	PPTA consultant	05 May 2013
3	Draft ADB EIA submitted to GON	ADB	15 May 2013
4	Publish Environment in any national level news paper, requesting the Village Development Committee or Municipality where the proposal is to be implemented , as well as the schools , hospitals , health posts and concerned individuals or institutions of the area to offer in writing their suggestions within 15 days of publication of notice	MOUD with support from PPTA consultant	30 May 2013
5	Disclose ADB EIA	ADB	18 June 2013
6	Finalize scoping documents and TORs for the Government EIA	PPTA consultant with support from DOI	15 September 2013
7	Submit scoping documents and TORs for the Government EIA to MOSTE	MOUD with support from PPTA and DOI	22 September 2013
8	Obtain approval of the Government EIA through regular follow-up with MOSTE	MOUD/DOI with support from PPTA consultant	February 2014

B. Overall Project Implementation Plan

Item	2013				2014				2015				2016				2017				2018							
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
1 - (i) Systems and capacity for integrated and participatory river basin management established																												
RBO Formation and Training				isc																								
Legal and policy amendments				isc																								
Develop IRBDMP																												
DSS				ten	der																							
WQ Laboratory				ten	der																							
2 - Improved river banks environment in urban areas																												
River Improvement - detail design (PMDSC)				t e n d e r																								
River Improvement - construction								t e n d e r																				
Mobilization, Communication & Gender				ten	der																							
EMP for river improvement works																												
3 Increased Water Availability in the Basin during the Dry Season and watershed conservation																												
EIA for GON				Approval for EIA																								
Dhap Dam Design&Build					ten	der																						
Rainwater harvesting & solid waste				ten	der																							
Watershed management				ten	der																							
Nagmati Dam Detailed Design					ten	der																						
4 Flood forecasting and early warning system in the Bagmati River Basin is functional																												
FF (to be tendered with DSS)				ten	der																							
5 The project is efficiently managed with effective stakeholder communication																												
PMSC supporting PMU and PIUs				ten	der																							
Form PMU and PIUs																												
Financial System/open imprest account																												
Setup M&E system in PMU																												
Provision of training to PMU																												
6 Implementation of GESI Action Plan																												

Legend:

	full time
	intermittent

III. PROJECT MANAGEMENT ARRANGEMENTS

A. Project Implementation Organizations–Roles and Responsibilities

1. Project Steering Committee

9. The Project Steering Committee (PSC), to be chaired by the Secretary of Ministry of Urban Development (MOUD), will be established to provide policy guidance, oversee project implementation, and ensure cooperation of all agencies involved in the project and accomplish reform measures. Indicative members of the PSC are: Secretary, MOUD (chair); Joint secretary MOUD, project manager, HPCIDBC; General Director DOI, General Director DHM, Chief warden Shivapuri Nagarjun National Park, a representative each from MOF, WECS KVDA, KUKL PID, project director KVVMP (members); project director, PMUC BRBIP (member secretary). Project Steering Committee may co-opt other members and form sub-committees for specific purposes, as necessary. PSC will meet as required, but at least once every quarter.

2. Executing Agency

10. The Executing Agency (EA) will be the Ministry of Urban Development responsible for overall strategic planning, guidance and management of the project, and for ensuring compliance with loan covenants.

3. Implementing Agencies

11. HPCIDBC will be the implementing agency (IA) for output 2 and 5 and part of output 3 including rainwater harvesting schemes and watershed management. HPCIDBC will establish the PCMU with its own staff, staff deputed from other department or recruited from the market when specialities are not available within government. The PCMU will have units for Contracting & Finance, River Works Planning, Design & Construction Supervision, Social Mobilisation & Communication, Safeguards and Monitoring & Evaluation (M&E), and DSS. The staffing requirement for each unit is presented below

Unit	Position	Class
PCMU	Project Director	Class I officer
Finance	Senior Accountant	Class II officer
	Accountant	Class III officer
	Sub Accountant	Class I non-gazetted
Procurement	Procurement and Contracting Specialist - Engineer	Class II officer
	Procurement and Contracting Specialist	Class III officer
River Works Planning & Supervision	Senior engineer	Class II officer
	Design engineer (2 persons)	Class III officer
	River engineer (2 persons)	Class III officer

Social mobilization and communications unit	Senior sociologist	Class II officer
	sociologist	Class III officer
	Gender specialist	Class III officer
	Communications specialist	Class III officer
Safeguards and Monitoring and Evaluation	Senior safeguard specialist	Class II officer
	Environmentalist	Class III officer
	Socio-economist	Class III officer
	Monitoring and Evaluation specialist	Class III officer
	Gender specialist	Class III officer
Decision Support System Unit	Senior engineer	Class II officer
	Hydrologist	Class III officer
	Water quality specialist	Class III officer
	Database specialist	Class III officer
Administration Support	Senior Administration officer	Class II officer
	Secretary	Class I non-gazetted
	Office Assistant (4 persons)	Peon class I
	Driver (4 persons)	Driver class I

12. WECS will be the IA for outputs 1 and 4, including RBO Formation, IWRM implementation DSS, IRBDMP and FFEW inputs and activities. Output 4 will be implemented in collaboration with the Department of Hydro-meteorology (DHM). The PIU in WECS will be headed by a class II Engineer and staffed by DSS Engineers (two persons, of Class III), 1 Administration officer, one secretary and one driver. The WECs will work closely with DHM for the FFEW installation. The Department of Irrigation (DOI) will be the IA for part of the output 3 including the detail design and construction of the Dhap Dam and the detail design of the Nagmati dam. DOI will establish a PIU with the following staff

Unit	Position	Class
Head of PIU	Senior Engineer	Class II
Design Unit	Engineer	Class III officer
	Engineer geologist	Class III officer
	Sub engineer	Class I non-gazetted
Construction Unit	Engineer	Class III Officer
	Sub engineer	Class I non-gazetted
	Accounts Officer	Class III officer

	Sub-accounts officer	Class I non-gazetted
	Administration officer	Class III officer
	Driver (three persons)	Driver Class I
	Office Assistant (three persons)	Peon class I

Project implementation organizations

Management Roles and Responsibilities

- **Executing Agency MOUD**

- Chairs the Project Steering Committee (PSC)
- Provides overall strategic planning, guidance and management support to the project
- Coordinates with other ministries on matters on projects issues under their jurisdiction
- Ensures adequate counterpart funding
- Oversee implementation of the loan project
- Monitor and ensure compliance of loan covenants and environmental and social safeguards and facilitate the implementation of corrective action
- Procure international consultant(s) and contractor(s)
- Oversee overall financial management including undertaking financial audits and implement recommended action

- **Project Steering Committee (PSC)**

- The PSC will be chaired by MOUD and will include members from HPCIDBC, WECS, MOF, DOI, KUKL PID, DHM, Civil Society, etc
- Oversee implementation of the project
- Monitor progress of the project
- Rectify issues hindering progress of the project
- Guide the Executing Agency and the Implementing Agencies
- Meet at least once each quarter

- **Implementing Agency 1 HPCIDBC**

- Establish a Project Coordination and Management Unit (PCMU) which will be responsible for day-to-day implementation of the sub-project
- Coordination of the 2 PIUs, for budget planning, compliance of procurement, request for reimbursement, and direct payments
- Procure and supervise contractor for Upper Bagmati River Improvement works
- Manage WQ monitoring consultants
- Procure NGO services
- Manage international consultants and national consultants and contractors

	<ul style="list-style-type: none"> ➤ Implement the Upper Bagmati River Improvement sub-project ➤ Submission of the withdrawal application to ADB, retention of supporting documents, submission of any reporting requirements, including, the trimester project progress reports and financial statements, and maintaining the imprest account ➤ Conduct and coordinate project review missions and consolidate implementation reports from IAs in preparation of quarterly progress report to ADB ➤ Establish project performance monitoring system and a website for disclosure ➤ Prepare project completion report at the end of the project and submit to ADB
<ul style="list-style-type: none"> • Implementing Agency 2 WECS 	<ul style="list-style-type: none"> ➤ Procure international DSS, IRBDMP and FFEW, WQ consultants ➤ Manage DSS, IRBDMP and FFEW international and local consultants ➤ Manage international and local consultants and legal expert for RBO formation ➤ Implement the RBO formation sub-project component
<ul style="list-style-type: none"> • Implementing Agency 3 DOI 	<ul style="list-style-type: none"> ➤ Procure and manage international Design & Build contractors for the Dhap Dam ➤ Implement the Dhap Dam sub-project ➤ Procure and manage international consultants for SI and detailed design of the Nagmati Dam
<ul style="list-style-type: none"> • ADB 	<ul style="list-style-type: none"> ➤ Procure international PMDSC consultants. The EA retains the responsibility for negotiating and signing the contract with the consultant, issuing the notice to proceed, and supervising the consultant's services." (Ref. Project Administration Instruction, Section 2.05, para 47). ➤ Conduct regular loan review missions ➤ Review and issues no-objection to procurement and disbursement documents ➤ Overall coordination and advisory support

B. Key Persons Involved in Implementation

Executing Agency

Ministry of Urban Development
(MOUD)

Officer's Name: Kishore Thapa

Position Secretary

Telephone:+977-1-4211673

Email address: k_thapa413655@yahoo.com

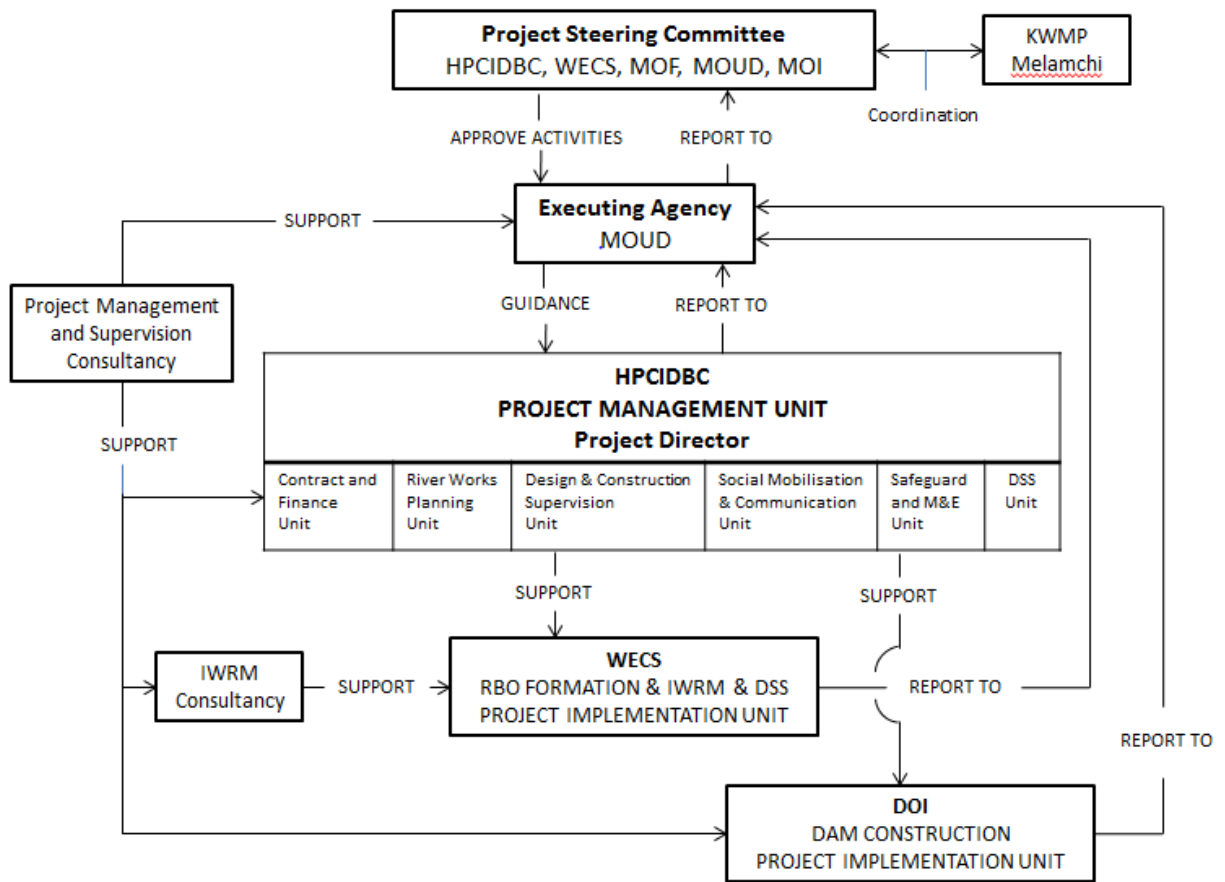
Office Address: Singhdurbar, Kathmandu

Implementing Agencies HPCIDBC	Officer's Name: Gajendra Kumar Thakur Position : Project Manager Telephone No.9841743005 Email address: abhitosh175@yahoo.com
WECS	Officer's Name: Sunil Bahadur Malla Position : Joint Secretary Telephone No.+977-1-4211428 Email address:sunilbmalla@gmail.com
DOI	Officer's Name: Shiv Kumar Sharma Position : Director General Telephone No.+ 977-1-5537136 Email address:shiv1301@yahoo.com
ADB Environment, Natural Resources and Agriculture Division	Officer's Name: Takashi Matsuo Position : Director Telephone No.+63 (2) 632 4444 Email address: tmatsuo@adb.org
Mission Leader	Staff Name: Arnaud Cauchois Position : Senior Water Resources Specialist Telephone No.+977 (1) 4227779 Email address: acauchois@adb.org

C. Project Organization Structure

13. The project implementation structure entails that WECS and DOI will have their own PIUs. The PCMU and PIU of DOI will be housed in HPCIDBC, while the WECS PIU will be in WECS office. Each executing agency will be responsible for managing their procurements and payments under the guidance of the PCMU. However all official communications with ADB (request for payment, approvals of procurements, etc) will have to be routed through the PCMU and the Project Director. The PIU heads will report to their direct supervisor in their respective organizations, while keeping the Project Director of the PCMU informed of progress. Each PIU will provide quarterly reports to the PCMU that will be consolidated into the project quarterly report and sent to ADB. The Project Director will provide annual performance evaluation of each PIU heads.

Project Implementation Arrangement



IV. COSTS AND FINANCING.

14. The project is estimated to cost \$36 million (Table 1).

Table 1: Project Investment Plan
(\$ million)

Item	Amount ^a
A. Base Cost^b	
1. Systems and Capacity for Integrated and Participatory RBWM Established	2.2
2. Improved river banks environment in urban areas	15.1
3. Increased Water availability in the Basin the dry season and watershed conservation	6.5
4. Flood Forecasting and Early Warning System in the BRB is functional	0.5
5. Project is Efficiently Managed with Effective Stakeholders Communication	3.7
Subtotal (A)	28.0
B. Contingencies	7.3
C. Financing Charges During Implementation	0.7
Total (A+B+C)	36.0

^a Exchange rate of \$1 = NRs87 is used.

^b In mid-2013 prices.

^c Physical contingencies computed at 10% for all items. Price contingencies computed at 2.2%, 1.9% and 1.8% for thereafter for 5 years from 2014 on foreign exchange costs and 9% and 7% thereafter local currency costs; includes provision for potential exchange rate fluctuation.

^d Interest during construction for Asian Development Bank loan(s) is computed at 1.0% per annum.

Source: Asian Development Bank estimates.

15. The government has requested a loan in various currencies equivalent to \$25.5 million from ADB's Special Funds resources to finance the project and a grant of \$4.5 million. The loan will have a 32-year term, including a grace period of 8 years, an interest charge of 1.0% per annum during the grace period and 1.5% per annum thereafter, and such other terms and conditions set forth in the loan and project agreements. The ADB loan, which is 71% of the total project cost, will be used to finance all equipment and part of the other outputs and financing charges.

16. The government will contribute \$6 million or 16.7% of the total project cost to finance taxes and duties for all cost categories, and part of all other costs categories excluding equipment which will be financed by the Bank. The financing plan is in Table 2.

Table 2: Financing Plan

Source	Amount (\$ million)	Share of Total (%)
Asian Development Bank	30.0	83.3
Special Funds resources (loan)	25.5	70.8
Special Funds resources (grant)	4.5	12.5
Government	6.0	16.7
Total	36.0	100.0

Source: Asian Development Bank estimates.

A. Detailed Cost Estimates by Expenditure Category

Items	(Nepal Rupees million)			(USD million)			% of Total Base Cost
	Foreign	Local	Total	Foreign	Local	Total	
	Exchange	Currency	Cost	Exchange	Currency	Cost	
A. Investment Costs							
1 Civil Works	1.08	1,484.57	1,485.64	0.01	17.06	17.07	61%
2 Equipment	54.38	0.81	55.19	0.63	0.01	0.64	2.3%
3 Capacity Building & Training	12.62	48.11	60.72	0.15	0.55	0.69	2.5%
4 Surveys, Design and Mapping (Nagmati)	91.35	148.10	239.45	1.05	1.70	2.75	9.8%
5 Consultancy Services	213.82	151.42	365.24	2.46	1.74	4.19	15 %
6 Community Initiatives	0.00	142.98	142.98	0.00	1.64	1.64	5.9%
7 Government Counterpart Staff (PCMU/PIUs)	5.40	77.96	83.36	0.06	0.89	0.96	3.5%
Subtotal (A)	378.65	2,053.94	2,432.59	4.39	23.61	28.00	100.0%
B. Recurrent Costs							
1 Salaries	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
2 Accommodation	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
3 Equipment Operation and Maintenance	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
Subtotal (B)	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
Total Base Cost	378.65	2,056.94	2,432.59	4.39	23.61	28.00	100.0%
C. Contingencies							
1 Physical	37.78	203.87	241.65	0.43	2.34	2.78	10.0%
2 Price	9.27	382.94	392.21	0.11	4.40	4.52	16.1%
Subtotal (C)	47.04	586.81	633.85	0.54	6.74	7.30	26.1%
D. Financing Charges During Implementation							
1 Interest During Implementation	60.48	0.00	60.48	0.70	0.00	0.70	2.0%
2 Commitment Charges	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
Subtotal (D)	60.48	0.00	60.48	0.70	0.00	0.70	2.0%
Total Project Cost (A+B+C+D)	486.17	2,640.75	3,126.92	5.65	30.35	36.00	128.1%

B. Allocation and Withdrawal of Loan/Grant Proceeds

17. The loan allocation and withdrawal table will be finalized, once the loan agreement is finalized

ALLOCATION AND WITHDRAWAL OF LOAN PROCEEDS						
		Category				ADB Financing
No.	Item	Total Amount Allocated for ADB Financing (\$/SDR) Category WECS	Total Amount Allocated for ADB Financing (\$/SDR) Category DOI	Total Amount Allocated for ADB Financing (\$/SDR) Category HPCIDBC	Total Amount Allocated for ADB Financing (\$/SDR) Category TOTAL	Percentage and Basis for Withdrawal from the Loan Account
1	Civil Works	-	\$2,895,000	\$14,276,000	\$17,171,000	84% of total expenditure claimed
2	Equipment	\$339,000	\$66,000	\$213,000	\$618,000	94% of total expenditure claimed
3	Capacity Building and Training	\$165,000	-	\$346,000	\$511,000	80% of total expenditure claimed
4	Surveys, Design and Mapping	\$105,000	\$2,351,000	\$52,000	\$2,508,000	85% of total expenditure claimed
5	Consultancy Services	\$250,000	-	\$458,000	\$708,000	16% of total expenditure claimed*
6	Community Initiatives	-	-	\$1,300,000	\$1,300,000	67% of total expenditure claimed
	Sub -total	\$859,000	\$5,312,000	\$16,645,000	\$22,816,000	
7	Interest Charge				\$695,000	100% of amounts due
8	Unallocated				\$1,989,000	
	Total				\$25,500,000	

* Exclusive of taxes and duties imposed within the territory of the Borrower.

18. The grant allocation and withdrawal table will be finalized, once the loan agreement is finalized.

ALLOCATION AND WITHDRAWAL OF GRANT PROCEEDS						
		Category				ADB Financing
No.	Item	Total Amount Allocated for ADB Financing (\$/SDR) Category WECS	Total Amount Allocated for ADB Financing (\$/SDR) Category DOI	Total Amount Allocated for ADB Financing (\$/SDR) Category HPCIDBC	Total Amount Allocated for ADB Financing (\$/SDR) Category TOTAL	Percentage and Basis for Withdrawal from the Loan Account
1	Civil Works					
2	Equipment					
3	Capacity Building and Training					
4	Surveys, Design and Mapping					
5	Consultancy Services	\$1,319,000	-	\$2,414,000	\$3,733,000	84% of total expenditure claimed*
6	Community Initiatives	-	-	\$415,000	\$415,000	21% of total expenditure claimed
	Sub Total	\$1,319,000		\$2,829,000	\$4,148,000	
8	Unallocated		-		\$352,000	
	Total		-		\$4,500,000	

* Exclusive of taxes and duties imposed within the territory of the Borrower.

C. Detailed Cost Estimates by Financier

Item	(\$ million)							Total Cost {C}	Percentage of Total
	ADB Loan		ADB Grant		GON				
	Amount {A}	Percentage of Cost {A/C}	Amount {B}	Percentage of Cost {B/C}	Amount ^a {B}	Percentage of Cost {B/C}			
A. Investment Costs									
1 Civil Works	17.17	84.0%	0.0	0.0%	3.27	16.0%	20.42	56.7%	
2 Equipment	0.62	94.3%	0.0	0.0%	0.01	5.7%	0.66	1.8%	
3 Capacity Building & Training	0.51	80.4%	0.0	0.0%	0.12	19.6%	0.64	1.7%	
4 Surveys, Design and Mapping	2.51	84.6%	0.0	0.0%	0.46	15.4%	2.97	8.3%	
5 Consultancy Services*	0.71	15.1%	3.73	79.6%	0.25	5.3%	4.68	13.0%	
6 Community Initiatives	1.30	66.8%	0.42	21.3%	0.23	11.8%	1.95	5.4%	
7 Government Counterpart Staff (PCMU/PIUs)	0.00	0.0%	0.0	0.0%	1.16	100.0%	1.16	3.2%	
Subtotal (A)	22.76	70.3%	4.14	12.7%	5.53	17.0%	32.47	90.2%	
B. Recurrent Costs									
Subtotal (B)	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	
Total (A+B)	22.76	70.3%	4.14	12.7%	5.53	17.0%	32.47	90.2%	
C. Contingencies	1.98	70.3%	0.36	12.7%	0.47	17.0%	2.83	7.9%	
Financing Charges During Implementation	0.70	100.0%	-	0.0%	0.00	0.0%	0.70	1.9%	
Total Project Cost (A+B+C+D)	25.50	70.8%	4.50	12.5%	6.00	16.7%	36.00	100.0%	
% Total Project Cost		70.8%		12.5%		16.7%			

ADB = Asian Development Bank, GON = Government of Nepal, PCMU = project coordination and management unit, PIU = project implementation unit.

* The government's financing for consultancy services category is for taxes and duties imposed within the territory of the borrower so that ADB loan and ADB grant will finance the consultancy services on a net-of-tax basis

^a Inclusive of taxes

D. Detailed Cost Estimates by Outputs/Components

(\$ million)

Item	Total Cost	RBO Effective integrated and participatory river basin management		Upper Bagmati Improved river environment in the Kathmandu Valley		Increased Water Availability in the Basin during the Dry Season		Reduced Water-Induced Disaster Impact on Basin Communities		Efficient Project Management and Stakeholders Coordination	
		Amount	% of Cost Category	Amount	% of Cost Category	Amount	% of Cost Category	Amount	% of Cost Category	Amount	% of Cost Category
A. Investment Costs^a											
1 Civil Works	17.07	0.00	0.0%	14.05	77.7%	3.03	22.3%	0.00	0.0%	0.00	0.0%
2 Equipment	0.64	0.33	51.4%	0.00	0.0%	0.03	6.0%	0.03	4.8%	0.24	37.8%
3 Capacity Building & Training	0.69	0.40	57.2%	0.24	34.7%	0.00	0.0%	0.06	8.1%	0.00	0.0%
4 Surveys, Design and Mapping	2.75	0.09	4.9%	0.00	0.0%	2.60	91.5%	0.02	0.9%	0.05	2.7%
5 Consultancy Services	4.19	1.41	34.1%	0.00	0.0%	0.00	0.0%	0.39	9.5%	2.43	56.4%
6 Community Initiatives	1.64	0.00	0.0%	0.78	47.6%	0.86	52.4%	0.00	0.0%	0.00	0.0%
7 Government Counterpart Staff (PCMU/PIUs)	0.96	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.96	100.0%
Subtotal (A)	28.00	2.23	7.9%	15.07	53.8%	6.52	23.3%	0.50	1.8%	3.68	13.1%
B. Recurrent Costs											
1 Salaries	0.00	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
2 Accommodation	0.00	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
3 Equipment Operation & Maintenance	0.00	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Subtotal (B)	0.00	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Total Base Cost	28.00	2.23	7.9%	15.07	53.8%	6.52	23.3%	0.50	1.8%	3.68	13.1%
C. Contingencies											
1 Physical ^b	2.78	0.22	7.9%	1.51	53.8%	0.65	23.3%	0.05	1.8%	0.36	13.1%
2 Price ^c	4.52	0.18	3.9%	3.13	73.1%	0.74	14.8%	0.01	0.0%	0.44	8.6%

Subtotal (C)	7.30	0.40	5.5%	4.64	63.5%	1.39	19.1%	0.06	0.8%	0.80	10.9%
D. Financing Charges During Implementation^d											
1 Interest During Implementation	0.70	0.05	7.9%	0.38	53.8%	0.16	23.3%	0.01	1.8%	0.09	13.1%
2 Commitment Charges	0.00	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Subtotal (D)	0.70	0.05	7.9%	0.38	53.8	0.16	23.2%	0.01	1.8%	0.09	13.1
Total Project Cost (A+B+C+D)	36.00	2.68	7.4%	20.09	55.8%	8.07	22.4%	0.56	1.6%	4.46	12.7%

PCMU = project coordination and management unit, PIU = project implementation unit, RBO = river basin organization.

^a In mid-2013 prices.

^b Computed at 10% for all items.

^c Computed at 2.2%, 1.9% and 1.8% for thereafter for 5 years from 2014 on foreign exchange costs and 9% and 7% thereafter on local currency costs .

^d Includes Interest during construction has been computed at the 1% during grace period and 1.5% thereafter

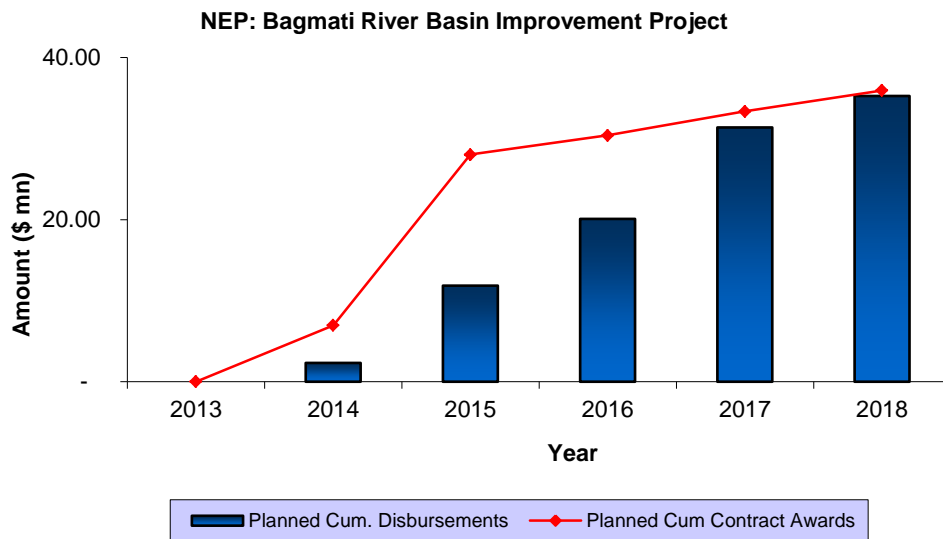
Source: PPTA estimates.

E. Detailed Cost Estimates by Year

(\$ million)

Item	Total Cost	Year 1	Year 2	Year 3	Year 4	Year 5
A. Investment Costs						
1 Civil Works	17.07	0.76	7.13	6.38	2.81	0.00
2 Equipment	0.64	0.38	0.17	0.08	0.00	0.00
3 Capacity Building & Training	0.69	0.34	0.21	0.09	0.05	0.00
4 Surveys, Design and Mapping	2.75	1.97	0.51	0.23	0.01	0.02
5 Consultancy Services	4.19	1.80	1.41	0.49	0.26	0.23
6 Community Initiatives	1.64	0.41	0.46	0.41	0.18	0.18
7 Government Counterpart Staff (PCMU/PIUs)	0.96	0.28	0.17	0.17	0.17	0.17
Subtotal (A)	28.00	5.94	10.07	7.85	3.48	0.61
B. Recurrent Costs						
1 Salaries	0.00	0.00	0.00	0.00	0.00	0.00
2 Accommodation	0.00	0.00	0.00	0.00	0.00	0.00
3 Equipment Operation and Maintenance	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal (B)	0.00	0.00	0.00	0.00	0.00	0.00
Total Base Cost	28.00	5.94	10.07	7.85	3.48	0.61
C. Contingencies	7.30	0.78	2.29	2.49	1.45	0.28
D. Financing Charges During Implementation	0.70	0.15	0.25	0.20	0.09	0.01
Total Project Cost (A+B+C+D)	36.00	6.87	12.61	10.54	5.02	0.91
% Total Project Cost	100%	19%	35%	29%	14%	3%

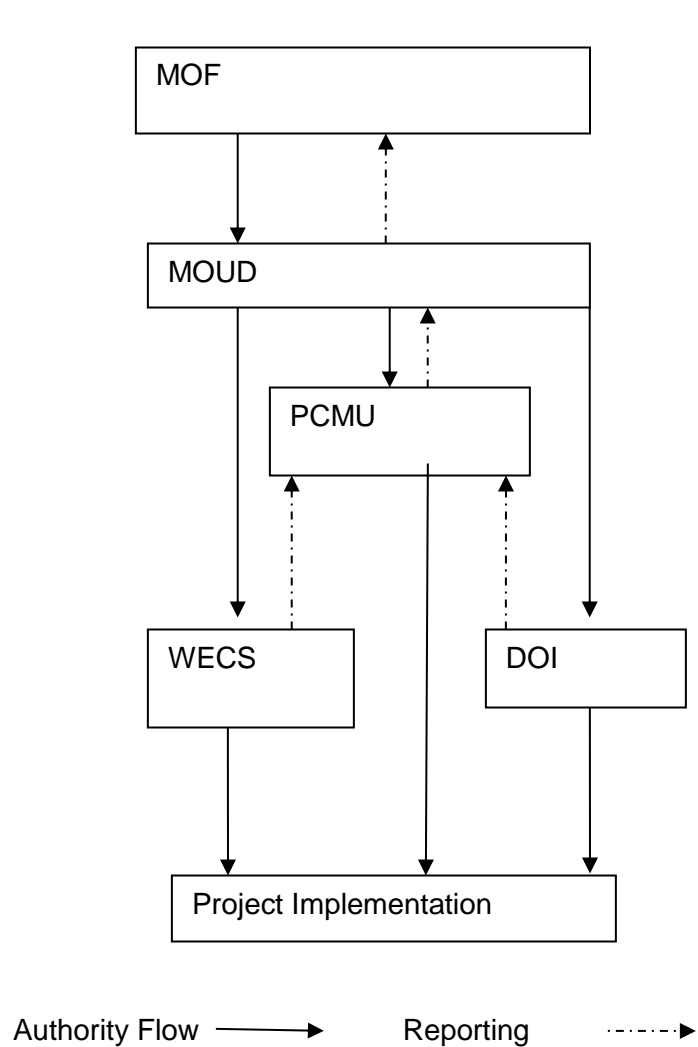
PCMU = project coordination and management unit, PIU = project implementation unit.
Source: PPTA estimates.

F. Contract and Disbursement S-curve**G. Fund Flow Diagram**

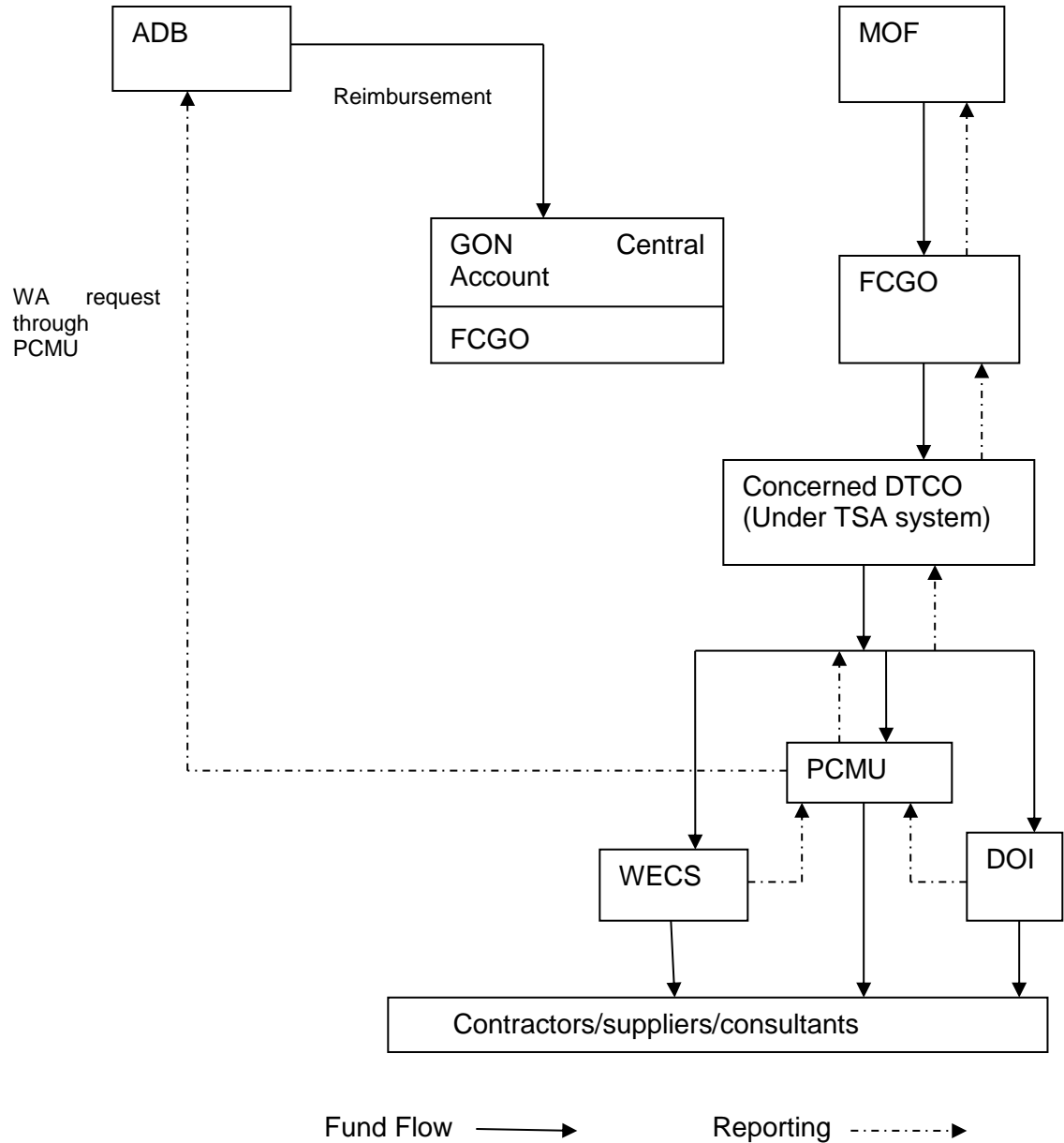
19. Explanations about the fund flow diagram are provided in the section Disbursement. Details are also provided in appendix 2.

