



## Nepal: Bagmati River Basin Improvement Project

Project Name	Bagmati River Basin Improvement Project																
Project Number	43448-013																
Country	Nepal																
Project Status	Active																
Project Type / Modality of Assistance	Grant Loan Technical Assistance																
Source of Funding / Amount	<table border="1"><tr><td colspan="2"><b>Grant 0367-NEP: Bagmati River Basin Improvement Project</b></td></tr><tr><td>Concessional ordinary capital resources / Asian Development Fund</td><td>US\$ 4.50 million</td></tr><tr><td colspan="2"><b>Loan 3057-NEP: Bagmati River Improvement Project</b></td></tr><tr><td>Concessional ordinary capital resources / Asian Development Fund</td><td>US\$ 25.50 million</td></tr><tr><td colspan="2"><b>TA 8500-NEP: Institutional and Legal Support for Improved Water Management Systems in Nepal and Formation of the Bagmati River Basin Organization</b></td></tr><tr><td>Multi-Donor Trust Fund under the Water Financing Partnership Facility</td><td>US\$ 500,000.00</td></tr><tr><td colspan="2"><b>TA 8500-NEP: Institutional and Legal Support for Improved Water Management Systems in Nepal and Formation of the Bagmati River Basin Organization (Supplementary)</b></td></tr><tr><td>Technical Assistance Special Fund</td><td>US\$ 500,000.00</td></tr></table>	<b>Grant 0367-NEP: Bagmati River Basin Improvement Project</b>		Concessional ordinary capital resources / Asian Development Fund	US\$ 4.50 million	<b>Loan 3057-NEP: Bagmati River Improvement Project</b>		Concessional ordinary capital resources / Asian Development Fund	US\$ 25.50 million	<b>TA 8500-NEP: Institutional and Legal Support for Improved Water Management Systems in Nepal and Formation of the Bagmati River Basin Organization</b>		Multi-Donor Trust Fund under the Water Financing Partnership Facility	US\$ 500,000.00	<b>TA 8500-NEP: Institutional and Legal Support for Improved Water Management Systems in Nepal and Formation of the Bagmati River Basin Organization (Supplementary)</b>		Technical Assistance Special Fund	US\$ 500,000.00
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Strategic Agendas	Environmentally sustainable growth Inclusive economic growth																
Drivers of Change	Governance and capacity development Partnerships																
Sector / Subsector	<b>Agriculture, natural resources and rural development</b> - Rural flood protection - Water-based natural resources management																
Gender Equity and Mainstreaming	Effective gender mainstreaming																

Description

The Bagmati River Basin Improvement Project aims to improve water security and resilience to potential climate change impact in the Bagmati River Basin. The project will complement ongoing efforts of the Government of Nepal and civil society to improve water management and the river environment in the Bagmati River Basin (BRB). The project will invest in forming a river basin organization with adequate capacity and decision support systems for integrated water resources management (IWRM). It will finance the construction of upstream water storage, riverbed oxygenating weirs, riverbank beautification, and community initiatives to improve the river environment in Kathmandu Valley

The impact will be increased water security in the BRB. The outcome will be improved river health and flood management. The project is the first attempt in Nepal to apply the concept and principles of IWRM since its adoption under the 2005 National Water Plan.

The project focuses on priority issues selected by the basin stakeholders from 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 has five outputs:

(i) Established systems and capacity for integrated and participatory river basin management. Activities include (a) provide legal and institutional strengthening for IWRM and formation of a river basin organization (RBO), (b) mobilize basin stakeholders, (c) build capacity for increasing RBO competence, (d) establish a central water resources information system including a decision support system and an operating water quality monitoring network, and (e) prepare a 15-year participatory integrated river basin master plan.

(ii) Improved riverbank environment in urban areas. Activities include (a) remove contaminated riverbed material; (b) construct weirs and provide phyto-remediation to enhance the river's self-cleaning capacity; (c) stabilize and beautify the riverbank; (d) mobilize, raise awareness, and build capacity of local government and communities for riverbank management and maintenance; and (e) collaborate with the private sector, which has expressed interest in setting up recreational businesses along the riverbanks through public private partnerships or finance maintenance as part of social corporate activities.

(iii) Increased water availability in the basin during the dry season and watershed conservation. Activities include (a) construct an 861,000 cubic meters (m<sup>3</sup>) Dhap dam and complete detail design of the 8 million m<sup>3</sup> Nagmati dam, (b) provide rooftop rainwater harvesting and groundwater recharge, and (c) implement upstream watershed management.

(iv) Functioning flood forecasting and early warning system for the Bagmati River Basin. Activities include (a) upgrade the existing flood forecasting system, (b) install a flood early warning system, and (c) increase community awareness and build capacity for flood response.

(v) Efficient project management with effective stakeholder communication. Activities include (a) establish competent project management and project implementation units, (b) undertake timely procurement and disbursement, and (c) implement the project communication strategy and monitoring.