FUNDS FLOW DIAGRAM

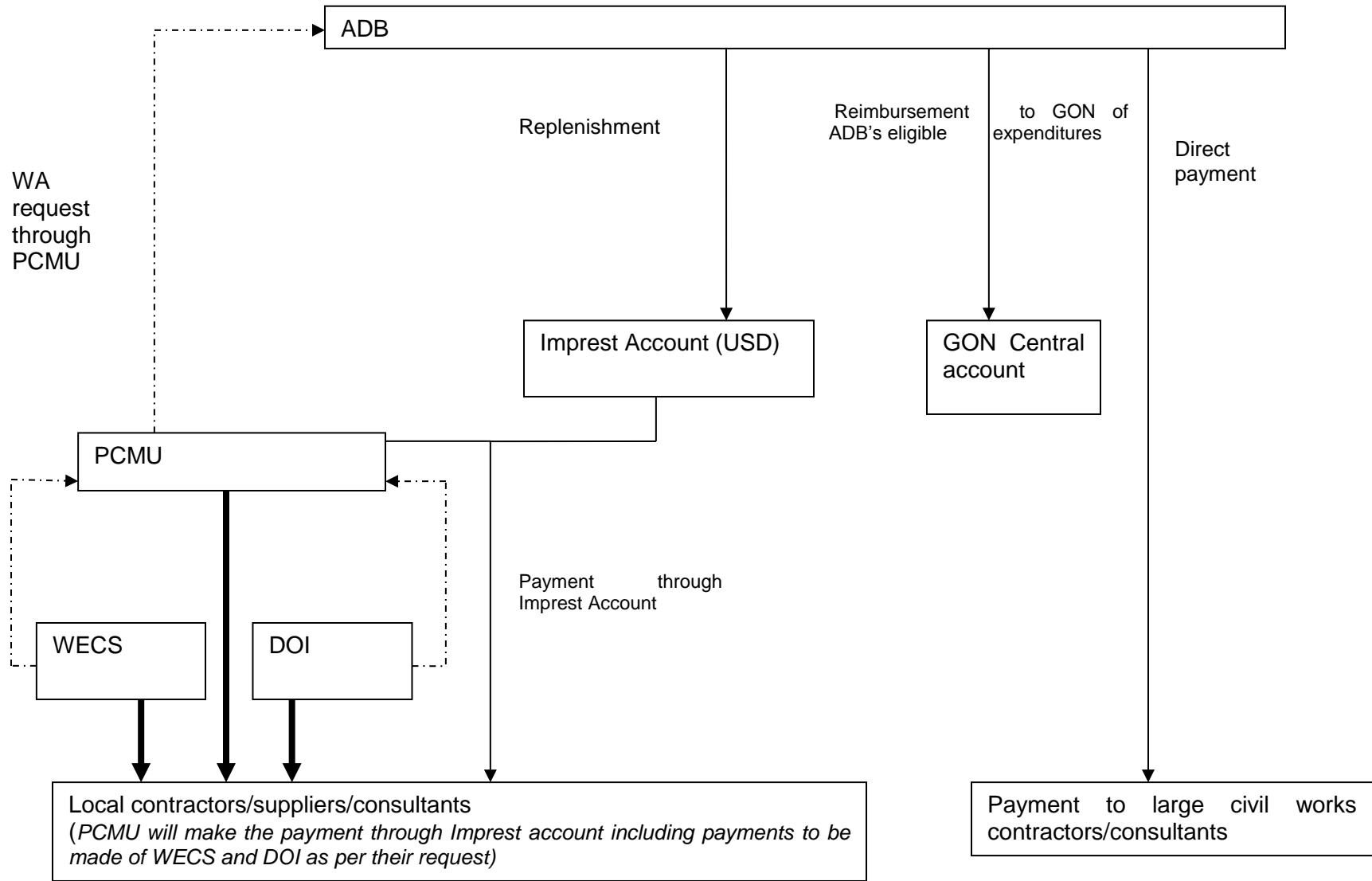
Authority Flow and Reporting



Reimbursement Procedure: Fund flow and Reporting



IMPREST FUND AND DIRECT PAYMENT PROCEDURES: FUND FLOW AND REPORTING



Fund Flow → Request/reporting Issue contract →

V. FINANCIAL MANAGEMENT

A. Financial Management Assessment

20. The financial management assessment (FMA) was conducted by the PPTA consulting team in November 2012 in accordance with ADB's Guidelines for the Financial Management and Analysis of Projects⁶ and Financial Due Diligence: a Methodology Note, and Technical Guidance Notes.⁷ The FMA considered the capacity of the executing agency and implementing agencies, including funds-flow arrangements, governance, staffing, budgeting, accounting and financial reporting systems, internal control procedures, financial information systems, and internal and external auditing arrangements. The key findings are summarized below.

Table 1: Key Findings per area of assessment

Area of Assessment	Findings
Executing and Implementing Agencies	The Executing Agency is the Ministry of Urban Development (MOUD). The Implementing Agencies are the Water and Energy Commission Secretariat (WECS), the High Powered Committee for the Integrated Development of the Bagmati Civilization (HPCIDBC) and the Department of Irrigation (DOI)
Major Experiences of Managing Externally-financed projects	DOI is currently implementing the World Bank funded Irrigation and Water Resource Management Project and ADB funded Community Managed Irrigated Agri-Support Project, in addition to many other projects completed. HPCIDBC does not have experience with externally financed project. WECS is currently implementing a component of the World Bank funded Integrated Water Resources Management Project.
Fund Flow Arrangements	The fund flow arrangement of the ADB is from Financial Controller General, Ministry of Finance to the project management unit (PMU). This is an established procedure for other Bank funded projects.
Organization and Staffing	WECS finance division consists of two staff, an Under-secretary and an Accountant. HPCIDBC finance division consists of an Account Officer and Accountant. At the DOI Head Office, the finance division comprises of a Chief Accounting Controller, 2 Account officers, 5 Accountants and 3 Sub-Accountants. At the divisional level there is 1 Account Officer and an Accountant. The DOI accounting staff does not have experience in externally financed projects. WECS present staffs have experience in projects in previous organizations.
Accounting Policy and Procedures	The accounting system is prepared, designed, developed, and operated within the framework of the financial policies, strategies, and systems according to Nepal Accounting Standards with refinements to meet International Standards as per ADB format. However, training is needed to fulfill the later requirement.
Segregation of Duties	All the financial accounting functions are appropriately segregated before receipt and payment.
Budgeting System	A budget is prepared for all significant activities in detail to provide meaningful tools for easy monitoring. There is a mechanism to compare the budget with actual expenditure, which includes the statement of actual past expenditure and expected expenditure in the forthcoming fiscal year. The Finance Section is responsible for preparing and presenting the budget to the Project Director for approval.

⁶ ADB. 2005. *Financial Management and Analysis of Projects*. Manila. Available: <http://www.adb.org/Documents/Guidelines/Financial/default.asp>

⁷ ADB. 2009. *Financial Due Diligence: A Methodology Note*. Manila. Available: <http://www.adb.org/documents/financial-due-diligence-methodology-note>

Area of Assessment	Findings
Policies/Procedures	The accounting is on a cash basis as these are all government agencies
Internal Audit	There is no internal audit at present However the DTCO is the internal auditor and their staff visit intermittently
External Audit	The financial statement of agencies is audited by Auditor General of the government annually based on the National Accounting Standards.
Reporting and Monitoring	The financial and procurement reports of the agencies are prepared according to the accounting standard of government, which is consistent to International Standards. The reporting of the financial statement is on a monthly basis.
Information System	The financial management and procurement system are not fully computerized. No automated accounting software program exists in these agencies for preparing financial reports. These systems are proposed in the project.

Table 2: Risk Matrix and mitigation measures

Findings	Potential Risks	Risk Mitigation
(a) Manual systems of accounting and reporting increases the risks of misstatement, error and fraud	Financial statements may not represent a true and fair view of the project	The project financial accounting must be computerized using a simple off-the-shelf accounting package
(b) Internal audit does not review internal controls in a systematic manner	Internal control weaknesses may go undetected leading to error and/or fraud	The Terms of Reference (TOR) of the external auditor to include review of internal controls
(c) External audit does not review internal controls in a systematic manner	Internal control weaknesses may go undetected leading to error and/or fraud and external audit may not comply with International Auditing Standards as required by ADB	The TOR of the external auditor to include review of internal controls and a Management letter stating internal control weaknesses
(d) WECS and HPCIDBC have limited experience with donor funded projects	Proper financial management of the project may be hampered by the lack of experience of staff	The PMU to be staffed by financial and procurement consultants experienced in ADB projects

21. The project implementing agencies are WECS, HPCIDBC and DOI. WECS is an apex body under the Ministry of Energy (MOE), HPCIDBC is under the Ministry of Urban Development (MOUD) and DOI is a government department under the Ministry of Irrigation (MOI). The financial management of all these institutions is generally satisfactory.

22. **WECS.** WECS has divisions for water resources, energy, legal and institutional development and a socio-economic and environment, each headed by a Joint Secretary. The Finance division has two staff; an Undersecretary and reporting to him, an Accountant. This staffing is adequate given the current scale of operations. WECS financial management is generally satisfactory, and reporting is done on a cash basis in the manner in which the operational and capital budgets have been expended.

23. The Financial reporting system is based on cash book, budget sheet and vouchers, all prepared manually, in formats that have been agreed with the Office of the Auditor General (OAG). Reporting is in the form of budget heads for recurrent and capital budgets with amount allocated and amounted expended for the period and in cumulative terms.

24. WECS operates under the Treasury Single Account (TSA) system (recently implemented) where all payments are made by the District Treasury Comptroller (DTCO). The vouchers and other relevant documents are approved by WECS and a summary sheet of payments is sent to DTCO who processes the cheque in the name of the recipient. The experience of WECS is that the new TSA system has not resulted in undue delays in payments. The TSA was implemented to ensure that the GON had up-to-date information on government expenditure from a single source.

25. The Internal Auditor of WECS is the DTCO, whose officers visit WECS intermittently. The internal audit work is of the nature of checking to ensure that transactions are within government regulations and the resulting recovery of funds (if any). An audit of internal controls and the system is not part of the scope.

26. The annual external audit is carried out by the OAG. The external audit work is of the nature of checking to ensure that transactions are within government regulations and the resulting recovery of funds (if any). An audit of internal controls and the system is not, generally part of the scope.

27. WECS has limited experience with donor funded projects; it currently implements Component C of the World Bank funded Integrated Water Resources Management Project, which had a budget of Rs. 15 million for 2012 mainly for consultancy services. Both accounting personnel have experience with ADB procedures for Statements of Expenditure (SOE) and Withdrawal Applications, gained from previous experience.

28. **HPCIDBC.** HPCIDBC comprises of a 28 member committee which provides policy directive to the head of the institution who is designated Member Secretary/Project Manager. Reporting to the Project Manager, are divisions for construction, procurement, social development, finance and administration. As a government department, it is committed to implement the policies of the Ministry of Urban Development (MOUD).

29. The finance division of HPCIDBC comprises of an Account Officer and Accountant. HPCIDBC financial management is generally satisfactory. Since it is a government entity financial statements are not prepared on a commercial basis using accrual accounting rather it is on a cash basis, reporting the manner in which the operational and capital budgets have been expended. Financial reporting system is similar to that of WECS and also operates under the TSA. Similar to many government departments in Nepal, HPCIDBC does not have an internal auditor, but internal auditing is carried out by the DTCO. An officer of the DTCO is not usually assigned full-time to a single entity and therefore internal auditing is not carried out on a daily basis, as it should. The internal audit work is of the nature of checking to ensure that transactions are within government regulations and the resulting recovery of funds (if any). An audit of internal controls and the system is not, generally part of the scope. An external audit of HPCIDBC is carried out annually by OAG in a similar manner to WECS.

30. HPCIDBC has no experience with donor funded projects, and therefore the accounting staffs do not have experience with the system of Statements of Expenditure (SOE) and

Withdrawal Applications. However, they have access to a national Financial Consultant until the end of 2014, who has experience with donor projects.

31. **DOI.** DOI is headed by a Director General with divisions for irrigation management, groundwater irrigation, surface irrigation, and design, planning and monitoring and support divisions for administration, finance and legal. As a government department, it is committed to implement the policies of the Ministry of Irrigation (MOI).

32. At the Head Office level, the finance division is headed by a Chief Accounting Controller with 2 Account Officers, 5 Accountants and 3 Sub-Accountants. At the divisional level, there is one Account Officer and an Accountant. DOI financial management is generally satisfactory.

33. The financial reporting system is similar to that of WECS and HPCIDBC. It also operates under the TSA. Similar to many government departments in Nepal, DOI does not have an internal auditor, but internal auditing is carried out by the DTCO and the external audit is by the OAG.

34. **Conclusion and Recommendations.** Financial management practice of the 3 IAs is generally sufficient for ADB purposes, once key risks highlighted in the risk matrix have been mitigated. However, HPCIDBC staff has no experience in implementing ADB or other donor funded project, whereas WECS staff have some experience. DOI are currently have implemented many ADB projects and are also currently implementing a project and their staff are well versed with ADB procedures. Therefore it is important that finance staff at both HPCIDBC and WECS receive training in ADB procedures. The following recommendations are required to improve the financial management of the IAs:

- (i) **Training of Accounting Personnel in ADB Procedures.** Whilst some staff may have experience with the use of SOE, Withdrawal Applications and Imprest Account procedure, it is important that training on these procedures is provided on a regular basis. This is especially so since government staffs are transferred at regular intervals and newcomers may not be familiar with these procedures. Together with these training, staff should be provided with the formal documentation on ADB processes (ADB manuals and guidelines) that should be maintained in each agency for the project. There is sufficient experience in-country and a suitably experienced specialist will be recruited for the PCMU to provide this expertise. Among other, he will ensure that Financial and Accounting Manuals are in place or that government finance regulations are available to the PCMU and followed.
- (ii) **Strengthening Internal Auditing and Audit Training.** The current internal and external auditing procedures involve checking transactions for their accuracy and compliance with regulations. This is merely one aspect of auditing. The more important aspect is to ensure that internal controls are in place and actually follow the Government internal procedures. The TOR of the project external auditor will include the submission of a Management Letter with a review if internal controls and recommendations to improve any identified weaknesses.
- (iii) **Use of Computerized Accounting and Training.** HPCIDBC and WECS continue to use manual systems in their accounting, although PMUs implementing DOI projects use computerized systems. It is important that all three institutions and particularly the one hosting the PCMU use computerized systems to record project transactions to ensure that information is available in a

timely and accurate manner. Such computerized accounting system should include an asset register that track both internal and ADB funded assets. The fixed Asset Register will be maintained, physical assets coded, and records reconciled to physical assets at least every 3 year. Provisions were made in the project budget to procure necessary equipments and provide consultant expertise for establishing computerized accounting and provide training.

B. Disbursement

1. Disbursement Arrangements for ADB Funds

35. The Loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2012, as amended from time to time),⁸ and detailed arrangements agreed upon between the Government and ADB.

36. **Prohibited investment activities.** Pursuant to ADB's Safeguard Policy Statement (2009) (SPS),⁹ ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth at Appendix 5 of the SPS. All financial institutions will ensure that their investments are in compliance with applicable national laws and regulations and will apply the prohibited investment activities list (SPS, Appendix 5) to subprojects financed by ADB.

37. **Basic Requirements.** After the annual budget is approved by the parliament, MOF will issue authorization letter to MOUD and MOUD will issue authorization letter to PCMU, WECS and DOI separately to spend the annual budget as per approved annual program. PCMU will report to MOUD regarding the project implementation progress. There will be separate budget code No. in the Red Book of MOF to identify with P1 project. PCMU will be responsible to prepare and submit to MOUD the annual budget and program of the project in consultation with WECS and DOI. Annual program will be approved by the National planning commission. PCMU will maintain close coordination with the concerned stakeholders for timely budget release for the project implementation. GON will ensure for the allocation of sufficient counterpart fund for each FY.

38. Before the submission of the first withdrawal application, the borrower/recipient will submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on their behalf, together with the authenticated specimen signatures of each authorized person. The format is provided in Appendix 4B (evidence of authority to sign withdrawal applications) of the Loan Disbursement Handbook 2012.

39. **Imprest Fund Procedure.** An Imprest Account for the project will be established in Nepal Rastra Bank. The currency of the Imprest account will be in USD. The imprest account is to be used exclusively for ADB's share of eligible expenditures. The government EA who established the imprest account in its name is accountable and responsible for proper use of advances to the imprest account.

40. The ceiling of the advance to the Imprest Account is 10% of the respective loan/grant amount. The EA through the PCMU may request for initial and additional advances to the imprest account based on an Estimate of Expenditure Sheet¹⁰ setting out the estimated

⁸ Available at: http://www.adb.org/Documents/Handbooks/Loan_Disbursement/loan-disbursement-final.pdf

⁹ Available at: <http://www.adb.org/Documents/Policies/Safeguards/Safeguard-Policy-Statement-June2009.pdf>

expenditures to be financed through the account for the forthcoming six (6) months, and submission of evidence satisfactory to ADB that the imprest account has been duly opened. Supporting documents should be submitted to ADB or retained by the borrower EA through the PCMU in accordance with ADB's Loan Disbursement Handbook. The Imprest Account will be operated by the PCMU with the joint signatories as authorized by MOF. The Imprest Account will be used for small payments to the contractors, suppliers and consultants and to reimburse the ADB's eligible expenditures to the GON treasury.

41. **Statement-of-expenditure (SOE) procedure¹¹**. The SOE procedure will be used for reimbursement of eligible expenditures or liquidation of advances to the imprest account(s). the ceiling of the SOE procedure is the equivalent of [\$100,000¹¹] per individual payment. Supporting documents and records for the expenditures claimed under the SOE should be maintained and made readily available for review by ADB's disbursement and review missions, upon ADB's request for submission of supporting documents on a sampling basis, and for independent audit. Reimbursement and liquidation of individual payments in excess of the SOE ceiling should be supported by full documentation when submitting the withdrawal application to ADB.

2. Government counterpart Funds and contract award/disbursement projections

42. GON will provide counterpart fund as well as ADB's reimbursable fund to the project as per financing and disbursement percentage. The expenditures to be funded by the donor funding is first made by the government and later on it is reimbursed from the donor as per eligible expenditure. Fund will be channeled through Financial Comptroller General Office (FCGO). Concerned District Treasury and Controller Office (DTCO) will issue the cheques in the name of contractors/suppliers/consultants etc as per the payment order request from PCMU, DOI and WECS as per newly implemented GON treasury single account (TSA) system. PCMU, DOI and WECS will maintain the separate record for GON fund and donor's fund and prepare/submit the monthly/annual financial statement to the concerned DTCO in each month. Similarly, DOI and WECS will also submit the monthly/annual financial statements along with SOEs to PCMU.

43. PCMU will then consolidate and verify the eligible expenditures and prepare/submit withdrawal application to ADB along with SOEs and supporting documents. The Project director will be the entity authorised to sign on the withdrawal applications. A copy of the bank statement of Imprest account, Imprest account turnover ratio, Imprest account reconciliation statement will be also submitted along with the withdrawal application for replenishment.

44. **Disbursement practice**. PCMU should submit to ADB, annual contract awards and disbursement projections at least a month before the start of each calendar year using the templates in **Appendix 2**. PCMU is responsible for (i) requesting budgetary allocations for counterpart funds, and (ii) collecting supporting documents. PCMU is responsible for preparing and sending withdrawal applications to ADB.

¹¹ SOE forms are available in Appendix 9B and 9C of the *Loan Disbursement Handbook*.

¹¹ For project loans, normally the ceiling is not exceeding \$100,000 per individual payment (section 9.18 of the *Loan Disbursement Handbook*).

C. Project Financial Reporting, Auditing, and Public Disclosure

1. Project Financial Reporting

45. The government will maintain, or cause to be maintained, separate financial records for the project, by funding source, and prepare project financial statements in accordance with financial reporting arrangements acceptable to ADB. The PCMU under HPCIDBC will be the reporting entity and will compile information from both DOI and WECS PIUs. The reporting will be in English. A template for financial statement is provided in Appendix 2.

D. Accounting and Auditing

46. The PCMU, WECS and DOI will maintain separate books and records by funding source for all expenditures incurred on the project and accounts adequate to identify the goods and services financed by the loan proceeds, financing received, expenditure incurred, and use of counterpart fund. The account books will be maintained in accordance with sound accounting principles. Consolidated project financial statements and related financial statements will be prepared in accordance with international accounting principles and practices or those prescribed by the Government's accounting laws and regulations. ADB reserves the right to verify the project's financial statements' records to confirm that the ADB's financing is used in accordance with ADB's policies and procedures

E. Auditing

47. The HPCIDBC/PCMU will cause the detailed consolidated project financial statements to be audited in accordance with International Standards on Auditing and/or in accordance with the Government's audit regulations by an auditor acceptable to ADB. The audited financial statements will be submitted in the English language to ADB within 6 months of the end of the fiscal year by the executing agency. The annual audit report will include a separate audit opinion on the use of the imprest accounts and loan proceeds, and the SOE procedures and compliance with all financial covenants of the Loan Agreement, and a management letter. The audited project financial statements will be disclosed on ADB's website in accordance with ADB's Public Communications Policy (2011). The Government and PCMU have been made aware of ADB's policy on delayed submission, and the requirements for satisfactory and acceptable quality of the audited accounts financial statements. ADB reserves the right to verify the project's financial accounts to confirm that the share of ADB's financing is used in accordance with ADB's policies and procedures. Further, any critical audit observations on the project should be reported to ADB, and action taken should also be monitored. A template statement of audit needs is attached in Appendix 3.

48. A formal request for the project to be included in the OAG audit schedule should be sent through the DEA to OAG office. This request is best sent when the loan and project agreements are signed, and the request should include a copy of the loan and project agreements, and any other relevant documents. OAG would then advise the appropriate field office to include the project in its audit schedule.

49. In addition, to ensure that audited financial statements are submitted on a timely basis, HPCIDBC through the PCMU should submit its consolidated project financial statements for audit to OAG within 3 months from the close of the financial year. To this end, all accounts of DOI, HPCIDBC and WECS should be closed within two months of the end of the FY and submitted to HPCIDBC to ensure timely consolidation. HPCIDBC shall be responsible for the

consolidated Project financial statements. By 15 October of each year, OAG should receive the unaudited financial statements. It will then take 3 months to complete the audit, and issue an opinion no later than 6 months from the end of the financial year.

VI. PROCUREMENT AND CONSULTING SERVICES

A. Advance Contracting and Retroactive Financing

50. The government has requested for advance contracting and retroactive financing to expedite implementation of the project. All advance contracting and retroactive financing will be undertaken in conformity with ADB's *Procurement Guidelines* (2013, as amended from time to time)¹² and ADB's *Guidelines on the Use of Consultants* (2013, as amended from time to time).¹³ The issuance of invitations to bid under advance contracting and retroactive financing will be subject to ADB approval. The government, MOUD and HPCIDBC have been advised that approval of advance contracting and retroactive financing does not commit ADB to finance the Project. Specifically, the government has requested ADB's approval of advance contracting for the recruitment of PMSC for the operation of the PCMU. Retroactive financing will be up to 10% of the total ADB loan amount for eligible expenditures incurred prior to loan effectiveness but not earlier than 12 months prior to the signing of the loan agreement.

51. **Advance contracting.** Advance contracting includes tendering and bid evaluation for civil works packages, equipment and recruitment of consultants. The detailed advance action schedules, which will be updated on regular basis, are presented in the tables below.

Table 5.1: Project Management Design and Supervision Consultant (PMSC)

No	Activity	Days	Timeframe	Action By	Status
1	Prepare Request for Expression of Interest (REOI)	0			Completed
2	ADBBO	0	9 July 2013	ADB	Completed
3	EOI submission	30	7 Aug 2013		Completed
4	Issue Request For Proposal (RFP)	47	22 Sept 2013	ADB	Not yet due
5	Proposal Submission	45	7 Nov 2013	ADB	Not yet due
6	Technical Evaluation	10	17 Nov 2013	ADB	Not yet due
7	Public Opening of the Financial Proposals	21	8 Dec 2013	ADB	Not yet due
8	Invite 1st Ranked Firm – Negotiate/Draft Contract	30	7 Jan 2014	PCMU	Not yet due
9	Contract Signing & Issue Notice to Proceed	36	12 Feb 2014	PCMU	Not yet due

Table 5.2: Construction of River Works

No	Activity	Days	Timeframe	Action By	Status
1	Finalize Bidding Document	0	Sept 2014	PMDSC	Not yet due
2	ADB Review & non-objection	30	30 Oct 2014	PCMU	Not yet due
3	Final Revisions as Necessary	5	4 Nov 2014	ADB	Not yet due
4	Advertise Invitation For bids in Newspaper/ADBBO	10	14 Nov 2014	PCMU	Not yet due
5	Preparation of bids	45	29 Dec 2014	external	Not yet due
6	Public opening	1	30 Dec 2014	PCMU	Not yet due
7	Evaluate Technical Envelop (Qual./Technical)	25	24 Jan 2015	PCMU	Not yet due
8	Review by procurement committee	7	31 Jan 2015	PCMU	Not yet due
9	ADB' Review	20	20 Feb 2015	ADB	Not yet due
10	Public opening	5	25 Feb 2015	PCMU	Not yet due
8	Evaluate Financial Bid	8	5 Mar 2015	PCMU	Not yet due
9	Bid Evaluation Report & Recommend Award	5	10 Mar 2015	PCMU	Not yet due
10	ADB Review and No Objection	20	30 Mar 2015	ADB	Not yet due
11	Issue Notice of Award	6	4 Apr 2015	PCMU-PMC	Not yet due
12	Contract signing & Issue Notice to Proceed	15	19 Apr 2015	PCMU	Not yet due

¹² Available at: <http://www.adb.org/Documents/Guidelines/Procurement/Guidelines-Procurement.pdf>

¹³ Available at: <http://www.adb.org/Documents/Guidelines/Consulting/Guidelines-Consultants.pdf>

Table 5.3: Detailed Design and Construction of Dhap Dam Works

No	Activity	Days	Timeframe	Action By	Status
1	Finalize Bidding Document	0			On going
2	ADB Review & non-objection	30	30 Sept 2013	DOI through PCMU	Not yet due
3	Final Revisions as Necessary	5	5 Oct 2013	ADB	Not yet due
4	Advertise Invitation For bids in Newspaper/ADBBO	10	15 Oct 2013	DOI	Not yet due
5	Preparation of bids	45	29 Nov 2013	External	Not yet due
6	Public opening	1	30 Nov 2013	DOI	Not yet due
7	Evaluate Technical Envelop (Qual./Technical)	25	25 Dec 2013	DOI	Not yet due
8	Review by procurement committee	7	1 Jan 2014		
9	ADB' Review	20	21 Jan 2014	DOI through PCMU	Not yet due
10	Public opening	5	26 Jan 2014	ADB	Not yet due
11	Evaluate Financial Bid	8	3 Feb 2014	PCMU	Not yet due
12	Bid Evaluation Report & Recommend Award	5	8 Feb 2014	DOI through PCMU	Not yet due
13	ADB Review and No Objection	20	28 Feb 2014	ADB	Not yet due
14	Issue Notice of Award	6	6 Mar 2014	DOI	Not yet due
15	Contract signing & Issue Notice to Proceed	15	21 Mar 2014	DOI	Not yet due

Table 5.4 Detail design: Nagmati Dam

No	Activity	Days	Timeframe	Action By	Status
1	Prepare Request for Expression of Interest (REOI)			PPTA/WECS	On going
2	Advertise in the newspaper & ADBBO	0	30 Oct 2013	DOI	Not yet due
3	EOI submission	30	29 Nov 2013	External	Not yet due
4	Submission(1) to ADB: shortlisting/Draft RFP	15	14 Dec 2013	DOI through PCMU	Not yet due
5	ADB's Review & No-Objection	20	3 Jan 2014	ADB	Not yet due
6	Issue Request For Proposal (RFP)	5	8 Jan 2014	DOI	Not yet due
7	Proposal Submission	45	22 Feb 2014	external	Not yet due
8	Submission (2) to ADB Technical Evaluation	15	9 Mar 2014	DOI through PCMU	Not yet due
9	ADB' Review & No-Objection	16	25 Mar 2014	ADB	Not yet due
10	Public Opening of the Financial Proposals	8	2 Apr 2014	DOI	Not yet due
11	Submission (3) to ADB: Financial Evaluation/Ranking	10	12 Apr 2014	DOI through PCMU	Not yet due
12	ADB' Review & No-Objection	16	28 Apr 2014	DOI	Not yet due
13	Invite first ranked firm – negotiate draft contract	8	6 May 2014	DOI	Not yet due
14	Submission (4) to ADB: Draft negotiated contract	5	11 May 2014	DOI through PCMU	Not yet due
15	ADB Review & non-objection	15	26 May 2014	ADB	Not yet due
16	Contract Signing & Issue Notice to Proceed	18	13 Jun 2014	DOI	Not yet due

Table 5.5: Decision Support System, FEW, WQ and IRBMP

No	Activity	Days	Timeframe	Action By	Status
1	Prepare Request for Expression of Interest (REOI)			PPTA/WECS	On going
2	Advertise in the newspaper & ADBBO	0	30 Sept 2013	WECS	Not yet due
3	EOI submission	30	30 Oct 2013	External	Not yet due
4	Submission(1) to ADB: shortlisting/Draft RFP	15	14 Nov 2013	WECS through PCMU	Not yet due
5	ADB's Review & No-Objection	20	4 Dec 2013	ADB	Not yet due
6	Issue Request For Proposal (RFP)	5	9 Dec 2013	WECS	Not yet due

7	Proposal Submission	45	23 Jan 2014	external	Not yet due
8	Submission (2) to ADB Technical Evaluation	15	7 Feb 2014	WECS through PCMU	Not yet due
9	ADB' Review & No-Objection	16	21 Feb 2014	ADB	Not yet due
10	Public Opening of the Financial Proposals	8	1 Mar 2014	WECS	Not yet due
11	Submission (3) to ADB: Financial Evaluation/Ranking	10	11 Mar 2014	WECS through PCMU	Not yet due
12	ADB' Review & No-Objection	16	27 Mar 2014	WECS	Not yet due
13	Invite first ranked firm – negotiate draft contract	8	4 Apr 2014	WECS	Not yet due
14	Submission (4) to ADB: Draft negotiated contract	5	9 Apr 2014	WECS through PCMU	Not yet due
15	ADB Review & non-objection	15	24 Apr 2014	ADB	Not yet due
16	Contract Signing & Issue Notice to Proceed	18	12 May 2014	WECS	Not yet due

B. Procurement of Goods, Works and Consulting Services

52. A procurement capacity assessment was undertaken by the PPTA procurement expert early 2013 for all three IAs and concluded that while DOI had good experience with procurement with external aided project including ADB, WECS and HPCIDBC had respectively little and no experience with external aid project. Overall the procurement capacity risk was rated average. Consequently, adequate resources were built in the PMDSC to train and support PCMU procurement activities. Similarly trainings on ADB procurement rules and guidelines will be regularly proposed to strengthen PCMU capacity.

53. All procurement of works, goods and services, financed by ADB, will be carried out in accordance with ADB's *Procurement Guidelines* (2013, as amended from time to time) (footnote 14). International competitive bidding (ICB) procedures will be used for any civil works contract estimated to cost more than \$1 million, and any goods contract estimated to cost more than \$500,000. National competitive bidding (NCB) procedures will be used for any civil works contract estimated to cost \$1 million or less and any goods contract estimated to cost \$500,000 or less. Shopping will be used for any civil works or goods contract estimated to cost less than \$100,000. Consultants' selections and engagements will be carried out in accordance with ADB's *Guidelines on the Use of Consultants* (2013, as amended from time to time) (footnote 15). ADB will undertake the recruitment of the project management design and supervision consultants (PMDSC) on behalf of the government. The EA retains the responsibility for negotiating and signing the contract with the consultant, issuing the notice to proceed, and supervising the consultant's services (reference: Project Administration Instruction, section 2.05, para. 47). The consulting firms will be engaged using the quality- and cost-based selection (QCBS) method with a standard quality-cost ratio of 90:10. Before the start of any procurement, ADB and the government will review the public procurement laws of the government to ensure consistency with ADB's *Procurement Guidelines*. A Procurement Plan is given in Appendix 4.

54. A total of 364 person months of consulting services (43 person-months international and 321 person-months national) will be provided to support the PCMU in project management planning and implementation, design review, RBO formation support, Development of an Integrated River Basin Development Management plan, procurement assistance and construction supervision.

55. A total of 97 person-months of consultancy services (25 person-months international and 72 national) will be provided to support WECS in establishing a Decision Support System for

support to Bagmati RBO formation and preparing the 15 years integrated River Basin Development Master Plan. In addition, a total of 20 person-months (8 international person-months and 12 national person-months) will be provided to upgrade the HPCIDBC water quality monitoring system. Moreover, a total of 31 person-months (9 person-months international and 22 person months national) will be provided to Department of Hydrology and Meteorology and upgrade their existing flood forecasting system and provide operational flood warning dissemination.

56. 12 person months (national) will be provided for independent environmental monitoring and evaluation. Under a TA Grant 22 person-months of individual consultants (international) will be provided to support WECS for RBO formation.

57. Further, an estimated 136 person-months (all national) of NGOs will be provided to assist the PCMU in implementing the Community Awareness and Participation Program and Gender Equality and Social Inclusion (GESI) Action Plan, Rainwater Harvesting and Solid Waste program at household level and Watershed Management in Shivapuri National Park.

C. Consultant's Terms of Reference

58. Draft terms of reference for the consultants' packages are available in Appendix 5.

VII. SAFEGUARDS

59. **Environmental Safeguards. The Environmental Impact Assessment (EIA) prepared for the project includes** Environmental Management Plans which describe mitigatory measures to be adopted during design, construction and operation of the dam/s and the Upper Bagmati River Improvement works The following are institutional roles and responsibilities to ensure the EMPs are implemented during design, construction and operation. The MOUD will in parallel, obtain approval under GON regulations. This will be obtained by January 2014.

60. The Project Coordination and Management Unit (PCMU) with assistance from the environmental consultant engaged by the PMDSC is to do the following: (ii) update the EIA including EMP based on detailed designs; (iii) ensure EMPs are included in bidding documents and civil works contracts; (iv) provide oversight on environmental management aspects of the project and ensure EMPs are implemented by the contractors (v) facilitate and ensure contractors comply with all government rules and regulations regarding forest and road permits as well as any other relevant approvals required for works; (vi) supervise and provide guidance to the contractors to properly carry out implementation of the EMPs; (vii) review, monitor and evaluate the effectiveness with which the EMPs are implemented, and recommend necessary corrective actions to be taken as necessary; (viii) consolidate quarterly environment monitoring reports f and submit semi-annual monitoring reports to ADB; (ix) ensure timely disclosure of final EIAs in locations and forms accessible to the public; (x) take corrective actions when necessary to ensure no environmental impacts; (xi) conduct ongoing consultation with the community during implementation of the project; and (xii) establish a grievance redress mechanism and ensure it is operated satisfactorily.

61. The preliminary designs have incorporated measures to mitigate risks related to earthquakes, landslides, floods, and climate change. The detailed designs of the Dhap Dam and Upper Bagmati on River Improvement works will be based on projections of impacts of climate change on the river basin air temperature impact on evaporation, rainfall run-off and river hydrology.. The PCMU will include an environmental specialist who will be trained and work with

the PMSC environmental specialist in monitoring implementation of the EMP during construction. During operations, it is expected that the HPCIDBC/RBO will take on the function of environmental monitoring.¹⁴ Training will be provided to staff ear marked in these organizations. The estimated cost for implementing the EMP is \$ 132,500

62. **Involuntary Resettlement.** No resettlement is foreseen necessary under the project. However, a Draft Resettlement Framework (DRF) has been prepared for the project as a prudent measure to guide the preparation of safeguards documents for mitigating any unforeseen resettlement impacts during project implementation. (b) **Indigenous Peoples.** No IP issues are foreseen to be addressed during the project implementation.

VIII. GENDER AND SOCIAL DIMENSIONS

63. The PCMU will ensure that civil works contracts and bidding documents under the project include specific provisions requiring contractors to comply with all (i) applicable labour laws and core labour standards on (ii) prohibition of child labour as defined in national legislation for construction and maintenance activities, on (iii) equal pay for equal work of equal value regardless of gender, ethnicity or caste, and on (iv) elimination of forced labour, and (v) the requirement to disseminate information on sexually transmitted diseases including HIV/AIDS to employees and local communities surrounding the project sites.

64. A Gender Equality and Social Inclusion (GESI) action plan has been prepared for the project with the objective to implement all components of the project in a GESI responsive manner. The Strategy guides the development of GESI Action Plan during detail project preparation. The strategy encompasses both the Asian Development Bank (ADB) and Government of Nepal's broader principles on GESI as it relates to water resources management as specified by the proposed amendments in the Irrigation Policy, 2069 and National Water Resources Policy, 2011, also adhering to the Three Year Interim Plan of Nepal-2007 of GON on ensuring inclusion of the vital stakeholders as right holders groups, such as, women, indigenous populations, dalits and socially excluded groups in all development programs. It is required that specific gender design features are to be included in 50% or more of project outputs. Most of these in turn should have at least 3 gender design features and targets.

65. The project will organize orientation to the staff and partner implementing NGOs on BRBIP GESI aims and the operational strategy, containing potential actions and measuring (monitoring) indicators. Thus capacity building on GESI concept and skills will be done at two levels, community and project staff level. While doing this activity at staff and partner NGO level, the responsible counterpart government implementing agencies will also be included for capacity building so that a common understanding about GESI realities and approach is internalized within the responsible institution for sustaining the processes, activities, institutions initiated or strengthened by BRBIP.

66. The PCMU is to ensure implementation of the GESI, and will be supported by the PMSC to implement these plans. An adequate budget is allocated for the PCMU/PMSC to implement the GESI. A Social Development and Gender Specialist in PMSC will assist the Social Mobilisation & Communication Unit in the PCMU (staffed with a sociologist, a gender specialist and a sociologist) in monitoring and reporting on gender and social aspects.

¹⁴ Once the river basin organization is formed HPCIDBC will become part of the RBO

67. Pursuant to ADB's Safeguard Policy Statement (2009) (SPS), ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth at Appendix 5 of the SPS.

Table 6.1: Gender Equality and Social Inclusion (GESI) Action Plan.

	Activity	Targets/Performance Indicators	Responsibility	Year
	Output 1: Systems and capacity for integrated and participatory river basin management established			
1	Establishment of RBOs with participation of women, poor and excluded in both leadership (council, secretariat, sub basin committees, and IRMCs) and non-leadership (staff) positions	<ul style="list-style-type: none"> RBO established with: at least 20% women and 15% representation from the diverse communities of the river basin RBO Secretariat: at least 2 core professional staff are women out of 5 and at least 33% in technical, managerial and other staff positions. Sub-basin committees and other committees: 33% women and 20% from other social groups representing local communities and CSOs IRMC: at least 33% women and 20% from other social groups Grievance redress committee: 33% women and special support and privacy for women involved in any grievance process 	WECS, HPCIDBC	Yrs 1 and 2
2	IRBDMP for Bagmati 2015-2040 prepared	<ul style="list-style-type: none"> Consultation process for the development and approval of the IRBDMP includes local communities of which 50% are women Women only forums will be convened for women to participate in the consultation process and disclosure (where needed) IRBDMP for Bagmati is inclusive and equitable in approach and addresses the needs/priorities of local communities 	IRBDMP consultants , WECs , HPCIDBC	Year 1 and 2
3	The database management system (DSS) includes gender and socio-economic parameters	<ul style="list-style-type: none"> The information system includes sex and caste/ethnicity disaggregated data and information 	DSS consultants, WECs	Year 2 and 3
4	GESI responsive social mobilization plan developed for effective implementation of IRBDMP Inclusive and representative NGO Platform established Livelihood activities and awareness raising activities targeting local communities especially women, poor and socially excluded implemented	<ul style="list-style-type: none"> Increased number of women, poor and excluded utilizing the project resources, benefits through social mobilization efforts NGO platform includes representatives from NGOs, local village groups with 50% participation of women Livelihood activities support to 296 HHs in the SNNP gives preference to poor, FHH and excluded groups 	IRBDMP consultants , WECs, HPCIDBC	Year 1 and 2
	Output 2: Improved river bank environment in urban areas			
5	Improved river environment through rehabilitation/ protection of ghats, river banks, regulators and engagement with local community, basin settlers, and local CSOs/NGOs	<ul style="list-style-type: none"> 300 pm employment generated from rehabilitation works of which 20% is by women and 10% by poor and socially excluded . Equal pay for work of equal value 	HPCIDBC	Year 2 to 4
6	Local users committee mobilised for community participation for conservation related activities in the water shed management areas comprising women and excluded groups	<ul style="list-style-type: none"> 33% of women members and 20% from the poor and socially excluded groups women in local users groups, and proportionate representation from other social groups Preference to be given to local user groups/committees for protection/conservation works and river training IEC materials on river environment conservation are simple and in local languages and disseminated to all basin stakeholders through Radio, TV 	NGOs PMDSC	First year

	Output 3: Increased water availability in the basin during dry season and watershed conservation			
7	Capacity building training program on RWH system installation and O&M includes women and socially excluded	<ul style="list-style-type: none"> • Sub-engineers, engineers, architects, plumbers – 20% women as trainees • Students: 50% women and proportionately from other social groups • HH level: At least one female member of each of the interested HHs are trained on RWH installation to O&M and solid waste management, special consideration to FHHs. • Information materials on RWH technology are in simple and local language 	NGOs PMDSC	Year 2 and 3
8	Training and awareness programs on conservation and protection of watershed areas to the stakeholders – users groups, local settlers, national park staff, army personnel to include women and socially excluded groups	<ul style="list-style-type: none"> • At least 30% of the total 750 trained on conservation and protection of watershed, solid waste disposal are women and proportionately from socially excluded groups. 	NGOs, PMDSC	Year 2 to 4
9	Training and demonstration on use of energy efficient wood cooking stoves – key target women of SNNP settlement	<ul style="list-style-type: none"> • 100% women of the 250 households to be considered will receive training and demonstration kits 	HPCIDBC/NGO	Year 2 to 4
	Output 4: Flood Forecasting and Early Warning System in the Bagmati River Basin is functional			
10	Community –based early warning system and flood adaptation programs implemented.	<ul style="list-style-type: none"> • Community based early warning system and flood adaptation program considers specific needs of women and vulnerable groups 	DHM	Year 2 to 4
	Output 5: Efficient Project Management and Effective Stakeholder Coordination			
11	Ensure GESI-sensitive project management	<ul style="list-style-type: none"> • GESI Action Plan adopted and annual action plan formulated (<i>Responsibility: PCMU</i>) • Implementation of GESI Action plan monitored and reported in quarterly progress reports and on QCPRM (<i>Responsibility: PCMU</i>) • HPCIDBC, RBO, WECS, sub-basin committees and local users groups, and partner NGOs oriented on the GESI Action Plan as well as on the use of GESI mainstreaming tools (<i>Responsibility: PCMU</i>) • GESI-sensitive monitoring system established and regularly populated with sex-, ethnicity-, caste-, and poverty level-disaggregated data. (<i>Responsibility: PCMU</i>) • Local community motivators and social mobilisers hired include 50% women and 40% from socially excluded groups 	PCMU and PMDSC	Year 1 to 5
12	Capacity building on GESI mainstreaming conducted for community, project staff/government officials and NGOs	<ul style="list-style-type: none"> • Community level training: 50% women and proportionate representation from excluded groups • Project staff, government officials and NGOs: 30% women 	PMDSC/PCMU	Year 1 to 2

CSO = civil society organization, DSS = decision support system, DWIDP = Department of Water Induced Disaster Prevention, FHH = female headed household, GESI = gender equity and social inclusion, HH = household, HPCIDBC = High Powered Committee for the Integrated Development of the Bagmati Civilization, IEC = information education and communication , IRBDMP = integrated river basin development master plan, IRMC = integrated resource management committees, NGO = nongovernment organization, O&M = operation and maintenance, PCMU = project coordination and management unit, QCPRM = quarterly country portfolio review meeting , RBO = river basin organization, RWH = rain water harvesting , SNNP = Shivapuri Nagarjun National Park, WECS = Water and Energy Commission Secretariat.

Source: Asian Development Bank.

IX. PERFORMANCE MONITORING, EVALUATION, REPORTING AND COMMUNICATION

A. Project Design and Monitoring Framework

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
<p>Impact Improved water security in the Bagmati River Basin</p>	<p>By 2025: Water allocation recommendations by the RBO council approved (baseline: no water allocations currently in the basin) Water availability in the upper BRB during the dry season improved by 50% from 2013 baseline (average 38 l/s at Gaurighat) Water quality in the upper Bagmati River improved to bathing water standards of World Bank and World Health Organization (DO > 3 mg/l) at Pashupatinath temple on a perennial basis (baseline: highest DO = 1 mg/l in 2012–2013 dry season) Water downstream of Pashupatinath temple in Kathmandu City improved to standards for partial contact^a (DO > 1.5 mg/l) (baseline: highest DO = 0 mg/l in 2012–2013 dry season)</p>	<p>WECS annual reports DHM and GWRDB surface and groundwater annual records RBO Secretariat (HPCIDBC) water quality assessment reports RBO Secretariat (HPCIDBC) water quality assessment reports</p>	<p>Assumption Related projects in Kathmandu addressing problems in drinking water supply and sewage collection and/or water treatment are successfully completed on time. Risk Climate change impact exceeds model projections.</p>
<p>Outcome Improved river health and flood management</p>	<p>By the end of the project (by 2019): Bathing water quality standard (DO > 3 mg/l) achieved at Pashupatinath when reservoir water is released (baseline: highest DO = 1 mg/l in 2012–2013 dry season) Annualized cost of flooding in Bagmati River Basin reduced by 10% (baseline 1993–2013: \$850,000)^b</p>	<p>RBO Secretariat (HPCIDBC) water quality assessment reports DWIDP annual reporting</p>	<p>Assumption KVWMP is implemented without delay and achieves the target of effluent standards of WWT plants at Gokarna and Guheshwori</p>
<p>Outputs 1. Established systems and capacity for integrated and participatory river basin management</p>	<p>By 2016: 15-year IRBDMP for Bagmati approved by majority of basin stakeholders By 2017: Water resources (including quality and quantity) real-time data and decision support systems in place By 2018: RBO legally established, financed, and staffed (20% are women and 15% representatives of diverse communities in the river basin, in leadership and non leadership positions)</p>	<p>For all indicators: Project progress reports prepared by WECS and HPCIDBC</p>	<p>Assumption Frequent turnover of government officials does not affect commitment for IWRM. Risk Nepal adopts a federal structure that fails to recognize water as a state subject.</p>
<p>2. Improved riverbank environment in urban areas</p>	<p>By 2017: 7.2 km of river corridor constructed with aesthetic river walls, green zones and recreational amenities employing 20% of women and 10% poor and socially excluded as workers during construction</p>	<p>For all indicators: Project progress reports prepared by MOUD and HPCIDBC</p>	<p>Assumption Solid waste problems related to provision of collection services and deposition are solved through the implementation of the</p>

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
	<p>11 aeration weirs constructed 2 regulators rehabilitated</p> <p>By 2018: 7 VDCs and user community groups, comprising at least 33% women members and 20% from poor and socially excluded groups, mobilized to monitor and prevent solid waste disposal into the river corridor 300 households adopt improved solid waste management</p> <p>By 2019: 2 km of riverbank maintained with private sector support</p>		<p>2011 Solid Waste Act</p> <p>Risk Political instability compromises necessary coordination between municipalities, VDC and HPCIDBC on river bank monitoring and maintenance</p>
<p>3. Increased water availability in the basin during dry season and improved watershed conservation</p>	<p>By 2017: 850,000 m³ of storage capacity established with the Dhap dam</p> <p>By 2019: 178,000 m³ rooftop water harvested annually by 2,500 households to provide 45,000 m³ of water supply and recharge 135,000 m³ of groundwater</p> <p>12.5 ha erosion-prone cultivated area in SNNP stabilized with fruit-tree planting and improved cropping practices</p> <p>80% of households converted from traditional wood stoves to energy-saving stoves (baseline 2013: 296 households in SNNP use traditional stoves)</p>	<p>For all indicators: Project progress reports prepared by MOUD and DOI</p>	<p>Assumption SNNP authorities continue to cooperate with the project.</p> <p>Risk Construction of water storage in SNNP is resisted by other stake holders.</p>
<p>4. Functioning flood forecasting and early warning system for the Bagmati River Basin</p>	<p>By 2016: Flood early warning system in place</p> <p>By 2017: Flood warnings disseminated 72 hours before flood events (baseline 2013: 24 hours before flood events with low reliability)</p> <p>By 2018: 25 most flood-prone riverine villages implement community-based flood adaptation programs with protocols that consider needs of women, children, disabled, and elderly during disasters</p>	<p>For all indicators: WECS and DHM annual reports</p>	
<p>5. Efficient project management with effective stakeholder communication</p>	<p>By 2013: PCMU established with at least 33% women representation Sector PIUs established The project communication strategy is successfully implemented</p> <p>By 2019: Annual project contract award and disbursement targets met</p>	<p>For all indicators: PCMU and PIU annual and quarterly progress reports</p>	

Activities with Milestones	Inputs
<p>1. Established systems and capacity for integrated and participatory river basin management</p> <p>1.1 Recruit DSS, FFEW, IRBDMP water quality consultants (Sep 2013–May 2014)</p> <p>1.2 Select and mobilize RBO and legal consultants (Oct 2013–Feb 2014)</p> <p>1.3 Conduct consultations to finalize the RBO structure (Feb–Oct 2014)</p> <p>1.4 Draft new water act and legislature for the RBO (Mar 2014–Apr 2015)</p> <p>1.5 Procure equipment for DSS and water quality (Jun 2014–Aug 2014)</p> <p>1.6 Develop and implement DSS and water quality monitoring system (Jun 2014–Aug 2016)</p> <p>1.7 Develop IRBDMP (Mar 2014–Apr 2016)</p> <p>2. Improved riverbank environment in urban areas</p> <p>2.1 Recruit NGOs for river community mobilization, gender, and solid waste management (Jan–Jul 2014)</p> <p>2.2 Form community groups, establish stakeholder consultations and gender groups for the duration of the project (Jul 2014–Dec 2015)</p> <p>2.3 Undertake community mobilization, stakeholder interaction, and gender activities (Apr 2016–Oct 2018)</p> <p>2.4 Undertake detailed design by PMDSC (Feb–Aug 2014)</p> <p>2.5 Construct river improvement works (Apr 2015–Dec 2017)</p> <p>3. Increased water availability in the basin during dry season and watershed conservation</p> <p>3.1 Process approval of EIA for Dhap dam (May 2013–Apr 2014)</p> <p>3.2 Tender design and build contract for Dhap dam (Sep 2013–Mar 2014)</p> <p>3.3 Recruit Nagmati dam design consultants (Oct 2013–Jun 2014)</p> <p>3.4 Recruit NGOs for watershed management and rainwater harvesting (Mar–Jul 2014)</p> <p>3.5 Process approval of EIA for Dhap dam (May 2013–Apr 2014)</p> <p>3.6 Undertake detailed design for Dhap dam by contractor (Jul 2014)</p> <p>3.7 Undertake detailed design for Nagmati dam (Jun 2014–Jul 2015)</p> <p>3.8 Implement EMP for Dhap dam construction (Nov 2014–Jun 2017)</p> <p>3.9 Construct Dhap dam (Nov 2014–Jun 2017)</p> <p>3.10 Implement rainwater harvesting and watershed management (Apr 2014–Oct 2015)</p> <p>4. Functional flood forecasting and early warning system in the Bagmati River Basin</p> <p>4.1 Mobilize FFEW consultants under DSS contract (May 2014)</p> <p>4.2 Procure equipment for FFEW (Aug 2014–Oct 2014)</p> <p>4.3 Develop, implement, and test FFEW (Oct 2014–Jun 2016)</p> <p>5. Efficient project management and stakeholder coordination</p> <p>5.1 Recruit project management design and supervision consultants (Jul 2013–Feb 2014)</p> <p>5.2 Form a PCMU (May–Nov 2013) and PIUs (May–Dec 2013)</p> <p>5.3 Set up financial management system and open imprest account in the PCMU (Oct–Nov 2013)</p> <p>5.4 Set up monitoring and evaluation system in the PCMU (Oct 2013–Apr 2014)</p> <p>5.5 Implement communication strategy (Apr 2014–Oct 2018)</p> <p>5.6 Produce quarterly and annual reports (Feb 2014)</p> <p>5.7 Establish grievance mechanism in the PCMU (Aug 2014)</p>	<p>Loan ADB: \$25.5 million</p> <p>Government: \$6.0 million</p> <p>Grant ADB: \$4.5 million WFPF: \$0.5 million</p>

ADB = Asian Development Bank, BRB = Bagmati River Basin, DHM = Department of Hydrology and Meteorology, DO = dissolved oxygen, DOI = Department of Irrigation, DSS = decision support system, DWIDP = Department of Water Induced Disaster Prevention, EIA = environmental impact assessment, EMP = environmental management plan, FFEW = flood forecasting and early warning system, GWRDB = Ground Water Resource Development Board, ha = hectare, HPCIDBC = High Powered Committee for the Integrated Development of the Bagmati Civilization, IRBDMP = integrated river basin development master plan, IWRM = integrated water resources management, km = kilometer, KVVMP = Kathmandu Valley Wastewater Management Project, l/s = liter per second, m³ = cubic meter, mg/l = milligram per liter, MOUD = Ministry of Urban Development, NGO = nongovernment organization, PCMU = project coordination and management unit, PIU = project implementation unit, PMDSC = project management design and supervision consultant, RBO = river basin organization, SNNP = Shivapuri Nagarjun National Park, UBR = upper Bagmati River, VDC = village development committee, WECS = Water and Energy Commission Secretariat, WFPF = Water Financing Partnership Facility.

^a The PCMU will select the water quality monitoring points.

^b The costs of flooding are based on average costs from 2000 to 2004 and the costs of the large flood in 1993, amortized. (SILT et.al. 2005. *Preparation of Water-Induced Hazard Maps of the Bagmati River Basin*. Volume 1 (Main Report). Report to Ministry of Water Resources, Department of Water Induced Disaster Prevention; and Flood Disaster Impacts and Responses in Nepal Terai's marginalized Basins. http://www.i-s-e-t.org/images/pdfs/Winds%20Ch_6.pdf
Source: Asian Development Bank.

B. Monitoring

68. **Project performance monitoring** The PCMU will establish a project performance management system using the targets, indicators, assumptions, and risks in the project DMF. The PCMU will also expand the DMF into a Monitoring and Evaluation Framework taking into account the important monitoring parameters in addition to those included in DMF. The baseline data corresponding to indicators and targets set out in the DMF, and M&E Framework will be gathered, building on primary data collected during the PPTA and through further data collection, within 12 months of loan effectiveness, disaggregated by income levels, sex, caste, and ethnicity. After the initial baseline survey, the PCMU will conduct annual monitoring using the same indicators and submit the reports to ADB throughout project implementation. Results of a comprehensive completion survey will be included in the project completion report. These quarterly reports will provide information necessary to update ADB's project performance reporting system.¹⁵

69. The PMSC will support the PCMU in monitoring performance based on the DMF, M&E Framework and project performance management system (PPMS) for the project. The PID, with support from DSC and CAPC will prepare a quarterly progress report, which among other items; will include compliance of implementation of (i) assurances, covenants and conditions; (ii) safeguards; (iii) GESI; (iv) CAPP, etc.

70. **Compliance monitoring:** Status of compliance with assurances, conditions and loan covenants—policy, legal, financial, economic, environmental, and others— will be reviewed at each ADB review mission. All non-compliance issues, if any, will be updated in quarterly progress reports together with remedial actions. The PID will include status of compliance in quarterly progress reports.

71. **Safeguards monitoring:** Status of the updating and implementation of the Environmental safeguards documents (EIAs and EMPs.), and Social safeguards documents (RF) will be discussed at each ADB review mission and integrated into quarterly progress reports. Semi annual environmental monitoring reports will be provided to ADB and the Government. These reports will be disclosed to the public through ADB's website.

72. **Gender and social dimensions monitoring:** Status of the implementation of the GESI Action Plan and CAPP will be discussed at each ADB review mission and integrated into quarterly progress reports.¹⁶

¹⁵ ADB's project performance reporting system is available at:

<http://www.adb.org/Documents/Slideshows/PPMS/default.asp?p=evaltool>

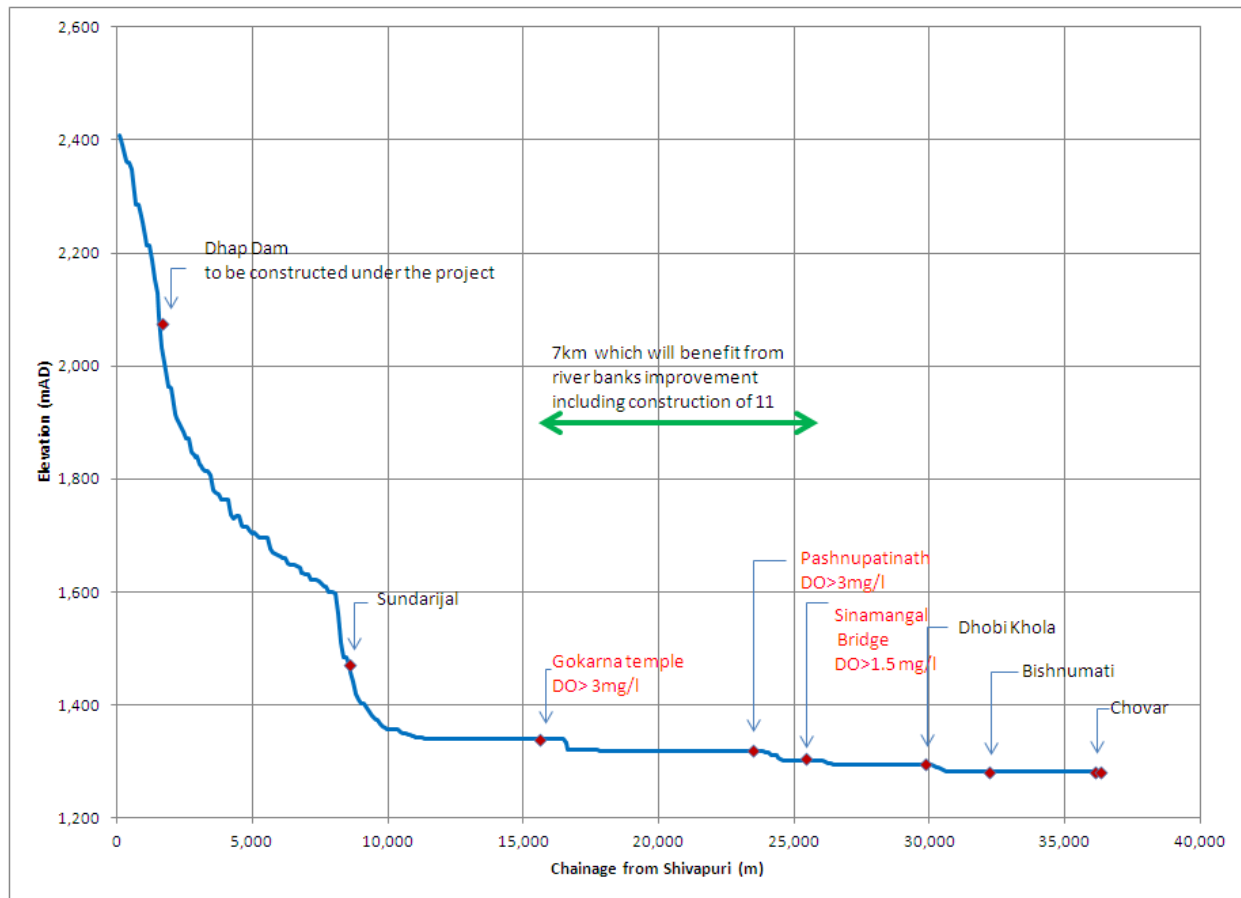
¹⁶ ADB's *Handbook on Social Analysis: A Working Document*, is available at: <http://www.adb.org/Documents/Handbooks/social-analysis/default.asp>, *Staff Guide to Consultation and Participation*: <http://www.adb.org/participation/toolkit-staff-guide.asp>, and *CSO Sourcebook: A Staff Guide to Cooperation with Civil Society Organizations*: <http://www.adb.org/Documents/Books/CSO-Staff-Guide/default.asp>

C. Evaluation

73. Within 6 months of physical completion of the Project the Executing Agency, MOUD will submit a project completion report to ADB.¹⁷

74. Evaluation of outcome level and impact level indicators for river environment should be monitored at the points indicated in the schematic diagram below:

Figure 1: Longitudinal Profile of the Upper Bagmati River



D. Reporting

75. The EA/PCMU will provide ADB with (i) quarterly progress reports in a format consistent with ADB's project performance reporting system; (ii) consolidated annual reports including (a) progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions; (c) updated procurement plan and (d) updated implementation plan for next 12 months; and (iii) a project completion report within 6 months of physical completion of the Project. To ensure projects continue to be both viable and sustainable, project accounts and the executing agency AFSSs, together with the associated

¹⁷ Project completion report format is available at: <http://www.adb.org/Consulting/consultants-toolkits/PCR-Public-Sector-Landscape.rar>

auditor's report, should be adequately reviewed. Safeguards documents and safeguard monitoring reports will be forwarded to ADB for disclosure on the ADB website.

E. Stakeholder Communication Strategy

76. A key part of BRBIP implementation strategy will be a Stakeholder Communications Strategy focusing on information sharing and consultation that will guide communications with stakeholders during project implementation. An important finding of the PPTA Team is that all sectors in the Bagmati River Basin need to understand other sectors. The detailed stakeholder Communication Strategy is presented in

77. To contribute to project objective of improving water security in the Bagmati River Basin, communication will be maximized to:

- (i) Disclose information about project to key stakeholders particularly affected people, and set up mechanisms for grievance and feedback
- (ii) Encourage Dialogue and Constructive Action to support BRBIP implementation
- (iii) Engage key stakeholders to develop common platform for planning, implementation and M&E
- (iv) Foster behaviour changes among key relevant audiences to: (a) improve local governance; (b) improve project management and maintenance; (c) sustainably use water resources; (d) prepare for river-related disasters (i.e., flooding, etc.)
- (v) Maximize communication approaches to mitigate risks related to physical investments

78. **INFORMATION DISCLOSURE:** The Stakeholders Communication Strategy implementation will engage and inform relevant Bagmati River stakeholders and sectors with timely, accurate, and comprehensive information shared among stakeholders. Such information sharing will help to build consensus and ensure continuous stakeholder support throughout the Project.

BRBIP IWRM/RBO Stakeholder Communication Strategy

MESSAGE	COMMUNICATION METHODS AND TOOLS	RESPONSIBLE FOR IMPLEMENTATION	WHEN IMPLEMENTED
<ul style="list-style-type: none"> • Awareness <ul style="list-style-type: none"> ○ Description and Definition of IWRM and River Basin Issues <ul style="list-style-type: none"> ▪ BRBIP Project Description ▪ BRBIP Components Focused on IWRM and Basin Issues ○ How BRBIP Can Help Address IWRM and Basin Issues <ul style="list-style-type: none"> ▪ Project Benefits ▪ Project Impacts 	<ul style="list-style-type: none"> • Direct Communication by BRBIP Consultants • Media Outlets • Roundtable Discussions • BRBIP Working Groups • Talk Shows • Consultation Meetings • Sensitization Workshops • International Observation and 	<ul style="list-style-type: none"> • BRBIP Consultants • Donor Organizations (e.g. ADB NRM) Assist • NGOs Assist • BRBIP Executing and Implementing Agencies Play a Role in Implementation 	<ul style="list-style-type: none"> • Early in BRBIP Project Implementation

<ul style="list-style-type: none"> ○ BRBIP Project Implementation Processes 	Study Tours		
<ul style="list-style-type: none"> • Awake <ul style="list-style-type: none"> ○ Knowledge Dissemination ○ Orientation Towards Action ○ Key Integration Roles and Responsibilities of GON Bodies 	<ul style="list-style-type: none"> • Direct Communication by BRBIP • Media Outlets • Roundtable Discussions • BRBIP Working Groups • Talk Shows • International Observation and Study Tours 	<ul style="list-style-type: none"> • BRBIP Consultants • Donor Organizations (e.g. ADB NRM) Assist • NGOs Assist • BRBIP Executing and Implementing Agencies Play a Role in Implementation 	<ul style="list-style-type: none"> • Early in BRBIP Project Implementation, but After Awareness Has Been Developed
<ul style="list-style-type: none"> • Action <ul style="list-style-type: none"> ○ Practical Steps to Implement IWRM and Basin Approach in Nepal 	<ul style="list-style-type: none"> • Direct Communication by BRBIP Consultants 	<ul style="list-style-type: none"> • BRBIP Consultants • Donor Organizations (e.g. ADB NRM) Assist • NGOs Assist • BRBIP Executing and Implementing Agencies Play a Role in Implementation 	<ul style="list-style-type: none"> • Approximately Mid-Project Implementation

79. The key messages that will be communicated in the strategy will be: (i) respecting the river, (ii) using the political process to institute change, (iii) municipalities respecting the law, (iv) the public changing their behaviour towards the Bagmati River, and (v) fund-raising activities.

80. The primary audiences for the SCS are local communities along the Bagmati River (local resident people, women's groups, other community members), the general public (private sector, NGO's development partners, key individual decision makers) and Government and authorities (local VDCs/DDCs, GON institutions and ministries).

81. SCS activities will include door-to-door awareness campaigns, public meetings, holding annual events, publicity programs with educational institutes, mother's groups, youth clubs etc., workshops for media and provision of media kits, web page design and hosting, news provision and awareness raising using, radio, television, videos, You Tube and printed media. The exact mix of activities will be determined following the stakeholder analysis

BRBIP River Environment Communication Strategy
(Audience: Local Communities [Primarily in Upper Bagmati])

MESSAGE	COMMUNICATION METHODS AND TOOLS	RESPONSIBLE FOR IMPLEMENTATION	WHEN IMPLEMENTED
<ul style="list-style-type: none"> • Awareness <ul style="list-style-type: none"> ○ Description of Problem/Issue ○ Description of Project <ul style="list-style-type: none"> ▪ Components ▪ Scientific Rationale 	<ul style="list-style-type: none"> • Door-to-Door in Local Communities • Brochure Hand-Outs • Continue Public Consultation 	<ul style="list-style-type: none"> • Local CBOs from the Riverside Community with Support from BRBIP 	<ul style="list-style-type: none"> • Short, Medium, and Long-Term • On-Going Throughout Project

<ul style="list-style-type: none"> ▪ Realistic in What Project Can Accomplish ○ Key Project Benefits ○ Project Implementation Process <ul style="list-style-type: none"> ▪ Opportunities for Local Communities' Participation 	<p>Meetings already on-going from PPTA.</p> <ul style="list-style-type: none"> • Hoarding Board (Billboard) <ul style="list-style-type: none"> ○ Slogan/Pictorial Message in Riverside; in Clusters. 	<ul style="list-style-type: none"> • Religious organizations ("Guthis") such as Pasupati Area Development Trust (PADT) • Small-Scale, Local Activities 	
<ul style="list-style-type: none"> • Awake <ul style="list-style-type: none"> ○ Knowledge Dissemination re Options for Action ○ Orientation Towards Action and Mobilization 	<ul style="list-style-type: none"> • Face-to-Face Meetings with Local Groups. • Brochure Hand-Outs • Focus Group Discussions 	<ul style="list-style-type: none"> • Local CBOs from the Riverside Community with Support from BRBIP • Religious organizations ("Guthis") such as Pasupati Area Development Trust (PADT) • Small-Scale, Local Activities 	<ul style="list-style-type: none"> • Short, Medium, and Long-Term • On-Going Throughout Project
<ul style="list-style-type: none"> • Action <ul style="list-style-type: none"> ○ Local Communities' Involvement and Participation in Direct Action 	<ul style="list-style-type: none"> • Annual Workshops • River Cleaning Campaign • Competition (competition between VDCs in Upper Bagmati). • Music, Literature, Art, Dramas • Plantation and Forestation • Sports Activities • Clean Up Rally and Campaign • Develop and Implement Reward System for Clean-Up. • Slogan/Pictorial Message along Riverside; Clusters. 	<ul style="list-style-type: none"> • Educational Institutes • Mothers Groups • Forest User Groups • Youth Clubs • Political Groups • Business Houses (private sector) • Wards and VDCs • Religious organizations ("Guthis") such as Pasupati Area Development Trust (PADT) • Supported by BRBIP 	<ul style="list-style-type: none"> • Short, Medium, and Long-Term • On-Going Throughout Project

BRBIP River Environment Stakeholder Communication Strategy
(Audience: Public-at-Large)

MESSAGE	COMMUNICATION METHODS AND EVENTS	RESPONSIBLE	WHEN IMPLEMENTED
<ul style="list-style-type: none"> • Awareness <ul style="list-style-type: none"> ○ Don't Pollute Bagmati <ul style="list-style-type: none"> ▪ Components ▪ Scientific Rationale ○ Key Project Benefits 	<ul style="list-style-type: none"> • Annual Mega-Event <ul style="list-style-type: none"> ○ Bagmati River Festival <ul style="list-style-type: none"> ▪ Display/Exhibition ▪ Entertainment ▪ Sports ▪ Literature 	<ul style="list-style-type: none"> • Government • NGOs/CBOs • Private Sector • Religious organizations ("Guthis") such as 	<ul style="list-style-type: none"> • June Through August • Annual Event • Coordinate with Annual Nepalese Silthinakeha-

<ul style="list-style-type: none"> ○ Project Implementation Process ○ Public's Potential Roles in Bagmati Clean-Up 	<ul style="list-style-type: none"> ▪ Music ▪ Sidewalk Art Display ▪ Music Video at Bagmati • Website Development Supported 	<p>Pasupati Area Development Trust (PADT)</p> <ul style="list-style-type: none"> • Funding Needed from These Organizations 	<p>Krishnastatni Festival</p> <ul style="list-style-type: none"> ○ Annual Mega-Event is an Integral Part of Nepalese Festival. ○ Link Mega-Event to Local Festivals to Give Attention.
<ul style="list-style-type: none"> • Awake <ul style="list-style-type: none"> ○ Knowledge Dissemination re Options for Action ○ Orientation Towards Action and Mobilization ○ How Public Can Be Involved <ul style="list-style-type: none"> ▪ Campaigns ▪ Activities 	<ul style="list-style-type: none"> • Media Mobilization <ul style="list-style-type: none"> ○ Media Workshop <ul style="list-style-type: none"> ▪ Exposure (e.g. if VDCs do a good job, bring the media), visit for all ▪ Briefings to media re Project ○ Radio, TV programs ○ Three-Minute Video Produced • Website Development Supported 	<ul style="list-style-type: none"> • NGOs/CBOs (with project support) • Religious organizations ("Guthis") such as Pasupati Area Development Trust (PADT) 	<ul style="list-style-type: none"> • Every Three Months.