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Project Rationale and Linkage to Country/Regional Strategy

The Bagmati River holds a special place in the national culture. It is considered as a holy river and counts many cremation ghats and temples of great cultural value along its bank that attracts scores of Hindu devotees from all over the world who traditionally purify themselves in the holy Bagmati waters. The Bagmati River Basin also has great economic importance as it plays a crucial role in meeting the water supply requirement of the country's capital city and downstream communities, as well as in sustaining irrigated agriculture in the Kathmandu Valley and along the basin.

The rapid and unplanned expansion of Kathmandu City has put tremendous pressure on the water resources of the Bagmati River Basin. In the absence of appropriate sewage collection and waste water treatment plants, the river has become the main collector drain. Solid waste deposited on the river banks also further deteriorates the river environment. Rapid urbanization has put tremendous pressure on the valley water supply distribution. During dry season, around 80% of the Bagmati River flow is diverted for domestic use leaving very little flow for irrigation and other sectors including environment. As demand could not be met from surface water, a large part is supplied from the groundwater table. The quantity extracted is estimated to be 4 to 5 times higher than the natural recharge and has caused the water table to retreat by to 35 meters (m) in only 20 years. The situation is further aggravated by (i) the conversion of the recharge areas into residential areas, (ii) lowering river stream and sand mining leading to riverbed deepening, and (iii) upstream catchment degradation. As it exits the city, the river is biologically dead and made of heavily polluted sewage water that potentially endangers the downstream water users' health. Aside from the problems inherited from Kathmandu, the middle reach of the basin with steep slopes and degraded watersheds is prone to severe landslides and floods which threaten both infrastructure and settlements, cause increased rural poverty and are the source of heavy sedimentation for the lower reach. In the lower reach, where the river enters the Terai plain, frequent floods and river bank erosion become the main threat to people's livelihoods. The 1993 flood alone claimed 789 lives, affected 30,200 people and caused tremendous damage to houses and public infrastructure. Similarly, potential exists to improve irrigation through the development of conjunctive groundwater use and more efficient irrigation technologies.

Competing and uncontrolled use of water in the basin has an increasing negative impact on its overall sustainable development. Plans to improve Kathmandu's water supply from the Bagmati River Basin sources were developed without consideration for downstream users and environmental flow. Flood protection works and irrigation development are also planned in isolation of other sector requirements. Similarly, discharge of urban waste water effluent, groundwater extraction, sand mining, and solid waste disposal in the river are not regulated. The strong civil society movement and the public's general interest in the restoration of the Bagmati River is potentially a strong asset for improving many of these fundamental problems. Strangely however, they were little considered in the planning and design of past projects intending to address the Bagmati River problems and consequently the expected beneficiaries had little ownership in their successful implementation.

To assist the Government in applying the participatory IWRM approach, the Asian Development Bank (ADB) approved in 2010 TA7547-REG: Supporting Investments in Water Security in River Basins, the objective of which is to (i) build consensus of the basin stakeholders on the possible mandate and structure of a river basin organization (RBO), (ii) build the capacity of stakeholders, (iii) support the formation of a RBO, and (iv) review and expand the Bagmati Action Plan, approved by the Government of Nepal in 2002. The regional technical assistance is being undertaken to prepare the ground for the Bagmati River Basin Improvement Project (BRBIP) and the Kathmandu Valley Urban Environmental Improvement Project (KVUEIP) that are for approval in 2013.

BRBIP together with KVUEIP, which will focus on waste water management, will build on investments that already contribute to improving water security in the basin. These include (i) two ongoing ADB/Japan International Cooperation Agency (JICA) -financed projects: Loan 1820-NEP: Melamchi Water Supply Project and Loans 2058/2059-NEP: Kathmandu Valley Water Services Sector Development Project amounting to \$331 million, and (ii) the ADB-financed \$130 million Kathmandu Valley Water Supply Project for approval in 2011. Yet, while these projects focus on water supply and waste water management, BRBIP takes a broader integrated approach that aims to resolve the overall basin water governance issue and ensure more equitable water management and development between upstream/downstream communities, rural/urban communities or between sectors. It will not only introduce IWRM and basin planning but will also address core rural water development issues and complement efforts to improve the river environment.

The Project is consistent with ADB's Nepal country partnership strategy, which aims to support Nepal's peace and development aspirations by promoting the four pillars: (i) broad-based and inclusive economic growth, (ii) inclusive social development, (iii) governance and capacity building, and (iv) climate change adaptation and environmental sustainability. The project is included in the Nepal country operations business plan (COBP) 2011-2013.