F. Participation and institutional Strategic plan

82. Seven key stakeholder, participation, and institutional strategies are envisaged for BRBIP including: (i) a Bagmati River Basin Organization (RBO) that introduces and implements the objectives of integrated water resources management (IWRM) to river restoration, (ii) improved mechanisms for participation and water dialogue, (iii) institutional strengthening and capacity development, (iv) the development of an NGO Platform, (v) a stakeholder communication strategy, (vi) the introduction of knowledge-based decisions, and (vii) a proper legal framework. The detailed participation and institutional plan is available as supplementary appendix 19 of the project RRP.

G. Establishment and Development of a Bagmati RBO and IWRM

83. The overlapping mandates, interests and duplication among the different government agencies and other stakeholders calls for an institutional framework for coordination, integration and regulation of all activities within the Bagmati River Basin. An Integrated Water Resources Management (IWRM) approach that "promotes coordinated development and management of water, land and related resources to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems". A key challenge for the RBO will be to mainstream the participation of local communities in river basin management.

84. The key governmental agencies like WECS, MOUD, HPCIDBC, Dept of National Parks and Wildlife Conservation (DNPWC)/Shivapuri Nagarjun National Park have a key role of executing and implementing the Project. As it is a multi-sectoral project requiring a river basin management/IWRM approach. River Basin Organization (RBO) to coordinate, integrate and monitor the river basin development and management is thus needed for Bagmati River Basin.

85. Component 1 – Towards Integrated and Participatory River Basin Management – Proposal for Bagmati RBO concludes that current water management problems in the Bagmati river basin make it highly suitable for the introduction of IWRM, and one possible solution to promote this would be formation of an RBO.

86. Although most existing government agencies function well enough within normal funding constraints, there is need for greater coordination and focus on key issues, and elimination of overlaps which appear to occur in certain areas. However, an analysis of water management functions indicated that there are gaps in key areas (e.g. basin-wide water balance, water allocation, groundwater management) which need to be resolved.

87. The Project considers that formation of an RBO to address key planning functions together with rationalisation of other water management functions could make a significant positive impact on the water management in the basin, and start to resolve key issues. A draft roadmap of IWRM activities with corresponding timetable and milestones is presented in the Project Component 1 Report.

H. Mechanisms to Promote Participation, Coordination, and Integrated Water Dialogue

1. Challenges and Issues

88. There are no mechanisms in the Bagmati River Basin for developing integrated and multi-sectoral water resources management strategies in the Upper Bagmati. The basin is also plagued by: (i) limited room for water dialogue involving civil society, (ii) limited networking mechanisms for sharing data and information, and (iii) limited community awareness and education.

89. The lack of a multi-sectoral strategic approach highlights the need for both a process and an institutional mechanism for key stakeholders to actively support coordinated Bagmati water resources development and river environment management.

2. Goals and Targets of These Mechanisms and Processes

90. The goal or target of these institutional mechanisms and processes is integrated water resources management in the Bagmati River Basin. The objective is to better manage water resources in an integrated way, not necessarily to build a Bagmati River Basin Organization (RBO). There are multiple institutional structures (including an RBO) that might accomplish this, but the goal itself is not necessarily an RBO per se, but sustainable water resources management in the basin. An RBO could possibly be a good technical and institutional tool for facilitating and structuring integrated water resources management, but the organizational apparatus (e.g. an RBO) is a tool or a means to an end, not the end itself.

3. Mechanisms and Processes to Promote Participation, Coordination, and Integrated Water Dialogue

91. There is a clear need to build better water governance in the Bagmati Basin. Some key principles for building better water governance include:

- (i) Stakeholders involvement and agreement (including CSOs and NGOs) on multi-stakeholders' coordination mechanisms.

- (ii) Knowledge, data, information- sharing and cooperation on projects; basin awareness.
- (iii) Inter-sector collaboration.
- (iv) Integrated knowledge of the basin profile.
- (v) Steering water resources development and river environment strategy and implementation.
- (vi) Updating and/or setting up of a regulatory framework.

92. To follow these principles and achieve the stated goal of integrated water resources management (IWRM) in the Bagmati Basin, the Project will support the development of a multi-stakeholders' mechanism that mainstreams IWRM. This will involve designing and implementing a stepwise framework for water resources coordination:

- (i) At least two multi-sectoral Technical Working Groups formed and supported:
 - Working Group on Bagmati Water Resources Management
 - Working Group on Bagmati River Environmental Management
- (ii) A Bagmati IWRM Project Steering Committee.
- (iii) River Basin Organization

4. Multi-Sectoral Technical Working Groups

93. A key element of these processes and mechanisms is the formation of at least two technical working groups on the Bagmati Basin: (i) Bagmati Water Resources Management Working Group, and (ii) Bagmati River Environmental Management Working Group. These are technical working groups, focusing on technical aspects of water resources management and river environmental management. These working groups would provide multi-sector platforms and mechanisms for stakeholder coordination, collaboration, and participation, at least initially focusing only on technical matters.

94. The working groups could start out informally, with little or no official government authority, and gradually evolve into a key part of the official Bagmati RBO as the official RBO is being developed. To this extent, the two working groups are a transitional mechanism to keep integrated water dialogue going while legal, budgetary, and administrative arrangements are made for the RBO. Ultimately, these working groups would be integrated into the long-term organizational chart of the Bagmati RBO.

95. The roles of the working groups would be:

- (i) Consultative aiming at following up and giving recommendations for the preparation of the Bagmati RBO.
- (ii) Discuss status of water related projects in the Bagmati River Basin and develop methods for intersectoral screening and evaluation (water dialogue).
- (iii) Provide forum for exchange of views on challenges and issues facing Bagmati stakeholders.
- (iv) Share knowledge and information and advice on public awareness campaigns.
- (v) Help develop ideas and actions related to a Bagmati Community Empowerment Program – Information, Awareness, Education.
- (vi) Develop awareness framework and guidelines for better involvement of a wider range of stakeholders.
- (vii) Remain current and help develop a Bagmati Basin Info System and knowledge base as way to consolidate and network various sectors.

96. It is also important the two working groups become a part of the BRBIP/KVUEIP Joint Communication Strategy. Although much of the work of the communication strategy will be done by NGOs and CSOs, the two technical working groups can help guide and give direction to the joint communication strategy.

97. Potential stakeholders as members of the working groups would include:

- (i) HPCIDBC
- (ii) WECS
- (iii) KVWSMB/KUKL
- (iv) MOI/DOI
- (v) Municipalities
- (vi) VDCs and DDCs
- (vii) CSOs (including representatives from local vulnerable groups, including farmers' groups in Upper Bagmati)
- (viii) NGOs

98. It is particularly important to note that local groups such as VDCs, DDCs, and local leaders could potentially block BRBIP Project activities (construction, etc.) and mobilize opposition to the project. It is critically important therefore that these local leaders and representatives of the VDCs/DDCs are fully engaged in the Project processes/activities and the Working Groups, to incorporate them as participants into the project, rather than just as observers. There could be a tendency to exclude these local groups from the Working Groups, but it should be stressed that the objectives of the Working Groups will only be fulfilled if VDCs/DDCs, CSOs, and other local leaders fully participate in the Working Groups.

5. Multi-Sectoral Bagmati IWRM Project Steering Committee

99. If the working groups show initial progress and promise, an informal Bagmati IWRM Project Steering Committee could also be formed. This IWRM Steering Committee would primarily be technical, and would directly address larger IWRM issues on the river basin. Again, early on in the project, this IWRM Steering Committee (separate but coordinated with the larger Project Steering Committee), would operate more informally, without the need for formal government authorization.

6. Bagmati RBO

100. The whole process of developing mechanisms and processes to promote coordination, participation, and water dialogue would be a step-wise process. The first step is the establishment and development of the technical working groups, which would be a transitional step while the formal Bagmati RBO is being established and legally authorized. The second step would be to merge the working groups into the formal Bagmati RBO.

I. Institutional Development

101. BRBIP will also work with executing and implementing agencies to improve the overall governance of project operations, including a focus on a proper legal and regulatory framework, and key processes and procedures within government agencies.

102. At least one of the key processes and procedures to improve Bagmati River institutions will be the development of multi-stakeholders' mechanism that mainstreams IWRM. This will involve developing and supporting at least two Technical Working Groups: (i) Working Group on

Bagmati Water Resources Management, and (ii) Working Group on Bagmati River Environmental Management. These will be technical working groups, focusing on technical aspects of water resources management and river environmental management. These working groups would provide a multi-sector platform and mechanism for stakeholder coordination, collaboration, and participation, at least initially focusing only on technical matters. Three key functions of these working groups that would directly contribute to institutional development are: (i) consultative aiming at following up and giving recommendations for the preparation of the Bagmati RBO, (ii) discuss status of water related projects in the Bagmati River Basin and develop methods for intersectoral screening and evaluation (water dialogue), and (iii) provide a forum for exchange of views on challenges and issues facing Bagmati stakeholders.

J. Inter-Organizational Relations

103. RBO - Inter-organizational relations will be improved in BRBIP, primarily through the establishment and operation of the Bagmati RBO. Presently, inter-sectoral and institutional capacities and knowledge of river basin coordination and cooperation are not yet fully developed along the Bagmati River Basin. RBOs are a relatively new concept to Nepal, particularly for a river like the Bagmati which flows through a highly urban and industrialized area.

104. BRBIP will directly address these weaknesses by emphasizing at least two areas of RBO development:

- (i) Processes and Procedures – The processes and procedures needed to design, develop, and begin implementation of an RBO will be designed and implemented, including a step-wise development of Technical Working Groups that would ultimately lead to full legal authority for an RBO.
- (ii) Institutional and Implementation Arrangements – Once the RBO is actually formed, more expertise will be required in actual river basin management, and in operating the RBO on a day-to-day basis. BRBIP through its organizational development activities described above will focus on these arrangements.

105. NGOs and CSOs - Another key part BRBIP's inter-organizational capacity development activities will be focused on incorporating recognized NGOs, CSOs, local development partners, and local government bodies into project operations. BRBIP will emphasize the benefits of cooperation and collaboration between these different organizations and institutions.

106. The Role of a "Champion" - Another key inter-organizational capacity development activity will be the identification and support of a "champion" for the loan project from among the key stakeholders. This champion could take on the role of a driving force supporting integrated, stable institutions within the Bagmati River Basin, and coordinating multi-sectoral improvement efforts.

K. NGO Platform

107. The Upper Bagmati River environment improvement will require community participation in maintaining the river environment. While the interventions proposed to manage liquid and solid waste and to increase the flows in the river will provide the basis of the restoration of the river environment to its conditions of 30-40 years ago, the river banks and the green belts created in the flood plains will need to be owned by communities and other local stakeholders. There are some good examples of communities and other civil society organizations (CSOs) coming together to improve the rivers by developing green zones and parks on certain stretches

of the river like the UN Park in Lalitpur and the initiatives taken by community organizations like the MakaibariToleSudharSamiti, WEPCO and PWEDO (Populations Women Environmental Development Organization) to manage and control solid waste dumping in certain stretches of the river. Such efforts need to be scaled up and extended to cover the whole stretch. Such initiatives would be best carried out by community level organizations with very little help from the government.

108. The adoption of river stretches by communities, private sector and local NGOs would be an important way of ensuring that the river environment is improved and the communities benefit from the river front development. It is proposed that the greenbelts and river banks along the improved Bagmati River be managed by the user committees formed by the local communities or by interested private sector or local CSOs and NGOs. The following modality of adoption of river stretches is proposed.

- (i) A national NGO working in the field of environment and community mobilization will be recruited under a NGO contract with the responsibility of mobilizing the communities and forming user committees to take up the responsibility of adoption of river stretches.
- (ii) The selected NGO will carry out community awareness and mobilization activities and assist in establishing user communities to adopt and manage stretches of the river. These stretches can be developed by the communities as gardens and parks for local communities' benefits, including development of floriculture and small forestry patches for beautification.. The user committees will be registered with the local ward offices of the VDCs or municipalities or with the District Administrative Office (DAO) depending on the scope and area of coverage. Selected NGO will assist the user committees in the registration process. The CSOs can even raise funds by collecting subscriptions from visitors to sustainable maintenance of the parks.
- (iii) Competition for award giving will be organized periodically by the VDCs or municipalities in order to boost up the morale of the CSOs and NGOs involved in nature conservation work. The CSOs and NGOs can even build temples or cultural promotional small museums within the park to attract regular visitors.
- (iv) HPCIDBC, the Implementing Agency (IA) for the project, will prepare the technical guidelines and regulations for the operation of the green belts and the development to be carried out within it. HPCIDBC along with the VDCs and Municipalities will monitor and regulate the activities of the user committees. HPCIDBC will allocate the river stretches to be managed and adopted by each user committee. Private sector may also apply to adopt certain stretches of the rivers under their corporate social responsibility (CSR) activities or support user committees or local NGOs to do so.
- (v) The forum of all user committees adopting the river stretches may be established to work with HPCIDBC and VDCs and municipalities to self monitor the activities. Such a forum will coordinate with other activities like the annual Bagmati River Festival to showcase their achievements. A "Score Card" system will be used to select the best performing user communities and to encourage others to improve. The modality of the "score card" systems needs to be development by the participating communities, private sectors and the local bodies (municipality wards and VDCs).
- (vi) Seed money will be provided to community- or private sector-led local initiatives on river environment management to the CSOs and small private entrepreneurs.

Score Card System will be based on the factors/indicators such as:

1. Hygiene (Health) –bacterial level suitable for religious
2. Biological function – dissolve oxygen
3. Aesthetic – smell, color
4. Social function – people’s perception, use of the river
5. Physical – quantity and depth of water

(Details of the score card system will be worked out through consultations with the participating community organizations during project implementation.)

109. The Office of Anticorruption and Integrity (OAI) is the initial point of contact for allegations of integrity violations involving ADB-related activities or ADB staff. Independent since October 2009, OAI’s mission is to ensure ADB and its partners maintain the highest ethical and professional standards, and prevent resources intended to improve the lives of the poor from being used to line the pockets of the unscrupulous. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy relating to the Project.¹⁸ All contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the executing agency and all Project contractors, suppliers, consultants and other service providers. Individuals/entities on ADB’s anticorruption debarment list are ineligible to participate in ADB-financed activity and may not be awarded any contracts under the Project.¹⁹

110. To support these efforts, relevant provisions are included in the loan agreement, project agreement and the bidding documents for the project. In particular, all contracts financed by ADB in connection with the project will include provisions specifying the right of ADB to audit and examine the records and accounts of the executing agency and all contractors, suppliers, consultants, and other service providers as they relate to the project.²⁰

¹⁸ Available at: <http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf>

¹⁹ ADB’s Integrity Office web site is available at: <http://www.adb.org/integrity/unit.asp>

²⁰ Governance and Anticorruption Action Plan (GACAP) II Guidelines available at: <http://www.adb.org/Documents/Guidelines/GACAP-II-Guidelines.pdf>. See also Sourcebook: Diagnostics to Assist Preparation of Governance Risk Assessments: <http://www.adb.org/documents/books/Diagnostics-to-Assist-Preparation-of-GRAs/default.asp>.

XI. ACCOUNTABILITY MECHANISM

111. The Accountability Mechanism provides a forum where people adversely affected by ADB-assisted projects can voice and seek solutions to their problems and report alleged noncompliance of ADB's operational policies and procedures. It consists of two separate but complementary functions: problem solving function and compliance review function. People who are, or may in the future be, adversely affected by the project may submit complaints to ADB's Accountability Mechanism. The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can voice, and seek a resolution of their problems, as well as report alleged violations of ADB's operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected people should make a good faith effort to solve their problems by working with the concerned ADB operations department. Only after doing that, and if they are still dissatisfied, should they approach the Accountability Mechanism.²¹

112. The project will establish a Grievance Redress Mechanism to ensure greater accountability. Within 12 months of loan effectiveness, the PCMU will prepare a Grievance Redress Mechanism, acceptable to ADB, and establish a special committee to receive and resolve complaints/grievances or act upon reports from stakeholders on misuse of funds and other irregularities, including grievances due to resettlement. The special committee will (i) make public of the existence of this Grievance Redress Mechanism; (ii) review and address grievances of stakeholders of the project, in relation to either the project, any of the service providers, or any person responsible for carrying out any aspect of the project; and (iii) proactively and constructively responding to them.

XII. RECORD OF PAM CHANGES

113. A draft PAM was prepared at the loan fact-finding mission in April 2013, and agreed with the government.

²¹ For further information see: <http://www.adb.org/Accountability-Mechanism/default.asp>.

DETAILED PROCEDURES FOR DISBURSEMENTS, ACCOUNTING, AND AUDITING

Worksheet for Quarterly & Yearly Contract Awards/Commitments & Disbursement Projections (\$ Million)



(Important: Before completing this form, please read carefully the instructions printed at the back of this form. Refer to PAI Nos. 5.02. Issued in December 2001.)

PROJECT: _____ LOAN/GRANT NO. _____ SEGMENT NO. _____ FUNDS (OCR, SF, ADF-IX, ATF²) _____ COUNTRY (Acronym) _____ PROJECTIONS MADE IN: _____ (Month, Year)

Ref. Line No.	Category ¹	CONTRACT/COMMITMENT ITEM ¹	Contracts Awarded on Previous Year(s)	QUARTER 1			QUARTER 2			QUARTER 3			QUARTER 4			TOTAL PROJECTED FOR THE YEAR 20____ (YP)=(QA) + (QP)	
				Jan, Feb, Mar 20____			Apr, May, Jun 20____			Jul, Aug, Sep 20____			Oct, Nov, Dec 20____			Contract Value/ Commitment (9)=(1+3+5+7)	Disbursement Amount Related to the Contract/ Commitment (10)=(2+4+6+8)
				Month, Year Contract Awarded	QP Month Awarded/ Committed or To be Awarded/ Committed	QP Disbursement Amount Related to the Contract/ Commitment (2)	QP Month Awarded/ Committed or To be Awarded/ Committed	QP Disbursement Amount Related to the Contract/ Commitment (4)	QP Month Awarded/ Committed or To be Awarded/ Committed	QP Disbursement Amount Related to the Contract/ Commitment (6)	QP Month Awarded/ Committed or To be Awarded/ Committed	QP Disbursement Amount Related to the Contract/ Commitment (8)	QA Contract Value/ Commitment (1)	QA Contract Value/ Commitment (3)	QA Contract Value/ Commitment (5)		
TOTAL (Carried Forward) FROM PREVIOUS PAGE ___ OF ___ PAGES																	
1																	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
TOTAL OF THIS PAGE ___ OF ___ PAGES (To be carried on next page)																	
GRAND TOTAL (LAST PAGE)																	

¹ In accordance with the allocation of loan proceeds as defined in the loan documents, or any other detailed breakdown if found useful.

² ATF = Asian Tsunami Fund; Projections should be for the ADB-ATF financed component only.

QA = Quarterly Actual (already awarded/committed/disbursed, when projections are prepared).

QP = Quarterly Projected (to be awarded/committed/disbursed, when projections are prepared).

NOTES AND REMARKS:

Page ___ of ___ pages

QP-01-20_____

FINANCIAL STATEMENTS TEMPLATES

Government of Nepal
Ministry of Urban Development
HPCIDBC
Bagmati River Basin Improvement Project
Funded by ADB under Grant / Loan [Insert Number]

For the period [July 17, 20xx or loan effectiveness date] to July 16, 20xx

Fiscal year 2011/ xx
Sources and Uses of Funds

Sources	Note	Cumulative upto beginning of prior year	During the Prior Year	Cumulative as at [commencement date/beginning of current period]			Applications	Category	Note	Cumulative upto beginning of prior year	During the Prior Year	Cumulative as at [commencement date/beginning of current period]			For the period [commencement date] to July 16, 2014	As at July 16, 2014
		[For 1st year, nil]	[For 1st year, nil]	[For 1st year, nil]	For current period	At current year end				[For 1st year, nil]	[For 1st year, nil]	[For 1st year, nil]				
A:	II						Civil Works	1	I							
GON Fund	II						Consulting Services	2	I							
GON Reimbursable Fund							Training Courses	3	I							
ADB Reimbursable							Vehicles	4	I							
							Equipment and Materials	5	I							
Total Reimbursable							Staff Development	6	I							
	III						Studies and Reviews	7	I							
ADB Grant:							Project Management, Monitoring and Reporting	8	I							
Reimbursement							Others	9	I							
Replenishment																
Transfer to Central Treasury																
Direct Payment																
Charged in the next year																
Subtotal																
B:																
ADB																
Special Imprest	IV						Imprest A/c Balance									
Account/ Initial Deposit							Outstanding Replenishment									
Exchange Gain							Exchange Loss									
Subtotal																
Grand Total																

Notes I to VI of the financial statements form an integral part of these financial statements

_____) _____) _____) _____) _____)
 Account-In Charge Project Manager Secretary Ministry of Education (Financial Comptroller General) Auditor General

Government of Nepal
 Ministry of Urban Development
 HPCIDBC
Bagmati River Basin Improvement Project
 Funded by ADB under Grant / Loan [Insert Number]
 July 17, 20xx to July 16, 20xx
 Fiscal Year 20xx/xx

Statement of Budget Vs Actual (or Consolidated Annual Financial Statement)

														Amount in NRs			
Current Year																	
Item No.	Budget Item	Budget Allocation				Budget Released				Expenditure				Balance (Released-Expenditure)			
		GON	ADB Reimbursable Loan	ADB D.P. Loan	Total	GON	ADB Reimbursable Loan	ADB D.P. Loan	Total	GON	ADB Reimbursable Loan	ADB D.P. Loan	Total	GON	ADB Reimbursable Loan	ADB D.P. Loan	Total
Budget Head - Recurrent Expenditure																	
xx																	
xx																	
xx																	
xx																	
Sub Total																	
Budget Head - Capital Expenditure																	
xx																	
xx																	
xx																	
xx																	
Sub Total																	
Grand Total																	

														Amount in NRs			
Cumulative to Date																	
Item No.	Budget Item	Budget Allocation				Budget Released				Expenditure				Balance (Released-Expenditure)			
		GON	ADB Reimbursable Loan	ADB D.P. Loan	Total	GON	ADB Reimbursable Loan	ADB D.P. Loan	Total	GON	ADB Reimbursable Loan	ADB D.P. Loan	Total	GON	ADB Reimbursable Loan	ADB D.P. Loan	Total
Budget Head - Recurrent Expenditure																	
xx																	
xx																	
xx																	
xx																	
Sub Total																	
Budget Head - Capital Expenditure																	
xx																	
xx																	
xx																	
xx																	
Sub Total																	
Grand Total																	

Notes I to VI of the financial statements form an integral part of these financial statements

_____	(_____)	(_____)	(_____)	(_____)
Account-In Charge	Project Manager	Secretary Ministry of Education	Financial Comptroller General	Auditor General

Government of Nepal Ministry of Urban Development HPCIDBC Bagmati River Basin Improvement Project Funded by ADB under Grant / Loan [Insert Number] July 17, 20xx to July 16, 200x							
Fiscal year 20xx/xx							
Notes to Account - I Category- wise Expenditures							
Category	Line Item	Particular	Cumulative upto beginning of prior year	During the Prior year	Cumulative upto beginning of current year/ period	For the period [commencement date] to July 16, 2014	As at July 16, 2014 (End of Current Year)
			NR				
1		<u>Civil Works</u>					
	xx	Building Construction					
	xx	Capital Improvement					
			Subtotal				
2		<u>Consulting Services</u>					
	xx						
	xx						
			Subtotal				
3		<u>Training Courses</u>					
	xx						
	xx						
			Subtotal				
4		<u>Vehicles</u>					
	xx						
	xx						
			Subtotal				
5		<u>Equipment and Materials</u>					
	xx						
	xx						
			Subtotal				
6		<u>Staff Development</u>					
	xx						
	xx						
			Subtotal				
7		<u>Studies and Reviews</u>					
	xx						
	xx						
			Subtotal				
8		<u>Project Management, Monitoring and Evaluation</u>					
	xx						
	xx						
	xx						
	xx						
			Subtotal				
9		<u>Others</u>					
	xx						
	xx						
	xx						
			Subtotal				
			Grand Total				

Government of Nepal Ministry of Urban Development HPCIDBC Bagmati River Basin Improvement Project Funded by ADB under Grant / Loan [Insert Number] July 17, 20xx to July 16, 200x						
Fiscal year 20xx/xx						
Notes to Account - II - GON Replenishment and Reimbursable						
S. N	Particular	Cumulative upto beginning of prior year [nil for 1st year]	Prior year [nil for 1st year]	Cumulative upto beginning of current year/ period [nil for 1st year]	For the period [commencement date] to July 16, 2014	As at July 16, 2014
		NR				
A	Total Budget Release GON Fund GON Reimbursable					
		Subtotal A				
B	Less: Unspent Balance					
		Subtotal B				
C	Reimbursements					
		Subtotal B				
		Total Fund (A-B-C)				
D	GON Fund					
E	GON Reimbursable Fund					
F	ADB Direct Payment					
		Total Fund (D+E+F)				

Government of Nepal Ministry of Urban Development HPCIDBC Bagmati River Basin Improvement Project Funded by ADB under Grant / Loan [Insert Number] July 17, 20xx to July 16, 200x Fiscal year 2010/11																
Notes to Account - II I- Details of Payment by ADB by Currency and Method of Funding																
Particulars	Category	Cumulative upto beginning of prior year [nil for 1st year]			Prior year [nil for 1st year]			Cumulative upto beginning of current year/ period [nil for 1st year]			For the period [commencement date] to July 16, 2014			As at July 16, 2014		
		NRs	US\$	SDR	NRs	US\$	SDR	NRs	US\$	SDR	NRs	US\$	SDR	NRs	US\$	SDR
Direct Payments																
Civil Works	1															
Consulting Services	2															
Training Courses	3															
Vehicles	4															
Equipment and Materials	5															
Staff Development	6															
Studies and Reviews	7															
Project Management, Monitoring and Evaluation	8															
Others	9															
Subtotal																
Replenishment																
Civil Works	1															
Consulting Services	2															
Training Courses	3															
Vehicles	4															
Equipment and Materials	5															
Staff Development	6															
Studies and Reviews	7															
Project Management, Monitoring and Evaluation	8															
Others	9															
Subtotal																
Reimbursement																
Civil Works	1															
Consulting Services	2															
Training Courses	3															
Vehicles	4															
Equipment and Materials	5															
Staff Development	6															
Studies and Reviews	7															
Project Management, Monitoring and Evaluation	8															
Others	9															
Subtotal																
Total																
Imprest Account Initial Deposit																
Diff between Disb and Liquidation																
Sub Total of Imprest A/c																
Interest Capitalization																
Grand Total																

Government of Nepal Ministry of Urban Development HPCIDBC Bagmati River Basin Improvement Project Funded by ADB under Grant / Loan [Insert Number] July 17, 20xx to July 16, 200x Fiscal year 20xx/xx Notes to Account IV - Statement of Imprest Account			
S.N.	Particulars	Equivalent NRs	US\$
A	Balance in Imprest Account as at [beginning of the current year] Exchange Rate 1 UD\$ = NRs xx.xx		
B	Outstanding Replenishments as of [previous year] (i) Remibursement to GON (ii) Direct Payment		
	Total B		
C	Add: Disbursements during the year (i) Remibursement to GON (ii) Direct Payment		
	Total C		
D	Less: Replenishment during the year (i) Remibursement to GON (ii) Direct Payment		
	Total D		
E	Liquidation/ Recovery of Initial Balance (i) Remibursement to GON (ii) Direct Payment		
	Total E		
F	Outstanding Replenishment as of [end of the current year] (i) Remibursement to GON (B+C-D-E) (ii) Direct Payment (B+C-D-E)		
	Total F		
G	Outstanding Amount of Imprest Account (A+F)		
H	Initial Deposit as at (original date)		
I	Exchnage Gain/Loss (G-H)		

Government of Nepal
 Ministry of Urban Development
 HPCIDBC
Bagmati River Basin Improvement Project
Funded by ADB under Grant / Loan [Insert Number]
 July 17, 20xx to July 16, 200x
 Fiscal year 20xx/xx

NOTES VI TO THE FINANCIAL STATEMENTS - Accounting policies and explanatory notes

1. Project Nature and Activities

1.1 Description of the Project, the nature of activities, commencement and expected completion dates. Mention location, domicile, legal form, controlling IA/ EA, brief nature of the project outputs,

1.2 Give legislative framework

2. STATEMENT OF COMPLIANCE

Project Financial Statements have been prepared in accordance with the Government Auditing Standards Part 3: Segment Audit Guidelines - Project Financial Statements issued by the Office of the Auditor General, Nepal in October 2005, and the Statement of audit Needs provided by the Asian Development Bank under the Loan _____ dated _____

3. SIGNIFICANT ACCOUNTING POLICIES

3.1 Basis of measurement

The project has maintained accounts according to the Government of Nepal Accounting policies on a cash basis of accounting and double entry accounting systems. Capitalisation amount is not included in the main Sources and Application of Funds, and is shown in Note III to the Project Financial Statements.

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3.2 Fund Flow mechanism

Describe the fund flow mechanism , in particular , whether the IA/EA control funds or whether all payments are centralised

3.3 Advances and other receivables

Advances are treated as expenditure. Unspent advances are _____

3.4 Cash and cash equivalents

Cash equivalents comprise [define components of cash]. Explain if the entity controls unspent advances, only petty cash, or has a nil balance , as applicable

3.5 Accrued and other liabilities

Disclose any major liabilities which have not been accrued under the cash basis policy

3.6 Income

- i) *Describe nature of different types of income and how they are recognised. For example grants, sale of proceeds of fixed assets, interest income on bank*
- iii) *Free of cost office space, electricity and certain other services provided by {insert name} are not valued and accordingly, are not recognized in these financial statements as income of the Project.*

3.7 Foreign currency transactions and translation

(a) Functional and presentation

Items included in the financial statements of the Project are measured using the currency of the primary economic environment in which the entity operates (the functional currency), which is the Nepal Rupee (NR).

(b) Transactions and balances

Foreign currency transactions are translated into functional currency using the exchange rate prevailing at the date of the transaction. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation at year-end exchange rates of monetary assets and liabilities denominated in foreign currencies are recognised in the income and expenditure account. Conversion Rate: USD \$ 1= INR ___ as of 30 June 20__

-3-

3.8 Allocation of Common Costs

Describe how common costs are allocated to different output/ activities

4. Funds Received from the Government

Give details of the government budgeting and funding mechanism. Explain the replenishment and reimbursement mechanism

5. Funds from ADB

Give pertinent details of the ADB grant including effective date, amount in US\$, period etc.

5.1 Loan

5.2 Grant

6. DATE OF AUTHORIZATION

These financial statements have been authorized for issue by the _____ of _____ on

STATEMENT OF AUDIT NEEDS

A. BACKGROUND

1. The ADB and the Government of Nepal (GON) have entered into a Loan and Grant Agreement whereby, ADB shall provide \$ 25.5 million and \$ 4.5 million for the purpose of financing the Bagmati River Basin Improvement Project in Nepal. The GON shall contribute \$ 6 million against this funding. This will be carried out through the Ministry of Urban Development (MOUD), the High Power committee for the Integrated Development of the Bagmati Civilization (HPCIDBC), the Department of Irrigation (DOI), and the Water and Energy Commission Secretariat (WECS). HPCIDBC, WECS and DOI shall maintain separate books of account which will be consolidated by the PCMU with respect to the items of expenditure financed out of the proceeds of the loan and the Grant.

2. The audit of the project financial statements shall be performed in accordance with the Government Auditing Standards Part 3: Segment Audit Guidelines for Project Financial Statements issued on October 2005 by the Office of the Auditor General Nepal (Government Auditing Standards). However, in case of contradiction between this Statement of Audit Needs and the Government Auditing Standards, this Statement shall prevail.

B. PROGRAM DEVELOPMENT OBJECTIVES

3. The proposed project will support the Government of Nepal in increasing water security in the Bagmati River Basin and more particularly in improving river health and flood management. The project focuses on priority issues selected by the basin stakeholders from a long list of actions identified under the basin strategic investment road map. The road map is based on the 2009 Bagmati Action Plan and further consultations with basin stakeholders. The project outputs will be:

- (i) **Systems and capacity for integrated and participatory river basin management established.** This output will include: (a) legal and institutional strengthening for IWRM and formation of a river basin organization (RBO); (b) mobilization and awareness raising of basin stakeholders; (c) capacity building and technical training for raising the RBO's competence; (d) establishment of a Central Water Resources Information system including a decision support system (DSS) and an operational water quality monitoring network; and (v) preparation of a 15-year participatory integrated river basin master plan.
- (ii) **Improved river banks environment in urban areas.** This output will include: (a) removal of contaminated river bed material; (b) construction of weirs for river bed stabilization and re-aeration; (c) riverbank stabilization and beautification; and (d) social mobilization, community awareness raising and capacity building of local government, communities and the private sector for river bank management and maintenance.
- (iii) **Increased water availability during the dry season and watershed conservation.** This output will include: (a) construction of the 861,000 cubic meters (m³) Dhap dam and detail design of the 8 million m³ Nagmati dam; (b) provision of roof top rainwater harvesting and ground water recharge; and (c) upstream watershed management.
- (iv) **Flood forecasting and early warning system in the Bagmati River Basin is functional.** This output will include: (a) upgrading the existing flood forecasting system; (b) installation of a flood early warning system; and (c) community awareness and capacity building for flood response.

Financial Reporting and Audit Requirements

4. ADB's audit needs under the Project are as follows.
- (i) Submission of audited project financial statements within 6 months of the end of the fiscal year in English. The key objective is to enable ADB to obtain sufficient assurance where the auditor expresses a professional opinion on the Project Financial Statements (PFS) of the BRBIP as of July 17 each year. This shall not be construed to refer to the financial statements of BRBIP as a whole. The auditor will review that the funds received from all sources and expenditures incurred during the reporting period are as per agreed terms and conditions. This will include all expenditure to the extent that it relates to the activities of the BRBIP and MOUD supporting this Project.
 - (ii) The audit shall be conducted by the Office of the Auditor General (OAG), in accordance with Government Auditing Standards Part 3: Segment Audit Guidelines – Project Financial Statements issued by the OAG in October 2005²²
 - (iii) Project Financial statements shall be prepared on a cash basis in accordance with Government of Nepal accounting policies and in accordance with the financial statement templates agreed within this Statement of Audit Needs in Annexure C. This Template is based on Annexure 1 of the above Government Auditing Standards but has been tailored to incorporate the requirements of the Nepal Public Sector Accounting Standards, which have been approved for adoption by the GON in 2009. Although these are not yet effective in Nepal, given the elevated status of the NPSAS to top of the government accounting reform agenda, template Project Financial Statements have incorporated some of the key requirements. This is even more relevant since under ADB's revised Public Disclosure Policy 2011, Project Financial Statements shall be disclosed on ADB's website.
 - (iv) A complete set of financial statements is received annually which includes:
 - Cover Letter from the OAG and/or MOUD/PCMU BRBIP
 - Audit Opinion on the Project Financial Statements (Annex A)
 - Separate Audit Opinion on Specific Donor Requirements (Annex B)
 - Project Financial statement and Statement of Budget Vs. Actual along with complete notes to the financial statements including necessary break downs and details, summary of accounting policies and explanatory notes (Annex C)
 - Management Letter (paragraph F below)
 - Annexes to the Financial Statements as listed in paragraph E below
 - (v) ADB reserves the right to commission supplementary audit, if OAG considers it unfeasible to satisfy specific donor audit needs as part of its constitutional statutory audit.

C. SPECIFIC NEEDS

5. The audit is carried out in accordance with Government Auditing Standards of the OAG, which are based on International Standards on Auditing (ISA) or INTOSAI Standards. Audit Opinion Template in accordance with these Standards has been given as 'Annex A' to this Statement of Audit Needs.

²² These Guidelines were specifically prepared to cater to donor requirements by the OAG and shall hereinafter referred to as Government Auditing Standards

6. The audit would cover the entire Project i.e. covering all sources and application of funds, including the ADB and the GON. The Financing Arrangement as currently agreed with ADB, includes Direct Payments by ADB to suppliers (DPs). The Project Director shall provide all pertinent information to the Auditors including preservation and use of resources procured and its reflection in the project accounts, so as to facilitate comprehensive audit coverage. The audits should be carried out annually from commencement of the Project. The audit for the first year should also cover transactions, which occurred from the commencement of the project, i.e. till the end of the fiscal year. In case the period is less than 6 months, GON may agree with ADB to provide APFS from the commencement of the Project to the end of the subsequent fiscal year.

7. ADB will also require an assessment by the auditors of compliance with provisions of the financing agreement with ADB, especially those relating to accounting and financial matters. An audit opinion shall be provided that will inter alia include verification that:

- (i) All funds have been used in accordance with the conditions of the loan agreements, with due regard to economy and efficiency, and only for the purposes for which the funds were provided;
- (ii) The Ministry of urban Development, HPCIDBC, DOI and WECs were in compliance as at [insert date] with all financial covenants of the loan agreement
- (iii) With respect to SOEs, (i) adequate supporting documentation has been maintained to support claims to the Asian Development Bank for reimbursement of expenditures incurred; and (ii) except for ineligible expenditures as detailed in the audit observations, if any, appended to this audit report, expenditures are eligible for financing under the Loan Agreement
- (iv) The Imprest Account gives a true and fair view of the receipts collected and payments made during the year ended [insert date], and (ii) these receipts and payments support the Imprest Account Liquidation/ replenishments during the year

8. Template for the audit opinion on specific donor requirements has been given at Annex B.

9. ADB would expect that the auditors should advise a calendar for discussion/review of audit observations (particularly any serious matters) through tri-partite meetings and review meetings to facilitate executive follow-up on audit observations and recommendations. Moreover, ADB would need a review of actions taken on the recommendations presented in the previous audit report on the progress made.

D. PROGRAM FINANCIAL STATEMENTS (PFSSs)

10. The Project Annual Financial Statements (APFSs) shall include:

- (i) Sources and Consolidated Uses of Funds showing the funds received and expended from ADB and GON for BRBIP, as well as imprest account balances.
- (ii) Statement of Budget Vs Actual showing expenditure for the current year and cumulative year to date
- (iii) Detailed notes to the financial statements including break down of expenditure, reconciliation of reimbursements, Details of expenditure by Currency/Method of Funding, Statement of Imprest Account, and Accounting Policies

11. Annex to the APFS shall include the (i) Statement of Expenditure (ii) Imprest Account Ledger (iii) Imprest Account Reconciliation Statements (iv) Reconciliation Statement of Reimbursable Fund (v) Disbursement Details (vi) Photocopy of the Imprest Account Bank Statement, and (vii) Bank voucher for unspent balances.

12. Project Books of Account shall be maintained by the Project Coordination and Management Unit (PCMU) of the HPCIDBC.

13. Project Financial Statements shall provide sufficient level of detail to identify types of expenditures as identified in the allocation Table of the Grant and loan Agreements; namely civil works, consulting services, training, equipments, community initiatives and design and surveys.

14. The project financial statements shall also provide sufficient level of detail to be able to identify expenditure relating to each of the 5 Output of the Project; namely, (i) Output 1: Systems and capacity for integrated and participatory river basin management established, (ii) Output 2: Improved river banks environment in urban areas, (iii) Output 3: Increased water availability during the dry season and watershed conservation, (iv) Output 4: Flood forecasting and early warning system in the Bagmati River Basin is functional and (v) Output 5 The project is efficiently managed with effective stakeholder communication. Draft template for the Financial Statements has been given as Annex C to the Statement of Audit Needs. This has been developed in line with Annexure 1 given in the Government Auditing Standards of the Office of the Auditor General – Nepal 2005 as well as to incorporate key elements of the Nepal Public Sector Accounting Standards, which have been approved by the GON, but shall be effective from September 2016. Although these are not yet effective in Nepal, given the elevated status of the NPSAS to top of the government accounting reform agenda, template for Project Financial Statements have incorporated some of the relevant requirements. A Summary of the modifications to the Annexure given in the GAS is as follows:

- (i) Including a column for prior year comparative information in all statements and notes
- (ii) Inclusion of an additional financial statement showing Budget Vs Actual, which was previously treated as an Annexure to the financial statements
- (iii) Inclusion of an additional Note V to the financial statements showing a break up of all expenditure by each of the Output Components as per the Grant Agreement
- (iv) Inclusion of an additional Note VI to the financial statements giving detailed explanatory notes, and accounting policies

16. Please note that the template is a working draft, which may require adjustment based on the actual activities of the Project. No Template has been provided for the Annexure to the financial statements. These should be prepared in accordance with above referred Government Accounting Standards.

E. MANAGEMENT LETTER

17. In addition to the audit report, ADB will require a separate management letter. The management letter should be prepared in accordance with Annexure 12 of the Government Auditing Standards Part 3: Segment Audit Guidelines for Project Financial Statements issued by the Office of the Auditor General, Nepal in October 2005.

18. The management letter should specifically:

- (i) Give comments and observations on the notes to the accounts, accounting records, systems, and internal controls that were examined during the course of the audit;
- (ii) Identify specific deficiencies and areas of weakness in systems and internal controls and make recommendations for their improvement including MOE response to the identified deficiencies;

- (iii) Communicate matters that have come to attention during the audit which might have a significant impact on the implementation of the Project; and
- (iv) Bring to GON and ADB attention any other matters that the auditor considers pertinent.

19. Serious issues, which affect the auditor's opinion as to whether the financial statements give a true and fair view, should be referred to in the audit opinion. Management Letter should include only those issues which do not affect the fairness of the financial statements.

F. GENERAL

20. In case an external auditor needs to be commissioned for a supplementary audit, the auditor should be given access to all legal documents, correspondences, and any other information associated with the commission and deemed necessary by the auditor. Confirmation should also be obtained of amounts disbursed and outstanding with ADB and Government etc.

21. The auditor may examine the semi-annual financial reports prepared during the years to assess the methods used to compile them to ascertain that the information on these reports accurately reflects the underlying records and documents to ensure that there no material misstatements.

- The auditor should also make follow-up of audit recommendations to their conclusion.

Note: This is a statement of audit needs of ADB and does not in any way intend to limit the scope of the statutory audit.

PROCUREMENT PLAN

Basic Data

Project Name: Bagmati River Basin Improvement Project
Country: Nepal

Executing Agency: Ministry of Urban Development

Government of Nepal

Loan/grant Amount: 24,5/5,5 Million US dollar

Grant/Loan (Project) Number:

Date of First Procurement Plan {Loan approval date}

Date of this Procurement Plan: April, 2013

A. Process Thresholds, Review and 12-month Procurement Plan

1. Project procurement Thresholds

1. Except as the ADB may otherwise agree, the following process thresholds shall apply to procurement of goods and works, consulting services and NGO services.

Procurement of Goods and Works

Method	Threshold
International Competitive Bidding for Works ³⁰	Above \$1,000,000
International Competitive Bidding for Goods ¹	Above \$500,000
National Competitive Bidding (NCB) for Works ¹	Beneath that stated for ICB, Works
National Competitive Bidding for Goods ¹	Beneath that stated for ICB, Goods
Shopping for Works	Below \$100,000
Shopping for Goods	Below \$100,000

2. ADB Prior or Post Review.

2. Except as ADB may otherwise agree, the following prior or post review requirements apply to the various procurement and consultant recruitment methods used for the project.

Procurement Method	Prior or Post	Comments
Procurement of Goods and Works		
ICB Works	Prior	
ICB Goods	Prior	
NCB Works	Post	First document in each category will be prior reviewed
NCB Goods	Post	First document in each category will be prior reviewed
Shopping for Works	Post	
Shopping for Goods	Post	
Recruitment of Consulting Firms		
Quality- and Cost-Based Selection (QCBS)	Prior	
Quality-Based Selection (QBS)	Prior	
Other selection methods: Consultants	Prior	
Qualifications (CQS), Least-Cost Selection (LCS), Fixed Budget (FBS), and Single Source (SSS)		
Recruitment of Individual Consultants		
Individual Consultants	Prior	

³⁰ See Procurement Guidelines, Appendix 2.

3. Goods and works Contracts Estimated to Cost More than \$1 million.

3. The following table lists goods and works contracts for which procurement activity is expected to commence within the next 18 months.

General Description	Contract value \$ million	Procurement method	Prequalification Yes/No	Advertisement Period (Quarter/Year)	Comments
Design & Construction of Dhap Dam	3.6	ICB Works	No	3/2013	Unit Rate
Construction of Upper Bagmati River Environment Improvement works	17.2	ICB Works	No	3/2013	Unit Rate

4. Consulting Services Contracts Estimated to Cost More than \$100,000

4. The following table lists consultancy contracts for which procurement activity is expected to commence within the next 12 months.

General Description	Contract value \$ million	Procurement method	Advertisement date (Quarter/Year)	International or National Assignment	Comments
Detailed Design of Nagmati Dam	2.55	QCBS FTP	3/2014	International	Quality Cost ratio 90:10 (Full Technical Proposal)
Project Management Design & Supervision Consultant (PMSC)	2.75	QCBS FTP	3/2013	International	Quality Cost ratio 90:10 (Full Technical Proposal)
DSS Development, Flood Forecasting, IRBDMP and WQ	1.72	QCBS FTP	3/2013	International	Quality Cost ratio 90:10 (Full Technical Proposal)
Independent Environment Monitoring	0.065	ICS	3/2014		

5. NGO Services Contracts Estimated to Cost More than \$100,000

5. The following table lists consultancy contracts for which procurement activity is expected to commence within the next 12 months.

General Description	Contract value \$ million	Procurement method	Advertisement date (Quarter/Year)	International or National Assignment	Comments
Rainwater Harvesting	0.68	QCBS STP	3/2013	National	Quality Cost ratio 80:20 (Simplified Technical Proposal)

Solid Waste and Social Mobilization	0.85	QCBS STP	3/2013	National	Quality Cost ratio 80:20 (Simplified Technical Proposal)
Watershed management	0.255	QCBS STP	3/2013	National	Quality Cost ratio 80:20 (Bio Data Proposal)

C. National Competitive Bidding (NCB Annex)

6. National competitive bidding (NCB) shall be in accordance with that described as "by inviting bids and a national level" as set forth in "The Public Procurement Act, 2007" (PPA) and "The Public Procurement Regulations, 2007" (PPR) and subject to the following:

7. The first NCB document for both goods and works procurement shall be reviewed and approved by ADB prior to issue. These will be used for all NCB procurement under the project. The document shall include qualification and evaluation criteria and ADB's right to audit and inspect in accordance with para 1.14 of ADB's Procurement Guidelines. No other criteria other than that described in the bidding document may be used to determine the lowest evaluated responsive bidder and no form of domestic preference may be employed. A positive assessment of a bidder's qualifications to perform a contract will be a pre-requisite to an award.

8. All qualified ADB member bidders and ADB member produced goods, services and works shall be eligible. Registration and licensing shall be permitted only as a condition of contract award and not participation in bidding. No award may be withdrawn for failure to obtain tax registration; license or fulfill any similar requirement without ADB's prior concurrence. No bidder will be held ineligible based on provision 63 of the PPA without ADB prior concurrence.

9. Invitations to bid shall be advertised in at least one widely circulated national daily newspaper or freely accessible, nationally-known website allowing a minimum of twenty-eight (28) days for the preparation and submission of bids. Invitations for bids for contracts estimated at \$500,000 or more for goods and \$1,000,000 or more for civil works shall be advertised on ADB's website. No restriction will be placed on the sale of bidding documents.

10. The approved Standing List of a Procuring Entity prepared in accordance with the law shall only be accepted to supplement an advertised open pre-qualification exercise for the specific contract provided that those on the standing list meet the qualification criteria.

11. Bids shall be opened at a single location immediately after the deadline for submission. Multiple locations for submission and opening are not acceptable.

12. Government-owned enterprises in Nepal shall be eligible to participate only if they meet the conditions of para 1.8 (c) of the Procurement Guidelines.

13. Extension of bid validity of more than 4 weeks beyond the original validity shall not be allowed without the prior concurrence of ADB.

14. Cancellation of bidding and re-bidding shall not be carried out without the prior concurrence of ADB.

15. Percentage variations from rates fixed by a district rate fixation committee shall not be used for the purpose of evaluating bids.

16. In the event of a conflict between these provisions and the law, these provisions shall prevail.

DRAFT TERMS OF REFERENCE FOR PROJECT MANAGEMENT DESIGN AND SUPERVISION CONSULTANT (PMDSC)

1. The proposed Bagmati River Basin Improvement Project (the project) will improve water security and resilience to potential climate change impact in the Bagmati River Basin. It builds on the general public's desire to restore the river environment in the Kathmandu Valley and the Government's efforts mitigate the impact of water-induced disasters in the middle and lower reaches of the basin. The Project adopts the principles of integrated water resources management (IWRM) and provides Nepal with its first opportunity to apply this policy element since its adoption under the 2005 national water plan.
2. The project will complement the Government of Nepal's (the government) ongoing efforts towards improving the wastewater services in Kathmandu Valley²³ with the overall objective of improving the river water quality in the Bagmati River and achieve bathing water standards at strategic religious sites in the Upper Bagmati providing a safe environment for bathing and religious use of the river at the prominent temple sites at Gokarna and Pashupatinath.
3. The proposed Bagmati River Basin Improvement Project (the project) will provide the following non-structural measures: (i) legal and institutional strengthening for IWRM; (ii) support for formation of an RBO; (iii) capacity building and technical training for raising the RBO's competence; (iv) legal support for allocating water from the Shivapuri reservoirs; (v) preparation of an Integrated River Basin Development and Management Plan (IRBDMP); (vi) establishment of a Central Water Resources Information and Modeling Decision Support System (DSS) including water quality monitoring, flood forecasting and warning; and (vii) preparation of design guidelines for land development (land-pooling) that introduces sustainable international best practices for storm water, wastewater and solid waste management.
4. Besides, the Project will construct (i) a small to medium sized dam with a storage capacity of 850.000 m³ a short distance downstream an existing small dam in Shivapuri Nagarjun National Park (SNNP), (ii) provide watershed enhancement and income generating activities for all 296 households in SNNP, (iii) construct eleven 1 meter high check dams/weirs, (iv) construct 14 km of river walls, (v) rehabilitate 2 existing regulators, (vi) upgrade and project two ghats, (vii) construct 1.2 km of gabion walls for river bank stabilization, (viii) develop 12.2 km of linear green zone with foot and bicycle paths, and develop 1.8 km green zone parks with foot paths and amenities.
5. ADB on behalf of the Project Management Unit (PCMU) of the High Powered Committee for Integrated Development for Bagmati Civilization (HPCIDBC) will engage an international consulting firm as the Project Management Design and Supervision Consultant (PMDSC) in accordance with the Quality and Cost- Based Selection (QCBS) procedure set out in ADB's Guidelines on the Use of Consultants (2013, as amended from time to time) to provide for the project, the following services: (i) Support the Government of Nepal (GON) through the PCMU in project management and implementation of the Bagmati River Basin Improvement Project, using an integrated approach, including institutional support and capacity building, (ii) assist GON through the PCMU and DOI PIU in managing and supervising contractors engaged in construction of the works and consultants engaged in the production of detail designs. The consultant will ensure timely progress of the works, enforce specified materials and workmanship requirements, and control the quality of the detail designs and the construction of

²³Kathmandu Valley Wastewater Management Project.ADB Project Number 43524.

river bank improvement works and dhap dam., (iii) provide support for RBO formation (local consultants) in addition to International Consultants to be provided under ADB Technical Assistance, (iv) Provide assistance for updating of by-laws for solid waste handling and rainwater harvesting at household levels, and for monitoring and enforcement of regulations for solid waste handling and rainwater harvesting. The consultant will also provide feasibility studies that meet ADB requirement and design build tender document in ADB format for river banks and river environment improvements on other tributaries of the Bagmati River in the Kathmandu valley including the Manohara, Dhobi Khola, Hanumante and Bishnumati. The consultant will support the PCMU, DOI and WECs with the procurement /contracting of works, goods consultants and NGOs as per requirements.

6. A total of 364 person months of consulting services (43 person-months international and 321 person-months national) will be required. The PMDSC will report to and work under the overall guidance of the PCMU, and is expected to commence its services by November 2013. The PMDSC is expected to provide the services during the following phases: (i) project implementation planning (3 months), design review, RBO formation support/procurement assistance and construction supervision through PCMU (24 months), and (iii) continued RBO formation support, support to PCMU (33 months).

A. Scope

7. The scope of project management services of PMDSC will include but not necessarily be limited to the following: Planning and programming; (i) Procurement of works and services; (ii) Strengthening of institutions involved in the project; (iii) Promoting beneficiary participation in the project; Social and environmental safeguards, and Monitoring and evaluation.

8. The scope of the construction supervision is to assist the PCMU in the full-time supervision of construction of project works in the upper Bagmati river basin:

- (i) Storage dam and reservoir at Nagmati Dhap;
- (ii) Restoration and protection of the Ghats at the Uttarahini/KantiBhairab Temple Complex & GokarneshworMahadev Temple Complex
- (iii) 11 Check dams between Gokarna and Sinamangal Bridge;
- (iv) Removal and safe disposal of contaminated and accumulated riverbed material at key sites;
- (v) Rehabilitation of two former irrigation regulator structures downstream the GokarneshworMahadev and Pashupatinath temple complexes;
- (vi) River environment improvement green zoning and provision of flood safety of the riparian banks which are under government ownership from Gokarna to Guheshwori and from Tilganga to Sinamangal Bridge;
- (vii) River bank beautification and phytoremediation from Tilganga to Sinamangal Bridge.
- (viii) Rainwater harvesting and groundwater recharge sub-projects.
- (ix) Feasibility study and design of river improvement and beautification works in other tributaries to the Bagmati River including for potential additional financing purposes.

B. Staffing

9. The estimated personnel requirement for project management, support for RBO formation and construction supervision for the scope of works as outlined below is indicated in Table-1.

Table 1: Summary of Proposed Project Management Consultancy Inputs

International Specialists	months
Team Leader / Water Resources Specialist	20
M&E Specialist	3
Procurement Specialist	3
River Hydraulics & Structures Specialist	2
River Environment Beautification Specialist	2
Dam Specialist	3
Chief Construction Supervisor	6
Unallocated	4
Total International Specialists	43
National Specialists	months
Deputy Team Leader/ Institutions Specialist	46
M&E Specialist	10
Procurement Specialist	14
Hydrologist	2
River Training and Improvement Specialist	3
Architect	3
Urban Planner & Land Pooling Expert	13
Watershed Management / Wetland Specialist	4
Social Development and Gender Specialist	12
Environment Specialist	14
Project Economist	4
Financial management specialist	4
Water Resources Specialist	11
Legal Specialist, Solid waste, Rainwater harvest by-laws	5
M&E Enforcement Specialist	5
Training Specialist	5
RBO Coordinator/Institutions Specialist	34
RBO Legal Specialist	6
RBO Other	6
Construction Supervision Specialist 1	18
Construction Supervision Specialist 2	16
Construction Supervision Specialist 3	16
Unallocated	70
Total National Specialists	321
TOTAL	364

10. Additionally, the PMDSC will allow adequate staff/allocation for CAD, IT, accounting, administrative support, etc., as required for the contract duration.

11. The PMDSC consultants' period of engagement shall be for a period of 60 months starting from November 2013. The Team Leader shall be responsible for overall project management, design review and construction supervision, delivery of required outputs and consolidation of all required reports and deliverables under the contract. The planning and deployment of manpower shall be arranged such that the person-months allocations among PCMU and DOI PIU management support, design review, procurement management and construction supervision parts shall be optimum. It must also be ensured that the mobilization of consultants' resources, including manpower, during the supervision of works will fully match with the implementation schedule of the construction contractor so that there will be no unnecessary cost overruns during the supervision phase.

C. Activities – International Specialists

1. Team Leader/Water Resources Specialist (International, 20 person-months)

12. The Team Leader/Water Resources Specialist will have extensive knowledge and experience on integrated water resources management preferably in South Asia. A minimum of Master's degree in civil/water resources engineering or related fields and 15 years of work experience in water resources management and river environmental improvement related fields is required. S/he will be the main point of contact in assisting GON with implementation of all aspects of the Project. S/he will report to the PCMU project Manager and will lead the consulting team. S/he will be responsible for quality assurance, document preparation and coordination, project management and ensuring timely implementation of sub-projects. The Team Leader will:

- (i) Be responsible for overall direction of the consultant team, coordination of inputs, and management of individual specialists;
- (ii) Manage the relationships with government, the ADB and other stakeholders;
- (iii) Carry out a comprehensive review of the feasibility studies and draw attention to changes which may have become necessary since its preparation;
- (iv) For project implementation, itemize key tasks and identify the resources and schedules required, supporting the PCMU for sustainable system management and strategies for sustainable operation and maintenance of sub-project works;
- (v) Identify tasks on the critical path and ensure that implementation schedules follow an integrated approach;
- (vi) Ensure close coordination with KVUEIP implementation team;
- (vii) Assist the PCMU with all aspects of project administration, performance and monitoring and preparation of reports;
- (viii) Ensure timely delivery of specified reports in a format acceptable to government and the ADB.

13. As Water Resources Specialist s/he will assist GON in implementing IWRM for the Bagmati River Basin, including consultations and promoting legal and institutional changes necessary to establish an RBO. An important task will be updating the IWRM strategic roadmap agreed in the loan conditions and promoting its adoption, together with progress monitoring. He will:

- (i) Lead the project sub-component designed to improve water governance in the Bagmati basin following IWRM principles;
- (ii) Promote updating and implementation of the IWRM strategic roadmap for the Bagmati river basin including establishment of a suitable River Basin Organization; (RBO) together with institutional changes and capacity building necessary for the sustainable establishment of such an RBO;
- (iii) Assist the government by identifying requirements and modalities for the pursuance of IWRM, including monitoring of progress and meeting specified roadmap targets.

2. Monitoring and Evaluation (M&E) Specialist (International, 3 person-months)

14. The M & E Specialist will have relevant degree and a minimum of 10 years of experience on M & E of water and river engineering projects. S/he will work closely with the National M&E Specialist to develop capacities of PCMU staff and set up the HPCIDBC M&E system and ensure that the project is implemented in accordance with the project design and monitoring framework (DMF) and that issues arising are quickly identified and brought to the attention of government and the ADB for prompt resolution. S/he will:

- (i) Carry out a review of the project preparation documents with regard to project monitoring and evaluation and draw attention to changes which may have become necessary since their preparation;
- (ii) Support the Team Leader and PCMU in ensuring that the project is implemented in accordance with the project design and monitoring framework (DMF) and that issues arising are quickly identified and resolved;
- (iii) Guide, coordinate and support the activities of the national M&E Specialist;
- (iv) Together with other experts of the Consultant, set up monitoring and evaluation frameworks and PPMS for overall project activities. The PPMS will include a participatory baseline survey to be conducted within the first year of the Project with follow-up surveys to evaluate any changes. Monitoring and evaluation of pro-poor effects of the project will be integrated into the PPMS;
- (v) Prepare the necessary guidelines for M&E consistent with project documents (RRP, the Loan Agreement, PAM, IEE/EIA and EMP, RF and RPs, IPPP or EMDP, SPRSS, GAP, etc.), ADB's requirements, and regulations of the Government;
- (vi) Together with the national M&E specialist, set up standards, contents and schedules for assistance to the PCMUs for M&E to ensure the project components are implemented as scheduled and outputs are as specified in the Loan Agreement;
- (vii) Monitor and evaluate project performance and impacts as part of the project management information system;
- (viii) Develop a community participation process in monitoring and evaluation for M&E systems;
- (ix) Coordinate with the national M&E specialist in collection of data and evaluation of project implementation results;
- (x) Assist the Team Leader and Deputy Team Leader in timely preparation of reports.

3. Procurement Specialist (International, 3 person-months)

15. The International Procurement Specialist will have a degree in engineering, project management, procurement management or finance and at least 10 years of relevant experience in procurement and contract management of infrastructure projects. H/she will work closely with the National Procurement Specialist to assist the PCMU with setting up the financial management system as per PAM recommendations and assist PCMU with procurements of the project ensuring compliance with ADB rules and regulations. Further ensure that all procurement for the project is carried out in accordance with the Project Administration Manual (PAM) and that issues arising are quickly identified and brought to the attention of government and the ADB for prompt resolution. The International Procurement Management Specialist will:

- (i) Carry out a review of the Project Procurement Plan and contract packages in the Project Administration Manual and draw attention to changes which may have become necessary since their preparation;
- (ii) Assess requirements under the Public Procurement Act 2063 of Nepal and ADB Procurement Guidelines and ensure that all project procurement is done in accordance with these guidelines
- (iii) Assess procurement capacity of project institutions and recommend improvements
- (iv) Assist PCMU in the preparation of bidding documents and Request for Proposals (RFP) for recruitment of consultants
- (v) Assist project institutions in advance procurement/recruitment where necessary
- (vi) Prepare procurement guidelines for the project including but not limited to bid notification and bid submission, bid evaluation and contract award and contract supervision and payment.
- (vii) Guide, assist and monitor the activities of National Procurement in assisting the project team to prepare, update and adjust the detailed procurement plan every year, including content, schedule, resources, contract awards and disbursement

4. River Hydraulics and Structures Specialist (International, 2 person-months)

16. River Hydraulics and Structures Specialist will have a professional degree in river hydraulics or related fields and a minimum of 10 years of experience in river engineering design and supervision. The main task of the International River Hydraulics and Structures Specialist will be to oversee the technical aspects of construction of river hydraulic and structural works to be constructed in the Bagmati River and support feasibility studies of similar interventions in its tributaries. The River Hydraulics and Structures Specialist will:

- (i) Review the design relating to river hydraulic and structural works under the Design & Build contract (including river front restoration, river training and erosion control) and draw attention to changes necessary, based on all available geotechnical and topographical survey information.
- (ii) Assess suitability for construction of proposed structures;
- (iii) Identify and take into consideration any technical, environment or social safeguard issues according to international best practices that should be addressed during construction;
- (iv) Provide technical support to the Dam Specialist.

- (v) Lead the feasibility study and designs of additional river bank improvement works to be identified and undertaken in tributaries of the Bagmati rivers and financed out of the project and potential additional financing
- (vi) Support design team in ensuring climate change potential impacts are factored in the design
- (vii) In coordination with the KVUEIP project provide advice to urban planning authorities on implementation of sustainable urban drainage schemes (SUDS) within the river corridor;
- (viii) Assist the Team Leader and Deputy Team Leader in timely preparation of reports.

5. River Environment Specialist (International, 2 person-months)

17. The River Environment Beautification Specialist will have a professional degree on architecture/ landscape design or related fields with a minimum 10 years experience in landscape planning and/or river environment improvement. S/he will review the design and oversee the river improvement works, green zoning and phyto-remediation under the Design & Build contract covering all river environment works. The River Environment Beautification Specialist will:

- (i) Review the design and oversee the river improvement works, green zoning and phyto-remediation under the Design & Build contract covering all works from Gokarna to Sinamangal Bridge and draw attention to changes necessary to optimize environmental benefits and aesthetic value of the works.
- (ii) Assess suitability of the vegetation, both terrestrial for green zoning, and aquatic for beautification and phyto-remediation.
- (iii) Assess the need for maintenance of green zones and phytoremediation and prepare maintenance guidelines and plans for the various river sections with green zones and with and without phytoremediation.

6. Dam Specialist (International, 3 person-months)

18. The International Dam Specialist will have degree in civil/water resources engineering or related fields and a minimum of 10 years of demonstrated experience in dam design and planning. S/he will oversee the technical aspects of design & and support construction supervision of the Dhap dam in the Shivapuri National Park. The Dam Specialist will:

- (i) Carry out a review of the design of the Dhap Dam under the Design & Build contract, based on all available geotechnical and topographical survey information, and draw attention to changes which may have become necessary since their preparation;
- (ii) Advise DOI and the construction supervisor on necessary dam construction supervision procedures
- (iii) Carry out review of the detailed design of the Nagmati dam
- (iv) With assistance from other team members, review environment and social safeguard issues relating to dam design, implementation and operation;
- (v) Ensure that all matters relating to dam design, implementation and operation are dealt with according to international best practice
- (vi) Assist the Team Leader and Deputy Team Leader in timely preparation of reports.

7. Chief Construction Supervisor (International, 6 person-months)

19. The Chief Construction Supervisor will have a degree in construction management/structural engineering or related and a minimum of 10 years of demonstrated work experience on construction supervision of infrastructure projects preferably in South Asia. S/he will be the main point of contact in assisting GON through the PCMU with supervising construction of the project works. S/he will manage and supervise the contractors engaged in construction of the works, ensuring timely progress, enforcing specified materials and workmanship requirements, and ensuring quality of construction. The Chief Construction Supervisor will:

- (i) Manage and supervise contractors in the role of Engineer;
- (ii) Prepare partial, substantial and final completion certificates;
- (iii) Supervise and monitor the local consultants and contractors;
- (iv) Supervise construction on a day-to-day basis and control and monitor quality of construction;
- (v) Issue interim payment certificates;
- (vi) Examine contractors' claims;
- (vii) Examine need for contract variations;
- (viii) Monitor compliance with environmental mitigation and management plans;
- (ix) Monitor preparation of as-built drawings.

8. Un-allocated (International, 4 person-months)

20. As the support consultancy progresses, it is likely to become evident that specialised expertise will be required for certain areas of water management and organization. Consequently four person-months of international expertise are allocated for this purpose, details to be defined after the consultancy has commenced.

D. Activities – National Specialists

1. Deputy Team Leader / Institutions Specialist (National, 46 person-months)

21. The Deputy Team Leader/Institutions Specialist will have a relevant degree with a demonstrated work experience of a minimum of 7 years in water resources/environment project implementation. S/he will be the main point of contact in assisting GON with implementation of all aspects of the Project. The Deputy Team Leader will assist the Team Leader with quality assurance, document preparation and coordination, project management and ensuring timely implementation of sub-projects. The Deputy Team Leader will:

- (i) Assist the Team Leader in coordination of inputs and management of individual specialists;
- (ii) Ensure good working relationships with government and other stakeholders;
- (iii) Work with the Team Leader in making a comprehensive review of the feasibility studies and drawing attention to changes which may have become necessary since its preparation;
- (iv) Assist the Team Leader in itemizing key tasks for project implementation and identifying the resources and schedules required, supporting the PCMU for sustainable system management and strategies for sustainable operation and maintenance of sub-project works;
- (v) Ensure close coordination with KVUEIP implementation team;

- (vi) Assist the PCMU with all aspects of project administration, performance and monitoring and preparation of reports;
- (vii) Ensure timely delivery of specified reports in a format acceptable to government and the ADB.

22. As Institutions Specialist he will assist GON and the International Institutions, Community and Participation Specialist in gaining the support of institutions and beneficiaries in implementation of the Project. He will:

- (i) At the local level, assist the International Institutions, Community and Participation Specialist in promoting social and institutional aspects of participation, ownership, acceptance, and adoption of project activities, and developing strategies to overcome any local concerns or other issues;
- (ii) Work together with other team members to facilitate cooperation between sector ministries/agencies, local government and communities in implementing the Project;
- (iii) Assist NGOs, CBOs and/or the private sector where they have a role in implementing the Project;
- (iv) Lead project stakeholder validation and consultation workshops.
- (v) Assist the International Institutions, Community and Participation Specialist in implementation of the communication, consultation and participation plan, engaging civil society, politicians, academia, private sector and other stakeholders throughout project implementation, and including use of local and electronic media.

2. Monitoring and Evaluation Specialist (National, 10 person-months)

23. The National Monitoring and Evaluation (M&E) Specialist will have a degree in management or engineering or related field and a minimum of 5 years of demonstrated experience in project M & E. S/he will work closely with the International M&E Specialist and the Team leadership to ensure that the project is implemented in accordance with the project design and monitoring framework (DMF) and that issues arising are quickly identified and brought to the attention of government and the ADB for prompt resolution. The National M&E Specialist will:

- (i) Assist the International M&E Specialist in carrying out a review of the project preparation documents with regard to project monitoring and evaluation and draw attention to changes which may have become necessary since their preparation;
- (ii) Support the International M&E Specialist, Team Leader and PCMU in ensuring that the project is implemented in accordance with the project design and monitoring framework (DMF) and that issues arising are quickly identified and resolved;
- (iii) Together with other experts of the Consultant, set up monitoring and evaluation frameworks and PPMS for overall project activities. The PPMS will include a participatory baseline survey to be conducted within the first year of the Project with follow-up surveys to evaluate any changes. Monitoring and evaluation of pro-poor effects of the project will be integrated into the PPMS;
- (iv) Prepare evaluation criteria for each activity, and role and tasks of the agencies;
- (v) Work with government experts and other specialists in the team to develop:
 - indicators that is objective, obvious and effective,
 - databases for effective data collection and management,

- methods for evaluation and analysis,
 - procedures for audit and control
- (vi) Assist in preparation of necessary guidelines for M&E consistent with project documents (RRP, the Loan Agreement, PAM, IEE/EIA and EMP, RF and RPs, IPPP or EMDP, SPRSS, GAP, etc.), ADB's requirements, and regulations of the Government;
 - (vii) Set up standards, contents and schedules for assistance to the PCMUs for M&E to ensure the project components are implemented as scheduled and outputs are as specified in the Loan Agreement;
 - (viii) Prepare M&E/PPMS Manuals for monitoring and assessment and ensure that relevant agencies comply with these manuals;
 - (ix) Collect data, monitor and evaluate project performance and impacts as part of the project management information system;
 - (x) Assist in development of a community participation process in monitoring and evaluation for M&E systems;
 - (xi) Support the team in preparation and organization of training/workshop programs on data management and using M&E for the PCMU, project stakeholders and other government staff;
 - (xii) Assist the Team Leader and Deputy Team Leader in timely preparation of reports.