Impact	Improved water security in the Bagmati River Basin
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**Project Outcome**

Description of Outcome	Improved river health and flood management
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Progress Toward Outcome	Consultant has been selected and mobilized as of November 2015. Activities are ongoing.
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**Implementation Progress**

Description of Project Outputs	Established systems and capacity for integrated and participatory river basin management Improved riverbank environment in urban areas Increased water availability in the basin during dry season and watershed conservation Functioning flood forecasting and early warning system for the Bagmati River Basin Efficient project management with effective stakeholder communication
Status of Implementation Progress (Outputs, Activities, and Issues)	1) Consultant mobilized in November 2015 - Inception phase completed in June 2016 - Consultation with various stakeholders (Kavre, Sindhuli, Sarlahi Makwanpur & Rauthat) was done. Review of the existing information system & supplemental field survey for data validation is done. 2) Commencement of work & site handover for the Bagmati river beautification works was held on 13 Nov 2016. 3) The detailed design of the Dhap Dam has been submitted to the PIU (Irrigation Unit). The NGO for watershed management has submitted its inception report. 4) PCMU and PIUs established. Communication Strategy is implemented. Monitoring of achievement of project targets ongoing. 5) Rainfall Runoff Model developed divided into a large no. of smaller catchments. Hydrodynamic model version 1 developed using old cross-sections and DEM (satellite data). River cross-section surveys are conducted to upgrade the model version 1.

Geographical Location

### Safeguard Categories

Environment	A
Involuntary Resettlement	C
Indigenous Peoples	C

### Summary of Environmental and Social Aspects

Environmental Aspects	<p>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.</p> <p>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 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.</p> <p>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. Training will be provided to staff earmarked in these organizations. The estimated cost for implementing the EMP is \$ 132,500</p>
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.
Indigenous Peoples	No IP issues are foreseen to be addressed during the project implementation.

### Stakeholder Communication, Participation, and Consultation

During Project Design	The project was developed based on the Integrated Water Resources Management (IWRM) principle in which ultimate goal is to bring stakeholders to share a common vision of water resource management and development. The achievement of such a goal for the Bagmati River basin required intensive consultation with all the relevant stakeholders (government, non-government, civil societies, academicians, religious groups, private sector) in the form of workshops, focus group discussions (FGDs); technical task force meetings and meetings, which were done at the outset, since October 2010 by RETA 7547: Supporting Investments in Water Security in River Basins. Similar consultations were continued during the PPTA stage with and among various basin stakeholders towards consolidating support for the formation of river basin organization (RBO). There was close interaction between and among ADB, Water and Energy Secretariat (WECS), the High Powered Committee for Integrated Development of Bagmati Civilization (HPCIDBC), the consultants, and other basin stakeholders to create a an institutional proposal for the Bagmati river basin composed of a committee of individual specialists coming from water related governmental and civil society institutions.
During Project Implementation	A participation and institutional strategic plan has been firmed up for L3057/G0367-NEP: BRBIP for participation and institutional strategic plan. Seven key stakeholder, participation, and institutional strategies are envisaged for BRBIP including: (i) a Bagmati RBO (as noted above) that introduces and implements the objectives of 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.

## Business Opportunities

Consulting Services	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. 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. 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. 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.
Procurement	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) .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 (2010, as amended from time to time) . 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.

## Responsible Staff

Responsible ADB Officer	Cauchois, Arnaud M.
Responsible ADB Department	South Asia Department
Responsible ADB Division	Environment, Natural Resources & Agriculture Division, SARD
Executing Agencies	<i>Ministry of Urban Development Singhadurbar, Kathmandu, Nepal</i>

## Timetable

Concept Clearance	31 Oct 2013
Fact Finding	16 Apr 2013 to 26 Apr 2013
MRM	18 Jul 2013
Approval	31 Oct 2013
Last Review Mission	-

**Grant 0367-NEP**

Milestones					
Approval	Signing Date	Effectivity Date	Closing		
			Original	Revised	Actual
31 Oct 2013	06 Mar 2014	08 Apr 2014	29 Feb 2020	-	-

Financing Plan		Grant Utilization			
	Total (Amount in US\$ million)	Date	ADB	Others	Net Percentage
Project Cost	4.50	Cumulative Contract Awards			
ADB	4.50	31 Oct 2013	3.98	0.00	89%
Counterpart	0.00	Cumulative Disbursements			
Cofinancing	0.00	31 Oct 2013	2.22	0.00	49%

**Loan 3057-NEP**

Milestones					
Approval	Signing Date	Effectivity Date	Closing		
			Original	Revised	Actual
31 Oct 2013	06 Mar 2014	08 Apr 2014	29 Feb 2020	-	-

Financing Plan		Loan Utilization			
	Total (Amount in US\$ million)	Date	ADB	Others	Net Percentage
Project Cost	31.50	Cumulative Contract Awards			
ADB	25.50	31 Oct 2013	20.84	0.00	91%
Counterpart	6.00	Cumulative Disbursements			
Cofinancing	0.00	31 Oct 2013	5.88	0.00	26%

**TA 8500-NEP**

Milestones					
Approval	Signing Date	Effectivity Date	Closing		
			Original	Revised	Actual
31 Oct 2013	15 Apr 2014	15 Apr 2014	31 Oct 2016	31 Jul 2019	-

Financing Plan/TA Utilization						Cumulative Disbursements		
ADB	Cofinancing	Counterpart				Total	Date	Amount
		Gov	Beneficiaries	Project Sponsor	Others			
500,000.00	500,000.00	0.00	0.00	0.00	0.00	1,000,000.00	31 Oct 2013	159,168.69

Project Page <https://www.adb.org/projects/43448-013/main>

Request for Information <http://www.adb.org/forms/request-information-form?subject=43448-013>

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