3. Procurement Specialist (National, 14 person-months)

24. The National Procurement Specialist have a degree in engineering, project management, procurement management or finance and at least 5 years of relevant experience in procurement and contract management of infrastructure projects. H/she will ensure that all procurement for the project is carried out in accordance with the Project Administration Manual (PAM) and that issues arising are quickly identified and brought to the attention of government and the ADB for prompt resolution. The National Procurement Specialist will:

- (i) Carry out a review of the Project Procurement Plan and contract packages in the Project Administration Manual and draw attention to changes which may have become necessary since their preparation;
- (ii) Assess requirements under the Public Procurement Act 2063 of Nepal and ADB Procurement Guidelines and ensure that all project procurement is done in accordance with these guidelines
- (iii) Assess procurement capacity of project institutions and recommend improvements
- (iv) Assist PCMU in the preparation of bidding documents and Request for Proposals (RFP) for recruitment of consultants
- (v) Assist project institutions in advance procurement/recruitment where necessary
- (vi) Assist the International Procurement Specialist in carrying out a review of the project preparation documents with regard to procurement and financial management and draw attention to changes which may have become necessary since their preparation;
- (vii) Support the International Procurement / Financial Management Specialist, team leadership and PCMU in ensuring that the project is implemented in accordance with the Project Administration Manual (PAM) to ensure that management and operation mechanisms will be effective, obvious and sustainable, and that issues arising are quickly identified and resolved;

- (viii) Assist the International Procurement / Financial Management Specialist to prepare, update and adjust the detailed procurement plan every year, including content, schedule, resources, contract awards and disbursement;
- (ix) Assist in preparation of a handbook for procurement in accordance with ADB procurement policies and guidelines and GON regulations;
- (x) Guide, support and monitor the PCMU and other relevant agencies from central to local levels in procurement and financial management in accordance with the above handbook;
- (xi) Assist the PCMU with reviewing contents of packages and the procurement plan and updating as necessary of tender documents in accordance with ADB policy and government regulations (including forms of payment, audit procedures, disbursement and preparation of reports related to financing activities);
- (xii) Prepare standard criteria and checklists for evaluation of the tenders and assist the PCMU in preparation of the bid evaluation reports and assist the PCMU in reviewing the selection process of bidders;
- (xiii) Support the PCMU in procurement activities for national competitive bidding (NCB), international competitive bidding (ICB), selection of consultants according to the ADB's guidance and the Government's regulations;
- (xiv) Assist the PCMU with contract negotiations, preparation of contracts and contract awards;
- (xv) Provide advice to the PCMU on claims, if any, related to the procurement and contracts;
- (xvi) Coordinate with the M&E Specialists in setting up a monitoring system on procurement and contracts for the whole project from central to local level in a unified framework in accordance with the monitoring framework and project design;
- (xvii) Assist the project implementation officers of the PCMU in preparing and delivering (on-the-job) training programs related to procurement, contracts, financial management and disbursements;
- (xviii) Update, monitor and evaluate the payment and disbursement of all packages in the project and identify the causes to the existing problems, delays and propose the measures;
- (xix) Assist the PCMU in preparing monthly reports for procurement preparation, contract awards, contract management and performance for each contract package;
- (xx) Assist the Team Leader and Deputy Team Leader in timely preparation of reports.

4. Hydrologist (National, 2 person-months)

25. The Hydrologist will have a degree in hydrology or water resources/civil engineering and a minimum of 5 years of experience in hydrological studies and analysis of water/river engineering projects. The principal role of the National Hydrologist will be to ensure that project designs and operational procedures are consistent with the latest hydrological information, and to promote good cooperation between the project and existing agencies responsible for hydrometry and associated disciplines. The National Hydrologist will:

- (i) Carry out a review of the project preparation documents with regard to hydrological analysis and draw attention to changes which may have become necessary since their preparation;

- (i) Review the existing hydro-met monitoring system within the river basin in terms of its appropriateness to the project, and recommend any improvements (including rainfall and flow monitoring) necessary to support the development of both the IWRM programmed DSS; Support design team in ensuring climate change potential impacts are factored in the design
- (ii) Support the Dam Specialist and DSS / River Modeling Specialist by contributing hydrological information and design parameters for their work;
- (iii) Assist the Team Leader and Deputy Team Leader in timely preparation of reports.

5. River Training Specialist (National, 3 person-months)

26. The National River Hydraulics and Structures Specialist will have a degree in River Engineering or related field and a minimum of 5 years of relevant work experience. S/he will assist in overseeing the technical aspects of construction of river hydraulic and structural works to be constructed in the Bagmati River and its tributaries. The National River Hydraulics and Structures Specialist will:

- (i) Assist others in the team to review previous documents relating to river hydraulic and structural works (including river front restoration, river training and erosion control) also all available geotechnical and topographical survey information, and draw attention to changes which may have become necessary since their preparation;
- (ii) Assist the team in considering technical, environment or social safeguard issues according to international best practices that should be addressed during construction;
- (iii) Provide technical support to the Dam Specialist, Decision Support System / River Modeling and other technical specialists;
- (iv) Assist in providing advice to urban planning authorities on implementation of sustainable urban drainage schemes (SUDS) within the river corridor;
- (v) Assist the Team Leader and Deputy Team Leader in timely preparation of reports.

6. Architect (National, 3 person-months)

27. The architect will have a professional degree on architecture/landscape design or related fields with a minimum 10 years of experience in landscape planning and/or river environment improvement. S/he will review the design of river improvement and beautification and oversee the proper materials are used, the general works, green zoning and amenity provisions under the Design & Build contract covering all river environment works. The Architect will:

- (i) Review the design and oversee the river improvement works, green zoning and amenity provision under the Design & Build contract covering all works from Gokarna to Sinamangal Bridge and draw attention to changes necessary to optimize environmental benefits and aesthetic value of the works.
- (ii) Assess suitability of the park and green zone vegetation, and oversee implementation,
- (iii) Assess the suitability of the building materials, detailed design and construction methods used, in order for this to harmonise with the conceptual designs developed during the feasibility study.

- (iv) Oversee works and construction activities to ensure compatibility with architectural design.
- (v) Assess the need for maintenance of riparian river improvement works, green zones, amenities and prepare maintenance guidelines and plans for the various river sections with green zones and with and without phytoremediation.

7. Urban Planner & Land Pooling Expert (National, 13 person-months)

28. The Urban Planner & Land Pooling Expert will have a degree in civil engineering, urban planning or related field and a minimum of 5 years of relevant work experience. S/he will provide support for the use of best practice in land pooling projects in the Upper Bagmati basin. The Urban Planner & Land Pooling Expert will:

- (i) Prepare best practice guidelines for land pooling based on experience from the range of land pooling projects carried out already in Kathmandu in close cooperation with stakeholders in the Upper Bagmati;
- (ii) Promote the Best Practice Guidelines to all parties involved or potentially involved in land pooling in Upper Bagmati;
- (iii) Provide training on best Practice to KVDA, relevant PCMU staff, VDCs, local community groups and landowners;
- (iv) Assist the PCMU in overseeing and monitoring any land pooling project activities in the Upper Bagmati;
- (v) On a regular basis review the Best Practice Guidelines for land pooling as project activities progresses and update the Guidelines when required.
- (vi) Assist the PCMU reporting on urban development activities, including land pooling in the Upper Bagmati.

8. Watershed Management/Wetland Specialist (National, 4 person-months)

29. The National Watershed Management/Wetland Specialist will have a degree in environment, watershed management, natural resources management or related field and a minimum of 5 years of relevant experience. S/he will oversee the technical and community participation aspects of the construction and operation of works to be constructed in the Shivapuri Nagarjun National Park and the Bagmati river corridor. The National Watershed Management / Wetland Specialist will:

- (i) Carry out a review of the project preparation documents with regard to watershed management, wetlands and rainwater harvesting and draw attention to changes which may have become necessary since their preparation;
- (ii) Act as the principal point of contact between the project, community groups and government agencies responsible for watershed and wetland management, and rainwater harvesting, including construction and operational aspects;
- (iii) With assistance from other team members, oversee implementation of the project sub-component relating to watershed and wetland management, rainwater harvesting, community participation and subsequent operation;
- (iv) Assist the SNNP authorities with tree replantation program;
- (v) Assist the SNNP authorities in delineating buffer zone and preparing management plan;
- (vi) Assist SNNP authorities in (a) mapping the dam(s) foot print and direct surrounding area and (b) preparing specific management plan(s) to mitigate possible impact of increased tourism/visitors;

- (vii) Support the team in preparation and organization of training/workshop programs on data management and using M&E for the PCMU, project stakeholders and other government staff;
- (viii) Assist the Team Leader and Deputy Team Leader in timely preparation of reports.

9. Social Development and Gender Specialist (National, 12 person-months)

30. The National Social Development and Gender Specialist will have degree in social science, gender studies or related field and a minimum of 5 years of experience in social development or gender mainstreaming, S/he will ensure that the project is implemented in accordance with the principles of GON and the ADB to minimise adverse social impact and to promote positive aspects of the project for the community, including their active participation towards the project's goals. The specialist will also pursue positive aspects of the project with regard to gender and the approved Gender Equality and Social Inclusion (GESI) Plan. The National Social Development and Gender Specialist will:

- (i) Carry out a review of the feasibility studies (including safeguard documents, SPRSS and GESI) with regard to social impact, participation and gender and draw attention to changes which may have become necessary since their preparation;
- (ii) During the inception period the Specialist will review the nature of the project with regard to land acquisition and resettlement and, if there are significant issues, draw attention to these so that they can be adequately dealt with at inception by expanding project management inputs (e.g. with a specialist specifically to oversee resettlement and an Independent Resettlement Monitor).
- (iii) Take primary responsibility for overseeing the project from a social and gender perspective and implementation of project components and mechanisms to ensure (a) the active participation of the beneficiary community, and (b) participation of women and girls;
- (iv) Ensure the quality and timely implementation of the GESI Action Plan
- (v) Provide GESI technical support in the implementation of all components, as well as ensure that implementing partner NGOs adhere to the GESI Action Plan targets
- (vi) Assist the PCMU in coordinating project implementation with relevant agencies and stakeholders, and in implementing an integrated programme of community mobilization, agricultural and social support;
- (vii) Provide monitoring of project progress with particular regard to social and gender targets and indicators set out in the Design and Monitoring Framework (DMF);
- (viii) In carrying out field appraisal, stakeholder consultation and review of existing initiatives, ensure that data collected are disaggregate by sex;
- (ix) Contribute a gender perspective to the activities and outputs of other team members, particularly the institutions and environment specialists;
- (x) Assist the Team Leader and Deputy Team Leader in timely preparation of reports.

10. Environment Specialist (National, 14 person-months)

31. The National Environmental Specialist will have a degree in environmental science or engineering or related field and a minimum of 5 years of work experience in overseeing environmental management plans of infrastructure projects. S/he is expected to be familiar with

the GON and ADB's environmental safeguard requirements including climate change project adaptation measures. S/he will ensure that the project is implemented in accordance with the environmental laws of Nepal and the ADB environmental safeguard policy by overseeing implementation of Environmental Management Plans (EMP) and assisting the PCMU to monitor impacts. The National Environmental Specialist will:

- (ii) Carry out a review of the feasibility studies (including safeguard documents, IEE and EIA) with regard to environmental impact and draw attention to changes which may have become necessary since their preparation;
- (iii) Update the EMP based on detailed designs and ensure that contractor complies with measure state,
- (iv) Carry out a review of the Environmental Management Plans (EMP) and monitoring mechanisms and recommend any updating which may be required;
- (v) Assist the PCMU with implementation and coordination of EMPs and with identification and subsequent implementation of corrective management actions;
- (vi) Oversee preparation and approval of the site EMPs of construction contractors and monitor implementation of these for the purposes of quarterly reporting;
- (vii) Undertake a review of potential cumulative and induced environmental impacts which may occur downstream or elsewhere in the Bagmati river basin as a result of project interventions;
- (viii) Provide monitoring of project progress with regard to environmental targets and indicators set out in the Design and Monitoring Framework (DMF);
- (ix) Support design team in ensuring climate change potential impacts are factored in the designs of additional river bank improvement works.
- (x) Provide semi- annual environmental monitoring reports
- (xi) Assist the Team Leader and Deputy Team Leader in timely preparation of reports.

11. Project Economist (National, 4 person-months)

32. The National Project Economist will have a degree in economics or related field with a minimum of 7 years of work experience in related field, with working experience from ADB projects. The project economist will be responsible for the economic analysis of other tributaries of the upper Bagmati (such as the Bishnumati), that may be identified once the project is being implemented. He will

- (i) Carry out a detailed economic analysis of river works and other project interventions in selected tributaries of the upper Bagmati in accordance with ADB Guidelines for the Economic Analysis of Projects (1997)
- (ii) Prepare detailed budget of such investments, analyse project benefits and poverty impact analysis of the works consistent with ADB guidelines.

12. Financial Management Specialist (National, 4 person-months)

33. The National Financial Management Specialist will have a degree in finance or professional certification in accounting with at least 5 years relevant experience in financial management preferably in donor funded projects or in the public/ private sector. He/she will work closely with the International Financial Management Specialist national Financial Management Specialist will:

- (i) Assist PCMU in overall financial management, i.e., disbursement of funds, review of Withdrawal Applications, monitoring of project and counterpart funds.
- (ii) Plan and implement training programs for PCMU staff in project accounting and ADB procedures for disbursements
- (iii) Assist PCMU staff in the preparation of project accounts in a format suitable for both ADB and national requirements;
- (iv) Assist PCMU staff in developing a system of internal control to ensure accurate and reliable financial information
- (v) Assist the Team Leader and Deputy Team Leader in timely preparation of reports.

13. Water Resources Specialist (National, 11 person-months)

34. The Water Resources Specialist will have a professional degree in water resources engineering/management or related fields and a minimum of 10 years of experience in water resources. As National Water Resources Specialist s/he will assist the Team Leader to support GON in implementing IWRM for the Bagmati River Basin, including consultations and promoting legal and institutional changes necessary to establish an RBO. An important task will be updating the IWRM strategic roadmap agreed in the loan conditions and promoting its adoption, together with progress monitoring. S/he will support the Team Leader to carry out the following:

- (i) Support the sub-component designed to improve water governance in the Bagmati basin following IWRM principles;
- (ii) Promote updating and implementation of the IWRM strategic roadmap for the Bagmati river basin including establishment of a suitable River Basin Organization; (RBO) together with institutional changes and capacity building necessary for the sustainable establishment of such an RBO;
- (iii) Assist the government by identifying requirements and modalities for the pursuance of IWRM, including monitoring of progress and meeting specified roadmap targets.

14. Legal Specialist, Solid Waste, RWH Bye-laws Specialist (National, 5 person-months)

35. The Specialist will have a professional degree in law or related fields and a minimum of 10 years of experience in legal and policy issues related to water and sanitation. As Legal Specialist (solid waste/RWH), s/he will assist the Team Leader in reviewing and formulating bye-laws to support RWH and SWM. An important task of the specialist will be to guide managing the selected NGO to undertake activities related to RWH and SWM S/he will:

- (i) Reformulation of by-laws to make the construction of rain water harvesting system mandatory in the new buildings;
- (i) Update existing bye-laws and guidelines to incorporate internationally best and nationally appropriate practices of solid waste management and ensure its effective implementation;
- (ii) Any other activity required to enhance the enabling environment to promote RWH/SWM.

15. M & E Enforcement Specialist (National, 5 person-months)

36. The National M&E Enforcement Specialist will have a degree in management or engineering or related field and a minimum of 5 years of demonstrated experience in project M & E enforcement. S/he will work closely with the International/national M&E Specialist and the Team leadership to ensure that the M & E of project is as per the M & E policy and in accordance with the project design and monitoring framework (DMF). The National M&E Enforcement Specialist will:

- (i) Assist the PCMU in carrying out a review of the project preparation documents with regard to project monitoring and evaluation and draw attention to changes which may have become necessary since their preparation;
- (ii) Support the PCMU in ensuring that the project is implemented in accordance with the project design and monitoring framework (DMF) and that issues arising are quickly identified and resolved;
- (iii) Support the PCMU to enforce the project activities are consistent with project documents (RRP, the Loan Agreement, PAM, IEE/EIA and EMP, RF and RPs, IPPP or EMDP, SPRSS, GAP, etc.), ADB's requirements, and regulations of the Government;
- (iv) Support the PCMU to enforce standards, contents and schedules to ensure the project components are implemented as scheduled and outputs are as specified in the Loan Agreement;
- (v) Support the PCMU to enforce project activities are as per the M&E/PPMS Manuals for monitoring and assessment and ensure that relevant agencies comply with these manuals;
- (vi) Collect data, monitor and evaluate project performance and impacts as part of the project management information system;
- (vii) Assist the Team Leader and Deputy Team Leader in timely preparation of reports.

16. Training Specialist (National, 5 person-months)

37. The National Training Specialist will have a degree in management or engineering or related field and a minimum of 5 years of demonstrated experience in designing and implementing training programs. S/he will work closely with other subject specialists to prepare and implementing a training and capacity building program for the BRBIP. The Training Specialist will:

- (i) Assess the capacity of the relevant staff of EA/IA and other key stakeholders with regards to the skills and capacity required to implement the Project;
- (ii) Assist the PCMU and the PIUs in preparing and implementing a training and capacity building program to support the project; and
- (iii) Implement training programs as per the agreed plan in cooperation with the consultants and teams undertaking the project activities.

17. RBO Coordinator/ Institutions Specialist (National, 34 person-months)

38. The Deputy Team Leader / Institutions Specialist will be having degree in IWRM or related field and a minimum of 7 years of work experience in related fields. S/he will be the main point of contact in assisting GON and HPCICBC with capacity building and training for the Bagmati RBO. He will support the Team Leader and RBO secretariat in the main task of

forming and strengthening the RBO. As Institutions Specialist he will ensure that the RBO is fully engaged with stakeholders and relevant institutions. He will:

- (i) Support the Team Leader and RBO secretariat in forming and strengthening the RBO and in gaining the support of stakeholders and relevant institutions and in continuing IWRM/RBO policy and dialogue for institutional reform;
- (ii) Assist the team in carrying out a comprehensive review of the past and present water resources institutional and management initiatives and discuss need for any updating with the specialist carrying out legal studies on establishment of the RBO;
- (iii) Establish and maintain contact with relevant NGOs and community-based organizations in the area covered by the Bagmati RBO;
- (iv) Together with the International Institutions Specialist and other team members, conduct interviews, focus groups or other meetings with stakeholders to confirm their interests, constraints, and willingness to engage with IWRM;
- (v) Work under the guidance of the International Institutions, Community and Participation Specialist to promote social and institutional aspects of participation, acceptance and adoption of RBO activities, and develop strategies to overcome any local concerns or other issues;
- (vi) Assist GON and BRBIP to identify and agree the form and structure of the Bagmati RBO;
- (vii) Work with the International Institutions and Training Specialists to focus on the most urgent social needs (including awareness-raising) within the basin to assist the Institutional and Community Outreach section of the RBO secretariat;
- (viii) Ensure timely delivery of specified reports in a format acceptable to government and the ADB.

18. Water legal Specialist (National, 6 person-months)

39. The Legal Specialist will have a degree in Law or related fields and a minimum of 7 years of experience in water law or related fields. S/he will study the existing legal background and do legal drafting for the formation of an RBO based in IWRM principles, and establishing legal basis for water allocation in the Upper Bagmati basin. The Legal Specialist will:

- (i) Prepare the legal requirements for the formation of an RBO for the Bagmati river basin, to ensure it is sufficiently empowered to guarantee its effectiveness and longevity following completion of the Project.
- (ii) Identify the legal reforms needed to reduce and eventually eliminate the overlapping mandates of KVDA, HPCIDBC, WECS, MUD, KUKL, Municipalities and other prominent agencies.
- (iii) In the context of IWRM, identify legal reforms needed relating to stopping (i) the dumping of solid waste in the Bagmati river and on its banks, (ii) sand mining, and (iii) uncontrolled discharge of wastewater to the river.
- (iv) Based on (i), (ii) and (iii) propose and promote through dialogue with stakeholders the legal strengthening measures that would support IWRM;
- (v) Draft the legal requirements for: (i) environmentally safe allocation of water emerging from the Shivapuri National Park, (ii) enforcement of best practices in land pooling, and (iii) establish the ownership and responsibility for management of groundwater.
- (vi) Provide further legal assistance to the RBO formation during the foreseen three year period for emerging needs.

19. RBO Un-allocated (National, 6 person-months)

40. As the support consultancy progresses, it is likely to become evident that specialised expertise will be required for certain areas of water management and organization. Consequently six person-months of national expertise are allocated for this purpose, details to be defined after the consultancy has commenced.

20. Construction Supervisor 1 (National, 18 months)

41. The Construction Supervisor will have a degree in construction management/civil engineering or related field and a minimum of 5 years of work experience in construction supervision. Under the guidance of the International Chief Construction Supervisor, the Construction Supervisor No1 will deputise for the Chief Construction Supervisor, and assist in management and supervision of the contractors engaged in construction of designated works, ensuring timely progress, enforcing specified materials and workmanship requirements, and ensuring quality of construction. The National Construction Supervisor No1 will:

- (i) Manage and supervise contractors in the role of Engineer;
- (ii) Prepare partial, substantial and final completion certificates;
- (iii) Supervise and monitor the local consultants and contractors;
- (iv) Supervise construction on a day-to-day basis and control and monitor quality of construction;
- (v) Examine contractors' claims and need for contract variations;
- (vi) Monitor compliance with environmental mitigation and management plans;
- (vii) Monitor preparation of as-built drawings.

21. Construction Supervision Specialist 2 (National, 16 months)

42. The Construction Supervisor will have a degree in construction management/civil engineering or related field and a minimum of 5 years of work experience in construction supervision. The second National Construction Supervision Specialist (No2) will work under the guidance of the Team Leader and his deputy, to assist in management and supervision of contractors engaged in construction of designated works, to ensure timely progress, enforcement of specified materials and workmanship requirements, and to ensure quality of construction. The National Construction Supervision Specialist No2 will:

- (i) Manage and supervise contractors in the role of Engineer;
- (ii) Prepare partial, substantial and final completion certificates;
- (iii) Supervise and monitor the local consultants and contractors;
- (iv) Supervise construction on a day-to-day basis and control and monitor quality of construction;
- (v) Examine contractors' claims and need for contract variations;
- (vi) Monitor compliance with environmental mitigation and management plans;
- (vii) Monitor preparation of as-built drawings.

22. Construction Supervision Specialist 3 (National, 16 months)

43. The Construction Supervisor will have a degree in construction management/civil engineering or related field and a minimum of 5 years of work experience in construction supervision. The third National Construction Supervision Specialist (No3) will also work under

the guidance of the Team Leader and his deputy. His duties will be as those of National Construction Supervision Specialist No2.

23. Un-allocated (national, 70 person-months)

44. As the support consultancy progresses, it is likely to become evident that specialised expertise will be required for certain areas of water management and organization. Consequently four person-months of international expertise are allocated for this purpose, details to be defined after the consultancy has commenced

E. Reporting

45. Minimum reporting requirements from the PMDSC is as follows:

- (i) Inception Report: As soon as the project is commenced, the consultant shall prepare an Inception Report. Based on the output of discussions with the PCMU and field visits, the consultant shall review and verify the content of the tasks required. The consultant shall also elaborate in detail: (i) overall assessment of the tasks for the outputs required, and any changes proposed, (ii) work and staffing plans, and any changes proposed, (iii) programme for delivery of required reports.
- (ii) Quarterly Reports: Based on the results of monitoring and day-to-day progress, the consultant shall prepare a quarterly report every three months. These reports must present all the findings related to procurement and to monitoring requirements identified in the DMF, including progress on delivering the outputs. Quarterly reports will also summarise the results of relevant data collected.
- (iii) Mid-term Report: The Mid-term Report will summarise all aspects of project implementation up to the specified date of the mid-term review together with progress against the loan and the DMF. The report will summarise and discuss all specialist aspects of the project including construction, capacity building, social and environmental safeguards, together with conclusions and any recommendations for adjustment.
- (iv) Final Report: The Final Report will present a summary of all aspects of project implementation and comparison with the expectations of the loan (or as subsequently adjusted) and of the DMF. The report will summarise and discuss the results of specialist aspects of the project including construction, capacity building, social and environmental safeguards, together with conclusions, recommendations and lessons learned for future projects.

46. For each report, four copies in English are to be submitted. In addition to hard copies, one digital electronic copy shall also be submitted. At the end of the contract, a digital copy of all documents relevant to the project shall be compiled in an orderly manner on a CD and be submitted to the PCMU.

DRAFT TERMS OF REFERENCE FOR FLOOD FORECASTING AND EARLY WARNING SYSTEM AND DECISION SUPPORT SYSTEM

A. Overview

1. The proposed Bagmati River Basin Improvement Project (the project) will improve water security and resilience to potential climate change impact in the Bagmati River Basin. It builds on the general public's desire to restore the river environment in the Kathmandu Valley and the Government's efforts to mitigate the impact of water-induced disasters in the middle and lower reaches of the basin. The Project adopts the principles of integrated water resources management (IWRM) and provides Nepal with its first opportunity to apply this policy element since its adoption under the 2005 national water plan.

2. The project plans to engage an international firm(s) (in association with a national firms if necessary) to undertake the following packages:

- (i) Package 1: Development of the Decision Support System (DSS)
- (ii) Package 2: Flood Forecasting and Early Warning System (FFEWS)

3. The two activities are separate activities contributing to different outputs, namely, Output 1 - Effective integrated and participatory river basin management and Output 4 -Reduced water-induced disaster impact on basin communities. These may be awarded to different firms or to a single firm depending on the experience and expertise of the applying consulting firms. Development of the Decision Support System (DSS)

B. Package 1: Development of the Decision Support System (DSS)

1. Objective of the Bagmati DSS

4. The Bagmati DSS will support Integrated Water Resources Management planning and investment decisions in the Bagmati river basin. Its scope includes not only the Bagmati DSS itself, but also the development of core institutional capabilities to assist in the evaluation of alternative development strategies and the identification of investment project at the basin or sub-basin level in future.

5. The basic purpose of the Bagmati DSS is to provide a framework for knowledge sharing, understanding the river system behavior, designing and evaluating alternative development scenarios, investment projects, and management strategies. The Bagmati DSS should help to *“enhance the capacity to support basin wide communication and information exchange, and identify opportunities for sector cooperative development of the Bagmati water resources”*.

2. The Development Process

6. The Bagmati DSS development process is based on a thorough needs assessment and a subsequent conceptual design of the system. Based on the situation analysis in terms of hydrology, water availability and use patterns, environmental and socio-economic issues a stakeholder's workshop is planned for shared training needs assessment and identification of requirements to the Bagmati DSS.

3. Institutional Context

7. WECS is considered to be the implementing agency for the DSS development. WECS has established an Information Centre that provides updated information on water resources at basin level to stakeholders via its Web-Page. WECS operates and updates their information system on a regular basis.

8. The functional requirements of the DSS will depend on institutional interaction between data collection institutions (DHM for hydrology and meteorology, HPCIDBC presently doing water quality monitoring etc.), and the institutions that will have access to, and use the Bagmati DSS information.

4. Capacity for DSS Development, Operation and Maintenance

9. Being a new concept, the national capacity for DSS design and development is somewhat limited. The design and development of DSS systems for IWRM is carried out by highly specialized consultants.

10. Based on developments carried out e.g. for the Nile Basin²⁴ and the DSS Planning project²⁵ in India, generic frameworks for IWRM DSS systems are readily available. The development of the DSS for the Bagmati is therefore considered to be based on available technology and generic DSS development systems provided by international consultants.

11. However, it is foreseen that major parts of the adaptation of the DSS framework to the Bagmati Basin will be carried out by national professionals, being trained and supervised by the international consultant.

12. A training programme will be tailor made to enable WECS staff to operate, update and maintain the Bagmati DSS together with the Bagmati River Basin Organization (BRBO) to be formed.

13. Besides, the WECS core staff will be further trained, to be able to roll-out the DSS to other River Basin Organizations in Nepal, and train the BRBO staff in the use of the DSS system for their specific basin planning and management purposes.

5. Scope

14. Based on the existing Information System and expanded to the DSS, WECS expects that the DSS can support them, by providing support to:

- (i) Flood/Drought forecasting (early warning system).
- (ii) Basin planning and management.
- (iii) Techno-economic clearance for projects.
- (iv) Water allocation.
- (v) Regulation.
- (vi) Monitoring and evaluation.
- (vii) Benefit optimization.
- (viii) Conflict Resolution.

²⁴ http://www.nilebasin.org/newsite/index.php?option=com_content&view=section&layout=blog&id=10&Itemid=71&lang=en

²⁵ <http://hydrology-project.gov.in/dss.htm>

- (ix) IWRM implementation.
- (x) Co-ordination.
- (xi) Sustainable WR development.
- (xii) Demand/supply projection.
- (xiii) WR Infrastructure Operational policy development.

15. It should be noted that the mandate for Flood Forecasting is with DHM, and considered to remain there. However, the DSS will have functionalities to receive the forecasts for any use of a future Bagmati RBO.

6. Overall Concept for the DSS

a. Interfacing with Existing and Future Models

16. The model system of the Bagmati DSS would provide an open interface to existing and future models being used for the Bagmati river basin can interact, be interfaced and linked dynamically. This would allow for exchange and sharing of data between models at runtime. This modeling interface would be simple and flexible enabling the user to define model interfacing without accessing the source code of the individual model systems.

b. Overall Conceptual Design

17. The Bagmati DSS encapsulates the existing WECS Information system, listing the types of basic information foreseen to be included in the core Data Base.

18. An important feature adding to the present WECS Information System will be the integration of existing and future models, the ability to define planning scenarios, and the facilities for Multi-Criteria-Analyses and optimisation.

c. Training

19. Software related user training including a series of training workshops in conjunction with the installation of the DSS Releases. These trainings are to be held at the location of WECS to be able to directly use the newly installed systems or updates for the training and at the same time subject it to user testing. The training would cover the background, algorithms and use of the software, as well as hands on exercises with relevant test cases to familiarize the core team and selected (RBO) users with the system.

20. The software training to be synchronized with the release of the corresponding user manuals, to be used as course material in the training and to compile user feedback for the improvement of the manuals.

7. Time Schedule

21. It is expected that the DSS development and implementation will be completed in 30 months time

8. Expertise Required

22. A summary of the consultant inputs is listed in the table below:

Table 1 : Summary of Proposed DSS Consultancy Inputs

International Specialists	months
Team Leader / Chief Technical Advisor	6
DSS Development & Customization Expert	3
Process modeling expert incl. water quality	
Database expert	4
	2
DSS implementation and training expert	2
Total International Specialists	17
National Specialists	
	months
Modeling experts / DSS experts	15
GIS and database experts	10
Implementing and training expert	8
Hydrologist	1
Unallocated	6
Total National Specialists	40
TOTAL	57

a. Team Leader / Chief Technical Advisor (International, 6 person-months)

23. The Team Leader / Chief Technical Advisor (CTA) will have a MSc degree in water resources systems, software engineering, information technology, environmental sciences, hydrology, or similar; with a minimum of 20 years of professional experience including management of large software development and water resources management projects, international experience including developing countries. S/he will work closely with WECS to develop a Bagmati DSS and the development of core institutional capabilities to assist in the evaluation of alternative development strategies and the identification of investment project at the basin or sub-basin level in future. S/he will:

- (i) Be responsible for overall direction of the consultant team, coordination of inputs, and management of individual specialists;
- (ii) Prepare and implement a tailor made training program to enable WECS staff to operate, update and maintain the Bagmati DSS together with the Bagmati River Basin Organization (BRBO) to be formed;
- (iii) Develop a Bagmati DSS based on the use and expansion of the existing Information System that supports:
 - Flood/Drought forecasting (early warning system).
 - Basin planning and management.
 - Techno-economic clearance for projects.
 - Water allocation.
 - Regulation.
 - Monitoring and evaluation.
 - Benefit optimization.
 - Conflict Resolution.
 - IWRM implementation.
 - Co-ordination.

- Sustainable WR development.
 - Demand/supply projection.
 - Water resources infrastructure Operational Policy Development
- (ix) Ensure timely delivery of specified reports in a format acceptable to government and the ADB.

b. DSS Development & Customization Expert (International, 3 person-months)

24. The DSS Development & Customization Expert will have MSc degree in relevant fields; with a minimum of 15 years of relevant experience in the application of multi-objective decision making processes. S/he will:

- (i) Work closely with other members of the DSS to develop and setup of the Bagmati DSS;
- (ii) Work closely with other members of the DSS team to develop and setup of the Bagmati DSS using multi-objective decision making framework that support river-basin level decision making;
- (iii) Contribute to the trainings provided to WECS and BRBO staff; and
- (iv) Assist the Team Leader in timely delivery of all outputs and preparation of reports.

c. Process Modeling Expert incl. water quality (International, 4 person-months)

25. The Process Modeling Expert will have a MSc degree in natural resources or environmental sciences; with a minimum of 15 years of working experience in process modeling including water quality for a DSS. S/he will:

- (i) Work closely with other members of the DSS to develop and setup of the Bagmati DSS;
- (ii) Provide specific inputs on developing inventories of environmental assets and aquatic ecosystems, development and applications of environmental indicators, assessing environmental impacts of water resources management and development interventions, and preparing environmental management plans, including water quality monitoring; develop quantitative linkages between alternatives and social and environmental indicators;
- (iii) Contribute to the trainings provided to WECS and BRBO staff; and
- (iv) Assist the Team Leader in timely delivery of all outputs and preparation of reports.

d. Database Expert (International, 2 person-months)

26. The Database expert will have an MSc degree or higher preferred in computer science, information technology, data management, or database administration; with a minimum of 15 years of working experience in design, development and administration of databases, preferably related to water resources engineering projects. S/he will:

- (i) Work closely with other members of the DSS to develop and setup of the Bagmati DSS;

- (ii) Provide specific inputs on development of database management systems, Geographic Information System (GIS)-based modeling applications and simulation/optimization tools;
- (i) Contribute to the trainings provided to WECS and BRBO staff; and
- (ii) Assist the Team Leader in timely delivery of all outputs and preparation of reports.

e. DSS Implementation and Training Expert (International, 2 person-months)

27. The DSS Implementation and Training Expert will have a Masters level degree or higher preferably in engineering and management or related field with a minimum of 15 years of working experience in designing and implementing training programs related to river basin management and modeling. S/he will:

- (i) Work closely with other members of the DSS on capacity building and trainings to WECS and BRBO staff to manage and use the developed Bagmati DSS for future decision making;
- (ii) Provide specific inputs on training program development and implementation so that the developed DSS is fully operational and managed by WECS staff at the end of the project;; and
- (iii) Assist the Team Leader in timely delivery of all outputs and preparation of reports.

f. Modeling /DSS Experts (National, 15 person-months)

28. The National Modeling/DSS experts will have MSc degree in water resources systems/hydrology or closely related fields; a minimum of 10 years of relevant experience in IWRM, hydrological modeling required for a river-basin level DSS. This position may be filled by one or more specialists as per the modeling needs of the DSS. The experts will:

- (i) Work closely with other members of the DSS to develop and setup of the Bagmati DSS;
- (ii) Provide specific inputs on water resources assessment, hydrological modeling, river hydraulics, sediment transport, hydrodynamic modeling, flood and drought forecasting, data acquisition and processing, river morphology and soil and water conservation;
- (iii) Contribute to the trainings provided to WECS and BRBO staff; and
- (iv) Assist the Team Leader in timely delivery of all outputs and preparation of reports.

g. GIS and Database Expert (National, 10 person-months)

29. The National GIS and Database Expert will have a Masters level degree or higher preferred in computer science, information technology, data management, or database administration; with a minimum of 10 years of working experience in design, development and administration of standard database and knowledge of current GIS tools and technologies, preferably related to water resources engineering projects. S/he will:

- (i) Work closely with other members of the DSS to develop and setup of the Bagmati DSS;

- (ii) Provide specific inputs on development of database management systems, Geographic Information System (GIS)-based modeling applications and simulation/optimization tools;
- (iv) Contribute to the trainings provided to WECS and BRBO staff; and
- (v) Assist the Team Leader in timely delivery of all outputs and preparation of reports.

h. Implementation and Training Expert (National, 8 person-months)

30. The National Implementation and Training Expert will have a Masters level degree or higher preferably in engineering and management or related field with a minimum of 7 years of working experience in designing and implementing training programs related to water resources management and modeling. S/he will:

- (i) Work closely with International Implementation and Training Expert and other members of the DSS on capacity building and trainings to WECS and BRBO staff to manage and use the developed Bagmati DSS for future decision making;
- (ii) Provide specific inputs on training program development and implementation so that the developed DSS is fully operational and managed by WECS staff at the end of the project;; and
- (iii) Assist the Team Leader in timely delivery of all outputs and preparation of reports.

i. Hydrologist (national, 1 person-month)

31. The Hydrologist will have MSc degree in water resources systems/hydrology or closely related fields; a minimum of 15 years of relevant experience in hydrological modeling required for a river-basin level DSS. S/he will:

- (i) Work closely with other members of the DSS to develop and setup of the Bagmati DSS;
- (ii) Provide specific inputs on water resources assessment, hydrological modeling, river hydraulics, sediment transport, hydrodynamic modeling, flood and drought forecasting, data acquisition and processing, river morphology and soil and water conservation;
- (iii) Contribute to the trainings provided to WECS and BRBO staff; and
- (iv) Assist the Team Leader in timely delivery of all outputs and preparation of reports.

j. Unallocated (national, 6 person-month)

32. An international consulting firm (17 person-months (p-m) of international consultants and 40 p-m of national consultants) will be selected (if necessary in association with a national firm) to undertake the activities described above. Package 2: Flood Forecasting and Early Warning System (FFEWS)

9. Objective of the Bagmati FFEWS

33. The overall objective of the component is to equip DHM with a fully operational real time flood forecasting and warning system including an effective community based early warning system for the Bagmati river basin.

34. The specific objectives and scope of activities include but not be limited to the following:
- (i) Assess the hydro-meteorological network and data acquisition system required for flood forecasting and early warning in the Bagmati river and its tributaries and to implement priority network and data acquisition improvement activities
 - (ii) Assess the current forecasting capacity and install necessary flood forecasting tools (hydrological and hydraulic models, rainfall forecasting including satellite based rainfall estimates)
 - (iii) Develop hydrological and hydrodynamic models and calibrate with historical data. The model will have a mapping feature to display model results spatially (inundation areas, flood levels etc.). The model will be linked to a real time data acquisition system and other web-based data.
 - (iv) Develop a web based flood forecasting and early warning dissemination system
 - (v) Develop an operational strategy for disseminating flood early warning at the community level
 - (vi) Provide necessary trainings and capacity development for sustainable operation of the FFWES at DHM

10. Task Descriptions

Task 1- Review of the hydro-meteorological network and data acquisition system and identify network and data acquisition improvement activities

35. A detailed inventory of the hydro-meteorological network, equipment and data acquisition system will be prepared. The existing forecast system has to be reviewed with respect to its on-line data assimilation capacity and coverage. Any additions to the hydrometric network in the Bagmati Basin since the existing forecast system was developed in 2011 will have to be identified. New hydrometric stations have to be included in the data assimilation network as a basis for the updated forecast and warning system. While the development of the existing flood forecast system concentrated on covering especially the most flood prone areas in the lower Bagmati the present project the present project intends to cover all flood prone areas in the entire Bagmati basin.

Task 2 - Review of the current forecasting capacity in DHM and identify necessary flood forecasting tools (models) upgrades

36. The consultant has to acquaint himself with the current weather and hydrological forecasting models and procedures used by the DHM for data acquisition as well as the existing human resources and the computer software and hardware available. While the existing forecast system relies mainly on on-line data from DHMs hydrometric network, numerical weather models and satellite based rainfall forecasts will provide the basis for the flood forecasts. This will require an update of the MIKE11 model as well as upgrade of communication facilities.

Task 3 – Procurement of Software and Hardware

37. Based on the inventory of available equipment and the identified need of additional computational capacity and communication facilities specifications for procurement are needed. The selection and installation of the software and hardware will be made in close collaboration with DHM. The PCMU procurement specialist can provide support in the procurement process. Upon procurement the software and hardware will be installed in DHM.

Task 4- Extension of the existing forecast system

38. The coverage of the existing flood forecast model will be extended to generate water levels at key locations and inundation forecasts for all flood prone areas in the Bagmati basin. The river topographic data on which the present flood forecasting model is based should be updated.

39. With the assistance of DHM existing cross section data not included in the existing model shall be obtained, e.g. any data from Department of Irrigation from their Bagmati Irrigation project, from HPCIDCB based on their recent river works in the Bagmati and tributaries in Kathmandu, etc.

40. Additional data needs critical for extension of the flood forecast model shall be identified, specifications to be prepared and procurement of local survey consultant(s) to be done to carry out, e.g. cross section surveys at strategic locations.

41. Based on additional topographic data and river cross section data the existing flood forecasting model will have to be extended, recalibrated and verified based on the DHM hydrometric data from the Bagmati basin.

Task 5- Development and piloting of basin-wide flood forecasting and early warning system

42. The flood forecasting and early warning system will be based on forecasts of catchment rainfall using satellite based rainfall forecasts, numerical weather models and quantitative rainfall forecasts generated by the international and regional resource centers, IMD, RIMES etc.

43. The forecast system will be equipped with facilities for communication and receive of the forecast from RIMES and IMD.

44. The system will provide facilities for preparation of flood risk maps using GIS layers of the Bagmati basin.

Task 6- Assign NGO for Warning Dissemination

45. Prepare detailed Terms of Reference for a local experienced NGO to develop, test and implement effective early warnings to flood prone communities in the Bagmati basin. The testing and implementation of the warning system shall reach at least 10 flood prone communities in the Lower Bagmati.

46. With the assistance of the procurement specialist procure the NGO following GON and ADB rules and regulations.

Task 7- Flood warning dissemination strategy

47. While the dissemination of flood warnings to authorities at district level is relatively easy, reaching the flood prone poor communities with easily understood warnings is not simple.

However, relatively successful attempts have been made in Nepal²⁶ and neighbouring countries²⁷ to establish warning dissemination reaching the rural poor communities.

48. Based on the lessons learned a flood warning dissemination strategy will be developed in close collaboration between the consultant and the NGO assigned. Based on the experience using mobile phones, this option for warning dissemination should be considered in addition to more traditional methods for warning distribution.

49. Based on the flood warning dissemination strategy the NGO will develop the concept and contents of the flood warning dissemination system to be tested and implemented.

Task 8- Testing and implementing the flood warning dissemination system

50. The testing and implementation of the flood warning dissemination system targets to reach the poor and flood prone communities. However, the testing in the field should also cover that forecasts reach district authorities and disaster management committees and other government agencies.

Task 9- Provision of necessary trainings and capacity development for sustainable operation of FFEWS

51. The key to success of the forecasting centre at DHM is the sustainability and the national capacity to maintain and operate the data acquisition, forecasting and early warning system. While annual budgetary provision to meet the cost of the services needs to be sustained, there is a strong need to develop the necessary human resources. Hence, appropriate trainings including specialised courses and exposure visits will be provided to the counterpart staff. On-the-job trainings will be provided by the implementing consulting team.

52. As DHM and the proposed Bagmati RBO will both be involved in flood disaster risk management in the Bagmati River basin, the forecasting activities need to be established as a joint collaboration between the two. A workable institutional setup will be recommended suitable to meet the objectives of BRBO.

11. The FFEWS

53. Since the Bagmati River basin is relatively small with steep river slopes the lead time of flood forecasting along the Bagmati River mainly depends on lead time of the available weather forecast. Quantitative Precipitation Forecasts can only prove a reliable rainfall forecasts for 1, 2 and 3 days only. Therefore, the lead time of the flood forecasting model of the Bagmati river basin will be limited up to 3 days. The floods are flashy in nature in many parts of the basin, and the travel time of the flood wave from upper Bagmati to the lower part is about 12 hours. The, development of the FFEWS for the Bagmati basin should consider the above factors. The following components are included in the proposed development of FFEWS.

- (i) A Rainfall-runoff model
- (ii) A Hydrodynamic model
- (iii) A Flood forecasting model with data assimilation facilities using real time data
- (iv) A Web based user interface with warning dissemination facilities
- (v) Community based early warning system

²⁶ Banka Bardia Flood Warning programme. <http://practicalaction.org/IA15000181NEP-banke-bardia-flood-warning>

²⁷ Consolidation and Strengthening of Flood Forecasting and Warning Services. Final Report. Vol V – Project Extension. Report to the Bangladesh Water Development Board. DHI. December 2006

12. Capacity Building

a. Capacity for FFEWS Development, Operation and Maintenance

54. The development of the FFEWS for the Bagmati will be based on the MIKE11 software available with DHM and the pilot model of the Bagmati River. However, it is foreseen that the model will be updated to cover the entire basin with additional data of river cross sections, flood plain topography (DEM), structures including embankments. The model will also be updated to incorporate the real-time data (rainfall, water levels). The model will be recalibrated with the latest time series data available before an operation forecasting is implemented by DHM.

55. The operational forecasting for the Bagmati River will be mainstreamed in the forecasting activities of DHM. DHM will however need capacity support both from national and international consultants during the development of the FFEWS. DHM personnel will be trained during the development. It is expected that DHM will require external support for some period before they will be able to take over completely.

56. The training programme described below shall be tailor-made to enable DHM staff to operate, update and maintain the Bagmati FFEWS together with the proposed Bagmati River Basin Organization (BRBO). Besides, the DHM core staff will be further trained, to be able to roll-out the FFEWS to other river basins in Nepal.

b. Specialized Training Courses

57. Specialised training courses will be provided in the following topics:

- Concepts of computational hydrology and hydraulics, rainfall-runoff modeling, hydrodynamic modeling, data assimilation and forecasting, flood mapping, GIS, Satellite image processing, data base management and Web updating.

c. On-the-job training

58. DHM staff will be involved in all stages of development and implementation of the forecasting system by consultants.

d. Exposure visits

59. Exposure visits will be conducted for DHM staff to observe operational flood forecasting system in other countries and to relevant institutions.

13. Time Schedule

60. It is expected that the model development will be completed in six months. However, it is recommended that the operational forecast is implemented for a full flood season after which evaluation and reporting will be done. Including capacity building activities the total project period for this component will be one year.

14. Expertise required for consulting services

61. A summary of the consultant inputs is listed in the table below:

Table 2 : Summary of Proposed FF and FEWS Consultancy Inputs

International Specialists	months
Team Leader / Chief Technical Advisor	4
FFEWS model expert	3
Web based modeling expert	1
Community based warning expert	1
Total International Specialists	9
National Specialists	months
Modeling Expert	8
Warning Dissemination Expert	4
Community based flood warning expert	4
Unallocated	6
Total National Specialists	22
TOTAL	31

a. Team Leader / Chief Technical Advisor (International, 4 person-months)

62. The Team Leader / Chief Technical Advisor (CTA) will have a MSc degree in water resources engineering/Hydrology or similar field; with a minimum of 20 years of professional experience on development of flood forecasting and early warning systems and flood risk mapping. S/he shall have proven experience in hydro-meteorological data collection, processing and management and capacity building of a hydro-meteorological agency in a developing country including management of large software development and water resources management projects, international experience including developing countries. S/he will work closely with DHM to develop a Bagmati Flood Forecasting and Early Warning System (FFEWS) and the development of core institutional capabilities to manage and operate the system in future. S/he will:

- (i) Be responsible for overall direction of the consultant team, coordination of inputs, and management of individual specialists;
- (ii) Assess the hydro-meteorological network and data acquisition system required for flood forecasting and early warning in the Bagmati river and its tributaries and to implement priority network and data acquisition improvement activities
- (iii) Assess the current forecasting capacity and install necessary flood forecasting tools (hydrological and hydraulic models, rainfall forecasting including satellite based rainfall estimates)
- (iv) Develop hydrological and hydrodynamic models and calibrate with historical data. The model will have a mapping feature to display model results spatially (inundation areas, flood levels etc.). The model will be linked to a real time data acquisition system and other web-based data.
- (v) Develop a web based flood forecasting and early warning dissemination system
- (vi) Develop an operational strategy for disseminating flood early warning at the community level
- (vii) Provide necessary trainings and capacity development for sustainable operation of the FFWES at DHM and BRBO; and
- (viii) Ensure timely delivery of specified reports in a format acceptable to government and the ADB.

b. FFEWS Model Expert (International, 3 person-months)

63. The FFEWS Model Expert will have MSc degree in water resources engineering/hydrology or relevant fields; with a minimum of 15 years of relevant experience in hydrological and hydraulic modeling. S/he will:

- (i) Assess the hydro-meteorological network and data acquisition system required for flood forecasting and early warning in the Bagmati river and its tributaries and to implement priority network and data acquisition improvement activities
- (ii) Assess the current forecasting capacity and install necessary flood forecasting tools (hydrological and hydraulic models, rainfall forecasting including satellite based rainfall estimates)
- (iii) Develop hydrological and hydrodynamic models and calibrate with historical data. The model will have a mapping feature to display model results spatially (inundation areas, flood levels etc.). The model will be linked to a real time data acquisition system and other web-based data;
- (iv) Contribute to on-the-job trainings to enable DHM and BRBO staff to operate, update and maintain the Bagmati FFEWS in particular related to computational hydrology and hydraulics, rainfall-runoff modeling, data assimilation and forecasting, flood mapping, GIS and Satellite image processing; and
- (v) Assist the Team Leader in timely delivery of all outputs and preparation of reports.

c. Web-based Modeling Expert (International, 1 person-month)

64. The Web-based Modeling Expert will have MSc degree in computer science, software engineering or closely related fields; with a minimum of 10 years of experience in systems analysis, design and development of web-based modeling systems preferably related to water hydrology/flood/drought forecasting and warning system. S/he will:

- (i) Develop a web based flood forecasting and early warning dissemination system with a user-interface with warning dissemination facilities;
- (ii) Contribute to on-the-job trainings to enable DHM and BRBO staff to operate, update and maintain the Bagmati FFEWS in particular related to database management and Web-updating; and
- (iii) Assist the Team Leader in timely delivery of all outputs and preparation of reports.

d. Community-based Warning Expert (International, 1 person-month and national 4 persons months)

65. The Web-based Modeling Expert will have MSc degree in MSc degree in water resources management or rural development or closely related fields; with a minimum of 10 years of experience in community-based flood/drought warning systems. S/he will:

- (i) Develop a community based flood early warning system in close coordination with the modeling experts;
- (ii) Contribute to on-the-job trainings to enable DHM and BRBO staff to operate, update and maintain the Bagmati FFEWS in particular related to dissemination of flood warning to communities; and

- (iii) Assist the Team Leader in timely delivery of all outputs and preparation of reports.

e. National Modeling Expert (National, 8 person-months)

66. The National Modeling Expert will have MSc degree in water resources engineering/hydrology or relevant fields; with a minimum of 10 years of relevant experience in hydrological and hydraulic modeling. S/he will:

- (i) Assist and work closely with other members of the team to develop and setup of the FFEWS;
- (ii) Provide specific inputs to assess the hydro-meteorological network and data acquisition system required for flood forecasting and early warning in the Bagmati river and its tributaries and to implement priority network and data acquisition improvement activities
- (iii) Assess the current forecasting capacity and install necessary flood forecasting tools (hydrological and hydraulic models, rainfall forecasting including satellite based rainfall estimates)
- (iv) Develop hydrological and hydrodynamic models and calibrate with historical data. The model will have a mapping feature to display model results spatially (inundation areas, flood levels etc.). The model will be linked to a real time data acquisition system and other web-based data;
- (v) Contribute to on-the-job trainings to enable DHM and BRBO staff to operate, update and maintain the Bagmati FFEWS in particular related to computational hydrology and hydraulics, rainfall-runoff modeling, data assimilation and forecasting, flood mapping, GIS and Satellite image processing; and
- (vi) Assist the Team Leader and International Modeling Experts in timely delivery of all outputs and preparation of reports.

f. National Warning Dissemination Expert (National, 4 person-months)

67. The National Warning Dissemination Expert will have MSc degree in water resources engineering or social science or related field with a minimum of 7 years of relevant experience in community based disaster (preferably flood) warning systems. S/he will:

- (i) Assist and work closely with other members of the team to develop community based flood early warning system;
- (ii) Assist the International Community based warning expert to develop a community based early flood warning system in close coordination with the modeling experts;
- (iii) Contribute to on-the-job trainings to enable DHM and BRNO staff to operate, update and maintain the Bagmati FFEWS in particular related to dissemination of flood warning to communities; and
- (iv) Assist the Team Leader and International Experts in timely delivery of all outputs and preparation of reports.

g. unallocated (national, 6 person-month)

68. An international consulting firm (9 person-months (p-m) of international consultants and 22 p-m of national consultants) will be selected (if necessary in association with a national firm) to undertake the activities described in Sections above.

C. Package 3 Water Quality monitoring system

1. Objective of the Water Quality monitoring system upgrade

69. The overall objective of the component is to reliable data and information of the present state and future developments in the Bagmati River water quality through the upgrading the existing water quality monitoring program carried out by HPCIDCB and its laboratory.

70. The specific objectives and scope of activities include but not be limited to the following:

- (i) Upgrade the existing water quality monitoring programme
- (ii) Upgraded the HPCIDBC laboratory with new instrumentation and equipment and safety measures such as improved ventilation.
- (iii) Staff trained in carrying out the specified monitoring and water quality sampling programme.
- (iv) Laboratory staff trained in analytical procedures and use of new instruments.
- (v) Quality Assurance measures and Quality Control procedures introduced. A QA/QC Manual developed and the staff trained in adherence to the manual procedures in all laboratory activities

2. Task Descriptions

71. The overall tasks and activities include but are not limited to the following:

- (i) Review the existing water quality monitoring system, prepare recommendations of improvement and implement these with respect to parameters measured, frequency, sample positions, need for in-situ measurements, sample handling and preservation.
- (ii) Assess the state of the instrumentation and equipment of the laboratory and if needed update the list prepared by the PPTA of instruments and equipment to be procured.
- (iii) Procure instruments and equipment according to GON and ADB rules, ensure timely delivery according to specifications and install and commission instruments.
- (iv) Train laboratory staff in the analytical procedures of the parameters required in the water quality monitoring system. Ensure safety equipment is used and safety procedures followed.
- (v) Prepare manuals and instructions for the monitoring sampling programme and all aspects of work in the laboratory, including safety procedures.

3. Time Schedule

72. It is expected that the instrument and equipment procurement as well as the laboratory upgrade will be completed within nine months.

73. The training activities will cover the period where the laboratory is taking the new instruments and equipment into use, implementing the sample handling and analytical routines and QA/QC procedures. The training is expected to be completed within a 12 month period.

74. The completion of operating manuals, final inspection of laboratory operations and reporting is expected to have a duration of 3 months, with a total Project Period of then 24 months.

4. Expertise required for consulting services

75. A summary of the consultant inputs is listed in the table below:

Table 3: Summary of Proposed Water Quality Monitoring System Upgrade Inputs

International Specialists	months
Team Leader/WQ Monitoring Specialist	4
Laboratory Expert	4
Total International Specialists	8
National Specialists	months
Laboratory Technical Expert	6
Monitoring specialist	2
Unallocated	4
Total National Specialists	12
TOTAL	20

a. Water Quality Monitoring Specialist/Team Leader (International, 4 person-months, national 2 person-months)

76. The Water Quality Monitoring Specialist/Team leader will have at least an MSc level education within water resources, water quality, public management, human health, or a closely related field. 15 years of practical international experience in water quality monitoring, river environment and water-related health risks. Practical international experience in the planning, design and implementation of water quality monitoring programmes. Strong interpersonal relationship, experiences in the region preferably and fluent spoken and written English are required. S/he will be the main point of contact in assisting HPCIDBC with implementation of the laboratory upgrade. S/he will report to the PCMU and lead the consultancy. The Water Quality Monitoring Specialist/Team Leader will:

- (i) Be responsible for leading the laboratory upgrade consultancy, coordination and management of the team;
- (ii) Coordinate the planning and implementation of the laboratory upgrade with the leader of the HPCIDBC laboratory;
- (iii) With the assistance of the Procurement Specialist from the PCMU/PMSC arrange for the purchase of instruments etc. for the upgrade of the laboratory, following GON and ADB guidelines.

- (iv) Review the existing monitoring program, methods used for sampling, sampling handling and preservation and make recommendations for any changes, if needed.
- (v) Identify the parameters that should be measured in-situ, and parameters to be measured in the laboratory, and cross-check with the list of instrumentation to be purchased.
- (vi) Update the present monitoring programme and prepare manuals/instructions for the monitoring programme, including safety procedures and train laboratory personnel in implementation.
- (vii) Prepare instruction for maintenance and calibration of material and instruments used during field monitoring, and train the laboratory personnel in implementation of monitoring routines.
- (viii) Prepare guidelines and routines for data registration, quality control, analyses and regular reporting. After review of national water quality standards ensure the analyses of results and reporting refers to national water quality standards.
- (ix) Ensure timely delivery of specified reports in a format acceptable to government and the ADB.

b. Water Quality Laboratory Expert (International, 4 person-months)

77. The Water Quality Laboratory Expert will have an MSc level education within analytical chemistry in general, and water analysis in specific. Knowledge about internal quality control and quality assurance activities of analytical work, and experience with organization of laboratory services. 15 years of practical experiences in laboratory activities related to environmental management and control in developing countries. Practical international experience in training of laboratory staffs in developing countries. Strong interpersonal relationship, experiences in the region preferably and fluent spoken and written English are required. The Water Quality Laboratory Expert will:

- (i) Assist the Team leader in project implementation, instrumentation procurement, coordination with laboratory staff and the PCMU.
- (ii) Review the status of the instruments in the laboratory and update the instrumentation list for purchase prepared by the PPTA.
- (iii) With the assistance of the Laboratory Technical Expert and the PCMU procurement Specialist review and identify national dealers and providers of laboratory equipment, and prepare specifications for the instrumentation for procurement.
- (iv) With the assistance of the local laboratory technical expert install and verify the proper functioning of the instruments procured.
- (v) Prepare a detailed training programme for the laboratory staff and implement this, covering sample handling, analytical training following prescribed standards, safety procedures to be followed, analytical data registration, quality assurance, reporting etc.
- (vi) Prepare laboratory manuals covering all aspects of work in the laboratory, including safety procedures.
- (vii) Assist the Team leader in timely delivery of specified reports in a format acceptable to government and the ADB.

c. Laboratory Technical Expert (National, 6 person-months)

78. The Laboratory Technical Expert will have a relevant technical education with a demonstrated work experience of at least 5 years in the installation and training in the use of laboratory equipment and instruments. S/he will be the main contact to local dealers and providers of laboratory instruments and equipment. The Laboratory Technical Expert will:

- (i) Assist the Water Quality Laboratory Expert in coordination of the laboratory upgrade with the laboratory staff and the PCMU.
- (ii) Assist the Water Quality Laboratory Expert in the preparation of specifications of instruments and equipment to be purchased.
- (iii) Be responsible for checking the functioning of the instrumentation and equipment procured, and ensure the delivered are in accordance with the specifications.
- (iv) Be responsible for the installation and commissioning of the laboratory instruments,
- (v) Support the Water Quality Laboratory Expert in training of the laboratory staff.

d. Unallocated (national, 4 person-month)

D. Package 4 Integrated River Basin Development Master Plan

1. Aim

79. The aim of the IRBDMP is to provide GON with a comprehensive development and management plan to guide the rapid rationalisation and improvement of water management in the Bagmati River basin for at least the next 20 years. The Plan will examine each aspect of water management and propose improvement in achievable stages which can be used to obtain essential funding as part of an overall IWRM strategy.

2. Scope

80. Data collection and consultations will commence during the first year of the BRBIP, and the IRBDMP itself will be compiled during the second year. After approval, the plan will be used to initiate funding for priority activities. The plan will be updated by the RBO, assumed to be established, during the last (fifth) year of the project for use by GON to continue with effective IWRM and the implementation of essential projects in the water sector.

81. The plan for the entire Bagmati River basin will include:

- (i) An overview of GON policy with recommendations for improvement;
- (ii) Up-to-date water availability and water use information linked with the DSS;
- (iii) An up-to-date inventory of current and planned water-related works including their status and condition;
- (iv) Assessment of water quality in the main river and tributaries linked with the DSS in relation to current and planned abstractions and discharges.
- (v) Water sector goals agreed in consultation with stakeholders including GON and civil society;
- (vi) Strategies for IWRM;
- (vii) Priority activities;
- (viii) Detailed programme of works and other actions by sub-basin;
- (ix) Performance evaluation and monitoring.

3. Summary of Inputs

82. A summary of the proposed IRBDMP development support consultant inputs is listed in the table below:

Table 3: Summary of Proposed RBO Support Consultancy Inputs

IRBDMP Development Support	
Specialists	months
International IRBMDP Specialist	8
National IRBMDP Specialist	32
Total	40

4. Activities – International and National Specialists

a. IRBDMP Specialist (International, 8 person-months)

83. The Integrated River Basin Development and Management Plan (IRBDMP) Specialist will have a degree in water resources engineering/management or related field and a minimum of 10 years of demonstrated work experience in integrated river basin development and management preferably in South Asia. S/he will be responsible to prepare the IRBDMP and to carry out the following:

- (i) Prepare an outline content of the IRBMDMP based on the River Basin profile for the prepared by JWA RETA with equal focus on the Upper, Middle and Lower Bagmati.
- (ii) Review the existing data available and identify essential gaps for the planning process.
- (iii) Prepare a plan for surveys to be carried, and implement these in close cooperation with the PCMU.
- (iv) Prepare the Integrated River Basin Development and Management Plan (IRBDM) in close cooperation with the PCMU with consultation and concurrence of the key stakeholders (including GON and civil society);
- (v) In cooperation with the PCMU carry out extensive consultations with the GON, ADB, key stakeholders obtaining concurrence with the contents of the plan.
- (vi) Support the then formed RBO in updating of the plan at the end of the project.
- (vii) Ensure timely delivery of specified reports in a format acceptable to government and the ADB.

b. IRBDMP Specialist (National, 32 person-months)

84. The National IRBDMP Specialist will have a degree in water resources engineering/management and minimum of 5 years of demonstrated experience in river basin planning and management. S/he will support the International IRBDMP Specialist to ensure the timely delivery of specified outputs of the IRBDMP. S/he will:

- (i) Support the TL in delivering the envisaged outputs of the Integrated River Basin Development and Management Plan (IRBDM) with consultation and concurrence of the key stakeholders (including GON and civil society) that will serve as a Master Plan for Basin side water sector development and management;
- (ii) Coordinate the activities with the GON, ADB, key stakeholders and the BRBIP PCMU Unit; and
- (iii) Ensure timely delivery of specified reports in a format acceptable to government and the ADB.

5. Reporting

72. Reporting requirements shall be as follows:

- (i) Inception Report: As soon as the support consultancy starts, the consultant shall prepare an Inception Report. Based on discussions with GON, WECS, HPCIDBC and the staff who may be allocated for the future RBO secretariat, the consultant shall review and verify the content of the tasks required. Specifically, the consultant shall review the existing information available, identify gaps and make specifications of the surveys necessary for planning purposes. The consultant will also elaborate: (i) other main tasks, (ii) work and staffing plans, and (iii) reporting programme.
- (ii) Half-yearly Reports: Since the inputs are not evenly spaced out over the project period of five years, it may be appropriate to prepare half-yearly reports summarising progress in IBRDMP process, and planned work for the next reporting period.
- (iii) Mid-term Report: The Mid-term Report to be provided end 2015 will present the Draft IRBDMP. Depending on comments received the IBRDMP will be updated in early 2016 with revisions presented in the ensuing half-yearly report.
- (iv) Final Report: The Final Report will present a summary of all aspects of the consultancy covering RBO formation and parallel and subsequent capacity building and technical training. The report will summarise and discuss the results of specialist aspects together with conclusions, recommendations and lessons learned for future projects of this nature.

73. For each report, four copies in English are to be submitted. In addition to hard copies, one digital electronic copy shall also be submitted. At the end of the contract, a digital copy of all documents relevant to the project shall be compiled in an orderly manner on a CD and be submitted to the PCMU.

**DRAFT TERMS OF REFERENCE FOR CONSULTANCY FOR RBO FORMATION
(UNDER WFPF TA GRANT)**

A. Aim

1. The aim of the consultancy is to support the formation of an RBO for the Bagmati river basin and, after its formation, to build its capacity and provide technical training. As the RBO is being formed, the consultancy will seek to fill gaps between the roles of existing water management institutions and/or promote take-over of certain functions from other institutions, to avoid duplication of roles and responsibilities so that the RBO can operate effectively.

B. Scope

2. Scope of the consultancy is to support formation of the Bagmati RBO and provide capacity building and technical training, including:

- (i) Initial review of the past and present water resources management environment;
- (ii) Legal studies necessary to clear the way for establishment of a Bagmati RBO and secretariat, with support from legal specialist under the PCMU.
- (iii) Review of recent initiatives aimed at identifying the form and structure of the Bagmati RBO;
- (iv) Consultations with stakeholders, both institutional and resource users;
- (v) Initial technical studies to support the embryo RBO secretariat;
- (vi) Assistance in refining and agreeing the type and structure of the proposed RBO;
- (vii) Training concentrated on the technical core of the RBO and its secretariat, covering:
 - Resource Studies and Priority Works;
 - Water Quality, Groundwater and Disaster Management;
- (viii) Focus on the most urgent social needs (including awareness-raising) within the basin to assist the Institutional and Community Outreach section of the RBO secretariat;
- (ix) Arranging and assisting with study tours for RBO members and its secretariat.

3. It is expected that the RBO support consultant will be based at WECS office located in Kathmandu.

C. Summary of Inputs

4. A summary of the proposed RBO support consultant inputs is listed in the table below:

Table 1: Summary of Proposed RBO Support Consultancy Inputs

RBO Formation and Training	
International Specialists	months
Team Leader / Water Policy/ RBO Specialist	19
Institutions, Community and Participation Specialist	3
Total	22

D. Activities: International Specialists**1. Team Leader / WATER POLICY /RBO Specialist (International, 19 person-months)**

5. The Team Leader will have a Master's degree in IWRM or related field and a minimum of 15 years of demonstrated experience in Water and institutional reform and River Basin Management or related fields. S/he will be the main point of contact with government and BRBIP in assisting them to implement IWRM through an RBO for the Bagmati River basin. In managing the team, the Team Leader will oversee all aspects of the support consultancy including consultations, promoting the necessary legal and institutional changes, assisting the RBO to update the IWRM strategic roadmap agreed in the loan conditions and progress monitoring. He will:

6. Review of the project preparation documents with regard to RBO formation, capacity building and training and draw attention to changes which may have become necessary since their preparation;

- (i) Lead the consultancy team aiming to improve water governance in the Bagmati basin following IWRM principles;
- (ii) Assist the government by identifying requirements and modalities for the pursuance of IWRM, including monitoring of progress and meeting specified IWRM roadmap targets and BRBIP loan covenants;
- (iii) Oversee initial review of the past and present water resources management initiatives and liaise with the specialist carrying out legal studies necessary for establishment of a Bagmati RBO and secretariat;
- (iv) Oversee consultations with stakeholders, both institutional and resource users;
- (v) Assist GON in refining and agreeing the type and structure of the proposed RBO;
- (vi) Supervise training concentrated on resource studies, water quality, groundwater and disaster management, also arranging study tours;
- (vii) Ensure timely delivery of specified reports in a format acceptable to government and the ADB.

2. Institutions, Community and Participation Specialist (International, 3 person-months)

7. The Institutions, Community and Participation Specialist will have degree in management, social science or related fields and a minimum of 10 years of demonstrated work experience preferably in South Asia. S/he will oversee the institutional and participatory aspects of the capacity building and training, working closely with the National Deputy Team Leader / Institutions Specialist and Training Specialist. Together they will ensure that the RBO is fully engaged with stakeholders and relevant institutions. The Institutions, Community and Participation Specialist will:

- (i) Support the Team Leader and RBO secretariat in gaining the support of stakeholders and relevant institutions and in continuing IWRM/RBO policy and dialogue for institutional reform;
- (ii) Carry out a comprehensive review of the past and present water resources institutional and management initiatives and discuss need for any updating of approach with the team and with the specialist carrying out legal studies on establishment of the RBO;

- (iii) Establish and maintain contact with relevant NGOs and community-based organizations in the area covered by the Bagmati RBO;
- (iv) Together with the National Institutions Specialist and other team members, conduct interviews, focus groups or other meetings with stakeholders to confirm their interests, constraints, and willingness to engage with IWRM;
- (v) At the local level, promote social and institutional aspects of participation, acceptance, and adoption of RBO activities, and propose strategies to overcome any local concerns or other issues;
- (vi) Assist GON and BRBIP to identify and agree the form and structure of the Bagmati RBO;
- (vii) Work with the National Institutions and Training Specialists to focus on the most urgent social needs (including awareness-raising) within the basin to assist the Institutional and Community Outreach section of the RBO secretariat;
- (viii) Assist the Team Leader and Deputy Team Leader in timely preparation of reports.

E. Reporting

8. Reporting requirements shall be as follows:

- (i) Inception Report: As soon as the support consultancy starts, the consultant shall prepare an Inception Report. Based on discussions with GON, WECS, HPCIDBC and the staff who may be allocated for the future RBO secretariat, the consultant shall review and verify the content of the tasks required. The consultant will also elaborate: (i) main tasks, (ii) work and staffing plans, and (iii) reporting programme.
- (ii) Quarterly or Half-yearly Reports: Since the inputs are spaced out over a period of five years, it may be more appropriate to prepare half-yearly reports summarising progress in RBO formation and capacity building, and proposals for the next reporting period.
- (iii) Mid-term Report: The Mid-term Report will summarise all aspects of RBO formation and subsequently of capacity building and technical training. This will also be an opportunity to make any fundamental changes in direction which may be required as the process of RBO formation and any associated difficulties become apparent.
- (iv) Final Report: The Final Report will present a summary of all aspects of the consultancy covering RBO formation and parallel and subsequent capacity building and technical training. The report will summarise and discuss the results of specialist aspects together with conclusions, recommendations and lessons learned for future projects of this nature.

9. For each report, four copies in English are to be submitted. In addition to hard copies, one digital electronic copy shall also be submitted. At the end of the contract, a digital copy of all documents relevant to the project shall be compiled in an orderly manner on a CD and be submitted to the PCMU.

DRAFT TERMS OF REFERENCE FOR INDEPENDENT ENVIRONMENTAL MONITORING CONSULTANT

A. Aim

1. Aim of the consultancy is to strengthen project environmental management, ensure sustainable development and compliance with the environmental safeguard policy of ADB, as well as the Environmental Protection Law of Nepal.

B. Scope

2. An independent Environment Consultant with a degree in environmental science/engineering or related field and experienced and capable in environmental monitoring will be recruited to carry out the environmental monitoring tasks under the GON Project Management Unit (PCMU). The duration of this consultancy is expected to be 60 months.

3. The IEMC will be responsible for assisting the PCMU in compliance of works contractors with environmental safeguards, monitoring of the EMP, and evaluating the results of environmental monitoring and impact mitigation measures during the construction phase of the project. At the same time, the environmental monitoring consultant will assist the environmental management units of the implementing agencies in preparing and participating in capacity building activities, etc.

4. Compliance should follow the requirements of the Environmental Protection Law of Nepal and the environmental safeguard policies of ADB.

C. Activities

5. The principal activities of the IEMC will be as follows:

Activity 1: To assess and report compliance of works contractors with environmental protection requirements:

- (i) During the construction phase, the IEMC will conduct periodic visits to inspect contractor compliance with environmental requirements, as detailed in the signed contracts between contractor and project owner.
- (ii) The IEMC will make periodic or unannounced inspections of contractor facilities as required and give the results of his findings to contractors for inclusion in implementation progress monitoring reports to be submitted by contractors.
- (iii) The IEMC will verify the investigation results of any non-compliance of the environmental quality performance and the effectiveness of the corrective measures and report such results to the PCMU as appropriate.

Activity 2: To assess and report progress and performance of the EMP:

- (i) During and after the construction phase, the IEMC will conduct periodic visits to inspect the performance of activities commissioned under the EMP.
- (ii) IEMC Findings will be made known to agencies and contractors responsible for EMP components for inclusion in implementation reports.

- (iii) The IEMC will investigate any shortcomings in performance and effectiveness of the EMP and make recommendations where necessary to restore its effectiveness.

Activity 3: To assess and interpret the results of environmental monitoring and environmental impact mitigation measures and to draw attention to unsatisfactory outcomes and trends.

D. Reporting

6. Reporting requirements shall be as follows:

- (i) **Inception Report:** As soon as the project is commenced, the IEMC shall prepare an Inception Report. Based on the output of discussions with the PCMU and field visits, the IEMC shall review and verify the content of the tasks required. The IEMC shall also elaborate in detail: (i) overall assessment of the tasks, (ii) work plan, and (iii) programme for delivery of required reports.
- (ii) **Quarterly Reports:** Based on the results of monitoring and visits to contractors' worksites, the IEMC shall prepare a quarterly report every three months. These reports must present all the findings related to monitoring requirements identified in the ToR. Quarterly reports will also summarise the results of monitoring data. The emerging environmental problems will be analysed, assessed and reported to the project owner for appropriate and timely response. In particular, the compliance or otherwise of works contractors with the requirements of their signed contracts must be properly reflected in the reports.
- (iii) **Final Report:** The Final Report will present a summary of monitoring results, analysis of Contractor's compliance, environmental changes caused by project implementation and comparison with the expectations of the EIA and IEE reports, together with conclusions, recommendations and lessons learned for future projects.

7. For each report, four copies in English are to be submitted. In addition to hard copies, one digital electronic copy shall also be submitted. At the end of the contract, a digital copy of all documents relevant to the project shall be compiled in an orderly manner on a CD and be submitted to the PCMU.

E. Personnel (Indicative)

Table 1: Independent Environmental Monitoring Consultant - Indicative Personnel Schedule

National:	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
Environmental Specialist	2	2	2	2	2	10

F. Activities – National M&E Specialist

8. The National M&E Specialist will have a degree in environmental science or engineering or related field and a minimum of 5 years of work experience in overseeing environmental management plans of infrastructure projects. S/he is expected to be familiar with the GON and ADB's environmental safeguard requirements. S/he will ensure that the project is implemented in accordance with the environmental laws of Nepal and the ADB environmental safeguard

policy by overseeing implementation of Environmental Management Plans (EMP) and assisting the PCMU to monitor impacts. The National M&E Specialist will:

- (i) Carry out a review of the feasibility studies (including safeguard documents, IEE and EIA) with regard to environmental impact and request changes and updates if and when required.;
- (ii) Carry out a review of the Environmental Management Plans (EMP) and monitoring mechanisms and recommend any updating which may be required;
- (iii) Oversee Contractor's implementation of EMPS and review the control procedures implemented and carried out by PCMU and PIUs, and request corrective management actions, if and when required;
- (iv) Periodically control the EMPs implemented on site by construction contractors and review the quarterly reporting;
- (v) Undertake a review of potential cumulative and induced environmental impacts which may occur downstream or elsewhere in the Bagmati river basin as a result of project interventions;
- (vi) Monitor project progress with regard to environmental targets and indicators set out in the Design and Monitoring Framework (DMF);
- (vii) Review reports delivered as per the DMF requirements and report to the EA through the PCMU/Project Director on the performance of the contractors and the efficiency of the EMPs implemented, and announce any corrections needed that require intervention from the EA, Project Director, PCMU, PIU and contractors.

DRAFT TERMS OF REFERENCE FOR NGO PACKAGES

A. Overview

1. The proposed Bagmati River Basin Improvement Project (the project) will improve water security and resilience to potential climate change impact in the Bagmati River Basin. It builds on the general public's desire to restore the river environment in the Kathmandu Valley and the Government's efforts to mitigate the impact of water-induced disasters in the middle and lower reaches of the basin. The Project adopts the principles of integrated water resources management (IWRM) and provides Nepal with its first opportunity to apply this policy element since its adoption under the 2005 national water plan.

2. The project plans to engage national NGOs to support the project through three (3) NGO packages (contracts) as follows:

- (i) Watershed management
- (ii) Rainwater harvesting and solid water management
- (iii) Community awareness, gender and community strategy

1. NGO Package 1 - Watershed Management

3. The community's involvement is the prime factor for the successful conservation and improvement of the watershed areas. So, a conservation users group should be formed from among the beneficiary farmers and involved in planning and implementation of the conservation activities.

Support for declaration of the SNNP buffer zone

4. There are four main settlements in the Shivapuri watershed area i.e. Mulkharka, Chilaune, Kunegaun and Okhreni. Consultations are currently on-going for these settlements area to be declared as buffer zone and as such removed from the National park main area. Support is required for the preparation of the buffer zone management plans. This includes consultations, need identification, meeting with local people and write up management plan)

5. Support will also be required for the formation of various committees (user groups, User committee and Management committee) and strengthening those institutions for good governance, creating conducive environment for biodiversity conservation providing various types of training, exposure visits, subsidies to install fuel efficient stoves, alternate energy supply, alternate income generating activities to replace local alcohol brewing activity by local people etc.

Mapping and management of the new dams

6. Assist SNNP authorities in (a) mapping the dam(s) foot print and direct surrounding area and (b) preparing specific management plan(s) to mitigate possible impact of increased tourism/visitors.

Demonstration and training

6. **Illegal tree felling for fuel wood**, other domestic uses and production of alcohol and encroachment of forest for agricultural land and settlements and forest fires are taking place in

the Shivapuri watershed. A training and awareness program will be implemented in the watershed to educate the stakeholders such as National Park staff, army personnel, user groups, local people etc. regarding the consequences of watershed degradation and benefits of well-managed watershed.

7. Thirty training events will be organized for different stakeholder i.e. local people, user groups, army personnel staff and National Park staff during the project period. Such training events will help to enhance their capacity in conserving biodiversity and protecting watershed area.

8. In each training programme, there will be 25 participants. During the project period 750 people will receive training on different subjects which will enrich their knowledge and motivate them in conservation and protection of the watershed area. Within this period all households will get training. Soil loss from agricultural land during maize cultivation is considerable if there is rainfall during soil work and just after sowing of maize crop. The training program will provide knowledge on different aspect of conservation measures to be adopted in the agricultural land.

9. **Organic farming and eco-tourism.** As source of remunerative alternative livelihoods to activities currently being harmful to the Park ecology, organic farming and ecotourism represent strong potential. Therefore the project will provide adequate training to the farmers and households of the 4 settlements in organic farming and eco-tourisms.

10. **Outward sloping agricultural land will be planted with fruit trees.** Fruit trees do not require tillage operation and help in minimizing soil erosion. When trees reach fruit bearing stage, they start giving economic return to the farmers. Till that stage, farmers can do inter cropping in their land with minimum tillage/mulching. There are 323 households in the watershed area. 20 fruit saplings per household will be distributed to at least 250 households. Altogether 5000 saplings will be distributed to the farmers. This will cover about 12.5 ha of land. Fruits trees such as, pear, peach, plum, orange (at lower altitude) etc. will be distributed to farmers.

11. **Promotion of more efficient cooking stoves.** 296 households use traditional stoves for cooking their food. When cooking is done in such stoves, energy is wasted due to its low efficiency and more fuel wood will be required. Traditional stoves also cause health problems like lungs diseases to the people. Such stove saves at least 30 % fuel wood. Energy saving improved cook stoves will be promoted in the watershed area and training and demonstration will be done to at least 250 households.

12. **Improved sanitation and waste management.** Release of waste water directly in the river by these growing settlements is an increasingly worrisome source of early pollution for the Bagmati River and its tributaries. Support in the form of training and demonstration with subsidies is required to help these settlement in adopting eco-friendly household toilets and solid waste management systems.

2. Scope

13. The selected NGO will work with the Project to implement the following specific activities:

- (i) Formation of conservation users groups and other committees for BZ

- (ii) Training and awareness programs to educate the stakeholders such as National Park staff, army personnel, user groups, local people etc. regarding the consequences of watershed degradation and benefits of well-managed watershed. (30 events)
- (iii) Community afforestation and fruit trees distribution in 12.5 ha of community land
- (iv) Training and demonstration on organic farming and eco-tourism (30 households)
- (v) Improved cook stoves promotion and training/demonstration in at least 250 households
- (vi) Training and demonstration on eco friendly toilets and waste management (100 households)

3. NGO Package 2 - Rainwater Harvesting

a. Scope

14. The project interventions proposed under this package are:

b. Rainwater Harvesting (RWH) and Ground Water Recharge

15. For effective implementation of the RWH systems, following approaches will be promoted for implementing rain water harvesting on household level and institutional levels.

- (i) Reformulation of by-laws to make the construction of rain water harvesting system mandatory in the new buildings.
- (ii) Provision of subsidies to encourage the installment of RWH systems.
- (iii) Schools and government buildings should be encouraged to install rainwater harvesting system as these organizations are good places for raising mass awareness on RWH system.
- (iv) Capacity building training programmes to be conducted to train sub engineers, engineers, architects, plumbers, students and housewives to impart knowledge on different aspects of RWH systems from installation to O&M.
- (v) Help desk should be established for providing technical backstopping and related technical materials to the people for installation of RWH systems.
- (vi) Demonstration sites to be established to provide practical knowledge on different components, functioning, installation, operation and maintenance of the RWH systems.
- (vii) Different materials such as brochures, guidelines etc on RWH system will be produced and distributed and Radio and TV programmes should be conducted to disseminate the RWH technology, installation and its advantages to the people.

16. The expected coverage area of RWH program is from Gokarna to Guheshwori area. This section of the project area is rapidly urbanizing and has a high rate of ground water extraction by household and private companies.

17. Following are the suggested approaches to implement RWH programs:

- a. The selected NGO will devise detail strategy to implement all the components of RWH programs including subsidy program. While devising the subsidy implementation plan, the project will draw upon the lessons learnt from existing tax rebate program run by KMC. Currently, KMC provides 10% rebate in building construction drawing approval tax if the house owner includes RWH system in

the construction drawing and the rebate is given only after the construction of the building. The subsidy program will be managed by the selected NGO in close coordination with in-line government agencies.

- b. In order to create the demand for RWH installation, it will launch intensive awareness raising program at local level. The user interested in installing the system can collect subsidy from the respected local bodies (VDC or municipal wards) or the project office. The installation of RWH system can be done by team of technical experts provided by the selected NGO. The technical team shall also aware the user about maintenance of RWH system.
- c. A post-field follow-up program will be carried out on periodic basis to evaluate the effectiveness of RWH system program in the project area. Existing program shall be revised according to the evaluation received from the follow-up program.
- d. Demonstration sites will be selected by the technical team based on the interest of schools and government institutions and the potential impact it will create in raising awareness. The RWH plant will be installed by providing required awareness and technical training to the respective institution. Budgeted Costs for Land Polling, Solid Waste and Rainwater Harvesting

4. NGO Package 3 - Community Awareness, Gender, Community Strategy and Solid Waste Management

a. Scope

18. The project interventions proposed under this package are:

b. Community Awareness and Community Strategy Implementation

(i) Develop Local Institutional Mechanisms to Promote Participation, Coordination, and Mobilization

19. The Project will support the development of a multi-stakeholders' mechanism that encourages Upper Bagmati stakeholder mobilization and awareness raising, including:

- Develop and nurture at least two multi-sectoral Technical Working Groups:
- Working Group on Bagmati Water Resources Management
- Working Group on Bagmati River Environmental Management

21. These are technical working groups, with membership including community groups from the Upper Bagmati. These working groups would provide multi-sector platforms and mechanisms for stakeholder coordination, collaboration, and participation, at least initially focusing only on technical matters. 22. The roles of the working groups would be:

- Consultative and provide local feedback regarding a formal river basin organization.
- Discuss status of water related projects and activities in the Bagmati River Basin.
- Provide forum for exchange of views on challenges and issues facing Bagmati stakeholders.
- Share knowledge, information, and advice on public awareness campaigns.

- Help develop ideas and actions related to a Bagmati Community Empowerment Program – Information, Awareness, and Education.
- Develop awareness framework and guidelines for better involvement of a wider range of stakeholders.
- Help develop a Bagmati Basin Information System and knowledge base as way to consolidate and network various sectors.

20. Potential stakeholders as members of the working groups would include:

- GON Agencies (HPCIDBC, WECS, KVWSMB/KUKL, etc.)
- Municipalities
- VDCs and DDCs
- CSOs (including representatives from local vulnerable groups, including farmers' groups in Upper Bagmati)
- NGOs
- Private Sector

21. It is critically important that local leaders and representatives of the VDCs/DDCs are fully engaged in the Project processes/activities and the Working Groups, to incorporate them as participants into the project, rather than just as observers. The objectives of the Working Groups will only be fulfilled if VDCs/DDCs, CSOs, and other local leaders fully participate in the Working Groups.

(ii) Establishment of NGO Platform

22. The Project will support the formation and development of an NGO Platform which will encourage Upper Bagmati River environment improvement and community participation in maintaining the river environment. The river banks and the green belts created in the flood plains will need to be owned by communities and other local stakeholders. Such initiatives would be best carried out by community level organizations with very little help from the government.

23. The adoption of river stretches by communities, private sector and local NGOs would be an important way of ensuring that the river environment is improved and the communities benefit from the river front development. It is proposed that the greenbelts and river banks along the improved Bagmati River be managed by the user committees formed by the local communities or by interested private sector or local CSOs and NGOs.

24. A national NGO working in the field of environment and community mobilization will be recruited under a NGO contract with the responsibility of mobilizing the communities and forming user committees to take up the responsibility of adoption of river stretches. The selected NGO will carry out community awareness and mobilization activities and assist in establishing user communities to adopt and manage stretches of the river. These stretches can be developed by the communities as gardens and parks for local communities' benefits, including development of floriculture and small forestry patches for beautification. Competition for awards will be organized periodically by the VDCs or municipalities in order to boost up the morale of the CSOs and NGOs involved in nature conservation work. Private sector may also apply to adopt certain stretches of the rivers under their corporate social responsibility (CSR) activities or support user committees or local NGOs to do so.

25. The forum of all user committees adopting the river stretches may be established to work with HPCIDBC and VDCs and municipalities to monitor the activities. Such a forum will coordinate with other activities like the annual Bagmati River Festival to showcase their achievements. A “Score Card” system will be used to select the best performing user communities and to encourage others to improve. Seed money will be provided to community- or private sector- led local initiatives on river environment management to the CSOs and small private entrepreneurs.

(iii) Communication Strategy

26. A key part of Upper Bagmati social mobilization will be a Stakeholder Communications Strategy (SCS) which will actively encourage local stakeholders to become involved in project preparation and implementation activities. The SCS focuses on information sharing and consultation, and guides communications with stakeholders during project implementation. Such information sharing will help to build consensus and ensure continuous stakeholder support throughout the Project.

27. The Upper Bagmati SCS includes: (i) developing and implementing institutional mechanisms for water dialogue in the river basin, (ii) supporting multiple communication methods to convey key project messages, (iii) facilitating information sharing among key implementing partners, (iv) continuing field-level discussions with affected people, particularly at the dam/reservoir sites, and (v) supporting sub-projects to achieve visible results in cleaning up the Upper Bagmati (in conjunction with KVUEIP activities).

(iv) Addressing Local Needs and Desires

28. There will be local demands for employment, economic benefits, and security from the dam, deforestation, and environmental problems. For the Project to succeed it is important that priority is given to local people in jobs associated with the project (dam construction, monitoring, etc). A thorough needs assessment through interaction and discussion with all the concerned stakeholders will also help directly address those local demands. The Project also needs to keep in close contact with local leaders to increase the awareness among the concerned stakeholders regarding the safety of the dam. Much concern has been expressed over the proposed dam and reservoir. The local people want to know the consequences of a dam failure for people living downstream and they also want assurances regarding proper safety around the dam and reservoir so people won't fall in. Planting trees and reducing the cutting of trees will also address local demands, as will specific environmental remediation measures.

(v) Developing National and Local Political Consensus

29. Local groups are concerned that political processes will interfere with the award of economic benefits and positive impacts to the local populace. Therefore, a national and local level advocacy program might be needed to ensure that benefits do accrue to the local communities. Government policies should stress that ownership of the Project goes to locals.

(vi) Ensure Sense of Ownership of Project to Stakeholders in Upper Bagmati

30. Developing a sense of ownership could best be accomplished by providing livelihood opportunities through income generating activities to local stakeholders (park villages, etc.).

c. Gender Action Plan

31. The project will adopt a "promotion of equality" through affirmative discriminatory strategy to include women, the poor and excluded groups during stakeholders (right holders) consultation on project activities at community level and explain to them about the potential impacts of the project in their livelihood and wellbeing, by carrying out a GAM (Gender Analysis Matrix) exercise.
32. GAM is a rapidly conducted gender analysis matrix exercise where they can assess and analyse how BRBIP could impact on their "time, labour, resources and culture" for women, men and children differently, also at household and community level. They will be empowered through this exercise to visualize impacts which will also motivate them for participation.
33. The exercise will help BRBIP to plan activities in a way so that project impacts do not create any negative impact on women's and poor and excluded groups' time, labour, resources and culture, rather makes a positive impact.
34. Moreover, the BRBIP project implementation staff will have to be equipped with GESI operational skills first to make women's participation happen in BRBIP, by ensuring through policy provision during formation of users groups.
35. The project will organize orientation to the staff and partner implementing NGOs on BRBIP GESI aims and the operational strategy, containing potential actions and measuring (monitoring) indicators.
36. Thus capacity building on GESI concept and skills will be done at two level, community and project staff level. While doing this activity at staff and partner NGO level, the responsible counterpart government agencies will also be included for capacity building so that a common understanding about GESI realities and approach is internalized within the responsible institution for sustaining the processes, activities, institutions initiated or strengthened by BRBIP.
37. A BRBIP- GESI action plan will be developed through wider consultation among relevant GON agencies, including Ministry of Water Resources and Irrigation, Ministry of Local Development, NGOs working with Water Users Association, NGOs working in climate change and environmental protection, especially on improving river basins of Bagmati Watershed areas.
38. The BRBIP GESI Action Plan will be implemented and monitored through a coordinated effort among BRBIP, GON counterpart and implementing NGO partners.
39. The lessons thus learned on GESI interventions in BRBIP will be assessed periodically and evaluated at the end of the project; will be documented and disseminated for improving GON policy on GESI mainstreaming in water resources and irrigation management.
40. The design and implementation of project activities will ensure that
 - (i) All kinds of "user's associations and committees formed will have at least 33% women's representation including proportionate representation from socially excluded groups;
 - (ii) Gender analysis will be carried out among sample users groups in each of river basin areas in order to identify and assess the existing power relationship between gender and caste groups and build up GESI sensitive intervention plans

- so that the target communities can be appropriately enabled to access the development benefits brought by the BRBIP intervention;
- (iii) Employment generation through the construction and rehabilitation of irrigation systems will ensure equal pay for equal value of work for both men and women;
 - (iv) Special attention will be given to seek views and feedback from women, poor and excluded communities;
 - (v) Community based organizations/nongovernment organizations will be included in project implementation level consultation process so that the design features have the advocacy potential to maximize the benefits reaching women, poor and excluded;
 - (vi) Prioritization of projects will consider the needs and demands of women, poor and excluded and that are located in geographically remote and excluded;
 - (vii) River training and watershed management related trainings will ensure participation of women, poor and excluded groups;
 - (viii) For sustainability of project activities and results on GESI impact, from the very beginning, coordination will be established and promoted by registering the groups with the relevant public service agencies, micro finance Institutions, market networks and local NGOs.

d. Solid Waste Management

- (i) Update existing bye-laws and guidelines to incorporate internationally best and nationally appropriate practices of solid waste management and ensure its effective implementation:**

41. Kathmandu Valley Town Development Committee has developed a guideline entitled “Standard on Physical Development within urbanizing VDC and municipalities of Kathmandu Valley 2007”. This guideline defines engineering design standards for building construction including sewerage options and open space requirements. It also sets guideline for landpooling and apartment housing. The current guideline does not include any provisions for promoting best management practices on SWM like composting and waste segregation at household, institution and community levels. This component will update the existing guideline to include the best practices on solid waste. One of the objectives of updating the guideline is to promote concept of eco-friendly homes which adopts best practices of solid waste, storm water and waste water in an integrated manner. The guideline will be developed with technical support from Solid Waste Management Technical Support Center under the provisions of Solid Waste Management Act 2011. Implementation of the bye-laws will be done by local bodies (municipalities and VDC).

- (ii) Capacity development of local bodies and other stakeholders for effective management of solid waste:**

42. This component will carry activities to strengthen the capacity of local bodies i.e. VDC and municipal wards and other stakeholders like CBO, NGO and interested groups to better manage solid waste within their jurisdiction. These activities include (i) training on effective administration and management of solid waste as per the newly constituted SWMA 2011, (ii) training on 3R principles of SWM including individual and community level composting, (iii) development of guidebook and manual on effective SWM, (iv) supporting local bodies to install waste collection bins where necessary, and (v) conduct excursion visits.

(iii) Developing a strong monitoring and enforcement mechanism against solid waste dumping along river banks:

46. SWMA 2011 strongly prohibits solid waste dumping in undesignated open space including river banks. The Act authorizes local bodies to impose fines and other penalty for anyone dumping waste in open space. This component will develop a strong monitoring and enforcement framework to oversee solid waste dumping along river banks and ensure its effective implementation. The monitoring mechanism can be developed by engaging local bodies, clubs, CBO, NGO, local police, community groups and greenbelt park management committee (where it has been formulated). This component shall support the monitoring group with necessary trainings and other components required to ensure effective monitoring.

(iv) Promoting best practices of solid waste management at household and community levels along river banks:

43. This component will promote best practices of SWM (3R principle) which includes source segregation, individual and community level composting, and effective recycling. This component will provide subsidy to source segregation bins (to separate compostable and non-compostable waste) and to individual and community level composting bins/plants. Lessons will be learnt from similar existing programs being carried out by NGO/CBO and municipalities. Innovative awareness programs will be launched to raise awareness and create demand for adoption of best practices. Subsidy will be provided through local bodies (KMC, VDC) under technical support of SWMTSC (a national level technical support center of GON) and HPCIDBC. The awareness program will be launched in schools, local community and other places as necessary. Training programs will incorporate strong follow-up activities to effective adoption of SWM practices.

B. Implementation Arrangement

44. Three NGO packages (contracts) will be awarded to national NGOs with the relevant experience, expertise and capacity. All packages will be awarded through a quality-based selection method from qualified NGOs.

NGO Forum for Water and Sanitation (NGOFWS) is an umbrella body of civil society organizations actively working in water supply and sanitation issues. NGOFWS is seen as an appropriate candidate among others for implementing RWH component because it can utilize the technical and managerial human resources of multiple organizations within their network who working in the field of rainwater harvesting in Nepal. In addition, NGOFWS has previous experience working on RWH project of UNHABITAT Water for Asian Cities. Under the program which was launched in 2006, the organization has conducted technical trainings on rainwater harvesting installation, installed RWH in schools and government buildings as demonstration sites, and carried massive awareness raising programs.

45. The selected NGOs will be supervised and work closely with the Project Management Design and Supervision Consultants (PMDSC) and the related experts, in particular, the Social Development and Gender Specialist and the Watershed Management/Wetland Specialist.

C. Summary of Inputs

National Specialists	months
Package 1- Watershed Management	
Watershed Specialist	6
Community mobilization specialist	12
Sanitation specialist	2
Agriculture specialist (organic farming)	6
Renewable Energy Specialist	2
Support staff including community organizers	12
Total	40
Package 2- Rainwater Harvesting (RWH)	
RWH Specialist	12
Support staff	6
Total	18
Package 3- Community Awareness, Gender, Community Strategy (CS) and Solid Waste Management (SWM)	
Community Mobilization Specialist	12
Communication Specialist	12
Gender Specialist	12
Solid Waste Management Specialist	6
Community Mobilizers	24
Support staff	12
Total	78

1. Package 1- Watershed Management

46. Watershed Specialist (6 person-months). The Watershed Management Specialist shall have a university degree in environment, watershed management, natural resources management or related field and a minimum of 5 years of relevant experience in watershed management. The specialist shall have proven experience in working with and mobilizing local communities to undertake watershed management activities and national park and buffer zone management. S/he will, on behalf of the selected NGO, assist the Project Coordination and Management Unit (PCMU) to carry out the following:

- (i) Support for declaration of the SNNP buffer zone covering the settlement areas of Mulkharka, Chilaune, Kunegaun and Okhreni which includes consultations, needs assessment and preparation of a buffer zone management plan;
- (ii) Support to form various committees (user groups and management committees) and strengthening these institutions for good governance, conducive environment for biodiversity conservation;
- (iii) Training and demonstration/awareness programs to educate the stakeholders such as National Park staff, army personnel, user groups, local people etc. regarding the consequences of watershed degradation and benefits of well-managed watershed and buffer zones (30 events);
- (iv) Training and demonstration activities alternative income generation activities;
- (v) Implementation of slope stabilization activities through community afforestation with distribution of fruit saplings to at least 25 households in the watershed area and fruit trees distribution to farmers in 12.5 ha of community land/park areas and other relevant activities

- (vi) Coordinate and work with other specialists like Sanitation Specialist, Agriculture Specialist and Renewable Energy Specialist to carry out activities and training/demonstration on improved cook stoves, organic farming and improved waste water and solid waste management; and
- (vii) Any other activity required to enhance watershed management.

47. **Community Mobilization Specialist (12 person-months).** The Community Mobilization Specialist shall have an university degree in social science, rural development or relevant field and a minimum of 5 years of experience in community mobilization. The specialist shall have proven experience in working with and mobilizing local communities. S/he will, on behalf of the selected NGO, work closely with and support the Watershed Management Specialist to carry out the following:

- (i) Formation of various committees (user groups and management committees) for buffer zone management covering Mulkharka, Chilaune, Kunegaun and Okhrenei settlements and strengthen these institutions for good governance, conducive environment for biodiversity conservation; and
- (ii) Any other activity necessary to mobilize local communities to establish the SNNP buffer zone.

48. **Agriculture Specialist (organic farming) (6 person-months).** The Agriculture Specialist shall have an university degree in agriculture or relevant field and a minimum of 5 years of experience in promoting and implementing organic farming. The specialist shall have proven experience in working with local communities/farmers. S/he will, on behalf of the selected NGO, work closely with and support the Watershed Management Specialist to carry out the following:

- (i) Training and demonstration of organic farming and eco-tourism activities (30 households) in proposed buffer zone area covering the four settlements;
- (ii) Training and demonstration on agriculture related alternative income generation activities; and
- (iii) Any other activity necessary to promote and implement organic farming and eco-tourism.

49. **Sanitation Specialist (2 person-months).** The Sanitation Specialist shall have an university degree in civil engineering, water supply and sanitation, environment or relevant field and a minimum of 5 years of experience in water supply and sanitation (WATSAN). The specialist shall have proven experience in working with local communities and in rural areas. S/he will, on behalf of the selected NGO, carry out the following:

- (i) Training and demonstration (100 households) in the four settlements on eco-friendly toilets and waste management;
- (ii) Design and plan a program with subsidies to upscale the demonstration schemes in the four settlements to help these settlements in adopting eco-friendly household toilets and solid waste management; and
- (iii) Any other activity necessary to promote and implement eco-friendly household toilets and waste management systems.

50. **Renewable Energy Specialist (2 person-months).** The Renewable Energy Specialist shall have a university degree in renewable energy with a minimum of 5 years of experience in biomass energy and in particular promoting and installing improved cooked stoves in rural communities. The specialist shall have proven experience in working with and mobilizing local communities. S/he will, on behalf of the selected NGO, assist the Project Coordination and Management Unit (PCMU) to carry out the following:

- (i) Promote alternative renewable energy use to displace the use of traditional cook stoves that have huge health benefits to communities as well as to reduce/stop use of fuel wood;
- (ii) Promote and train/demonstrate the use of Improved cook stoves in at least 250 households in the watershed area; and
- (iii) Any other activity required to promote the use of renewable energy source that enhance watershed management.

2. Package 2- Rainwater Harvesting

51. **Rainwater Harvesting (RWH) Specialist (12 person-months).** The RWH shall have a university degree in relevant field with a minimum of 5 years experience working in promoting and installing rainwater harvesting and ground water recharge systems. The specialist shall have proven experience in working with and mobilizing local communities to undertake rainwater harvesting activities. S/he will, on behalf of the selected NGO, will work with the Legal Specialist (RWH/SWM) and assist the Project Coordination and Management Unit (PCMU) in the promotion of rainwater harvesting from Gokarna to Guheshworu area and to carry out the following:

- (i) Reformulation of by-laws to make the construction of rain water harvesting system mandatory in the new buildings;
- (ii) Manage the provision of subsidies to encourage the installment of RWH systems including implementation of RWH systems in 2,500 households;
- (iii) Encourage schools and government buildings to install rainwater harvesting system as these organizations are good places for raising mass awareness on RWH system including implementation of demonstration schemes in 5 public schools and 5 private schools;
- (iv) Conduct capacity building training programmes to train sub engineers, engineers, architects, plumbers, students and housewives to impart knowledge on different aspects of RWH systems from installation to O&M (30 events);
- (v) Establish a help desk for providing technical backstopping and related technical materials to the people for installation of RWH systems including extension and education programs;
- (vi) Establish demonstration sites to provide practical knowledge on different components, functioning, installation, operation and maintenance of the RWH systems;
- (vii) Produce and distribute different materials such as brochures, guidelines etc on RWH system and conduct Radio and TV programmes to disseminate the RWH technology, installation and its advantages to the people;
- (viii) Carry out post-field follow-up program on perriodic basis to evaluate the effectiveness of RWH system program in the project area; and
- (ix) Any other activity required to enhance RWH.

3. Package 3- Community Awareness, Gender Solid Waste Management and Communication Strategy

52. **Community Mobilization Specialist (12 person-months).** The Community Mobilization Specialist shall have a university degree in social science, rural development or relevant field and a minimum of 5 years of experience in community mobilization. The specialist shall have proven experience in working with and mobilizing local communities. S/he will, on

behalf of the selected NGO, work closely with the Social Development and Gender Specialist of the Project Coordination and Management Unit (PCMU) and assist to carry out the following:

- (i) Develop local institutional mechanisms to promote participation, coordination, and mobilization;
- (ii) Encourage Upper Bagmati environment improvement and community participation in maintaining the river environment through community awareness and mobilization to adopt river stretches, initiate "score card" system;
- (iii) Further develop the NGO platform proposed in the PPTA phase and form a suitable NGO Platform; and
- (iv) Any other activity to promote to community awareness, participation and ownership of the proposed Upper Bagmati River Improvement initiatives.

53. Communication Specialist (12 person-months). The Communication Specialist shall have a university degree in communications or relevant field with a minimum of 5 years of experience working on communications with stakeholders including media, local communities, government and the private sector. S/he will, on behalf of the selected NGO, work closely with the Institutions Specialist of the Project Coordination and Management Unit (PCMU) and assist to carry out the following:

- (i) Assist in implementing the Stakeholder Communications Strategy (SCS) including development of local institutional mechanisms to promote participation, coordination and mobilization and further updating and implementing the SCS development during the PPTA
- (ii) Addressing local needs and desires;
- (iii) Develop national and local political consensus;
- (iv) Ensure sense of ownership of Project to stakeholders in Upper Bagmati; and
- (v) Any other activity required to implement the SCS.

54. Gender Specialist (12 person-months). The Gender Specialist shall have a university degree in Gender Studies or relevant field and a minimum of 5 years of experience in gender mainstreaming and implementation of Gender Action Plans The specialist shall have proven experience in working with and mobilizing local communities. S/he will, on behalf of the selected NGO, will work closely with the Social Development and Gender Specialist of the Project Coordination and Management Unit (PCMU) and assist to carry out the following:

- (i) Gender Analysis Matrix (GAM) exercise and develop/update the BRBIP Gender Equity and Social Inclusion (GESI) through wider consultations;
- (ii) Organize orientation to staff and implementing partners on GESI aims and the operational strategy;
- (iii) Conduct capacity building on GESI concept and skills at two levels, community and project staff level; and
- (iv) Any other activity to promote to GESI action plans.

55. Solid Waste Management (SWM) Specialist (6 person-months). The SWM Specialist shall have a university degree in relevant field with a minimum of 5 years experience working in solid wastes management. The specialist shall have proven experience in working with and mobilizing local communities. S/he will, on behalf of the selected NGO, will work with the Legal Specialist (RWH/SWM) and assist the Project Coordination and Management Unit (PCMU) in the promotion of solid waste management and to carry out the following:

- (i) Update existing bye-laws and guidelines to incorporate internationally best and nationally appropriate practices of solid waste management and ensure its effective implementation;

- (ii) Conduct capacity development of local bodies and other stakeholders for effective management of solid waste including trainings on solid waste management (6 events), organizing study tours to nearby community-based SWM systems (3 tours) and preparation of solid waste management manuals;
- (iii) Develop a strong monitoring and enforcement mechanism against solid waste dumping along river banks (including 6 trainings on M & E and preparation of support materials for M & E);
- (iv) Promote best practices of solid waste management at household and community levels along river banks through provisions of subsidy for composting bins, segregation bins, community level composting, awareness programs and pilot units in schools; and
- (v) Any other activity required to promote SWM.

56. The selected NGOs will provide qualified support staff and community mobilizers (NGO package) undertake the activities proposed in the TOR. Strong interpersonal relationship, experience in Nepal and fluency in spoken and written English as well as Nepali are required.