

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets/ Indicators	Data Sources/ Reporting Mechanisms	Assumptions and Risks
<p>Impact</p> <ul style="list-style-type: none"> • Secure water supply to 12.5 million people living in Dhaka WASA supply area by 2015 • Reduced dependency on ground-water sources 	<ul style="list-style-type: none"> • 24 hour supply available to consumers • System losses are reduced to 20% • Sources satisfy design assumptions • Proportion of groundwater usage is reduced • Decline in groundwater table is stemmed 	<ul style="list-style-type: none"> • Monthly key indicator reports • Quarterly progress reports • PPME reports • ADB Mission reports 	<p>Assumptions</p> <ul style="list-style-type: none"> • System rehabilitation successful • Tariff system and awareness campaigns effective in reducing overall consumption • Project implementation is on schedule • Private / industrial extraction of ground-water is controlled <p>Risks</p> <ul style="list-style-type: none"> • Major deviation in existing condition • Large number of illegal connections • Resistance to making DWASA a commercial organization • Lack of political support
<p>Outcome</p> <ul style="list-style-type: none"> • Increased quantity and quality of water supply • Improved capacity to DWASA to plan, design, supervise, monitor, operate, manage and maintain the water supply investments • Improved understanding within community for need to conserve water • Improved management practices of autonomous organization 	<ul style="list-style-type: none"> • Water quality meets WHO guide-line recommendations • DWASA supplies consumers with on average 120 l/c/d water • DWASA carries out forward planning • Maintains network quality, particularly in relation to house connections and quality of materials • Uses bulk and consumer meter data to pinpoint system losses and takes action • Average consumption levels are steadily reducing • Households tackle issue of wastage within household premises • DWASA maintains control of staffing planning, finance and operations 	<ul style="list-style-type: none"> • Monthly key indicator reports • Quarterly progress reports • Annual summary reports • PPME reports • ADB Mission reports • Audit reports 	<p>Assumptions</p> <ul style="list-style-type: none"> • DWASA is pro-active with respect to groundwater management and production well replacement • Pollution control measures are taken to ensure that surface water quality is treatable to potable water standard • DWASA is receptive to the need to become a commercially viable organization • Political will creates an enabling environment for DWASA to provide quality service • Enhanced tariff covers O&M and debt servicing requirements and collection efficiency is achieved

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	<ul style="list-style-type: none"> • Billing and revenue collection efficiency is increased to 95% by end of project from current 62% 		<p>Risks</p> <ul style="list-style-type: none"> • Any one of the above is not effected putting the sustainability at risk
<p>Outputs - Component-A <i>Part A Network rehabilitation</i></p> <ul style="list-style-type: none"> • Rehabilitation and expansion of existing network • Replacement of existing lines • Rehabilitation of service connection • Installation valves and meters • Overhead tanks • Disinfection of groundwater 	<ul style="list-style-type: none"> • 1865 km pipelines 100 – 450 mm Ø are relined if needed using Trenchless technology • 425 km pipelines 100 – 300 Ø are replaced • 110 km pipelines 150 – 500 Ø are strengthened • 250,000 service connections are upgraded and made water tight • 420 bulk meters are installed between the different supply zones • 400 isolating valves are installed • 32 existing overhead tanks are rehabilitated • 18 new overhead tanks are constructed • 430 Disinfection units established at existing DTWs 	<ul style="list-style-type: none"> • Monthly key indicator reports • Quarterly progress reports • Annual summary reports • PPME reports • ADB Mission reports • As constructed drawings 	<p>Assumptions</p> <ul style="list-style-type: none"> • Contractors maintain efficient work program and have detailed logistical plan for supply of materials • Qualified workforce is available in the numbers required • Trenchless technology can be optimally employed • Authorities provide permits as required and without delay • Funding is available as and when required • Safeguards are in place and functioning • Field supervision is uncompromising on quality standards required <p>Risks</p> <ul style="list-style-type: none"> • Implementation arrangements are not maintained to schedule and quality standards are allowed to deteriorate
<p><i>Part B: Institutional development</i></p> <ul style="list-style-type: none"> • Transformation of DWASA 	<ul style="list-style-type: none"> • Legal framework rationalized • Commercial accounting systems in place • Billing and revenue collection computerized and effective • Performance related training programs in place and active • Remuneration system upgraded • Training and laboratory facilities 	<ul style="list-style-type: none"> • Monthly key indicator reports • Quarterly progress reports • Annual summary reports • PPME reports • ADB Mission reports 	<p>Assumptions</p> <ul style="list-style-type: none"> • Government is willing to give DWASA more autonomy • DWASA Board carries out its tasks • Commercial working environment is accepted • Staff cooperates in introducing stream-lined performance based organization • Government prepared to allow

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	upgraded and functional <ul style="list-style-type: none"> • Management systems functional and optimally used 		commercial remuneration package <ul style="list-style-type: none"> • Tariff structure takes into account the needs of all sections of the community and requirement to conserve water • Computerization is introduced in all sections of the organization • Training is effective Risks <ul style="list-style-type: none"> • Autonomy is not granted to DWASA • Attitude of staff does not change (business as usual) • Tariff increases not in accordance with requirements • Staff recruitment methods deviate from functional requirements
<i>Part C: Implementation support</i>	<ul style="list-style-type: none"> • Project management support consultancy is mobilized by 2 January 2008 • Institutional strengthening consultancy is mobilized • Support services of key persons overseeing institutional strengthening process contracted Feasibility study completed for surface water treatment plant in Khilkheth	<ul style="list-style-type: none"> • Quarterly progress reports • Annual summary reports • PPME reports • ADB Mission reports • Design reports Contract documents	Assumptions <ul style="list-style-type: none"> • Timely action and completion of procurement of consultancy services • DWASA staffs PMU and PIU's with dedicated and qualified staff on full time basis • Key persons engaged by ADB on direct appointment basis Risks <ul style="list-style-type: none"> • Loan conditionalities are not met in time, delaying the start of procurement and project, causing civil unrest for want of water
Outputs - Component-B, Network expansion and infrastructure rehabilitation Expansion of existing network	275 km pipelines 100 – 500 mm Ø are taken into unserved DWASA supply areas in 5 years	<ul style="list-style-type: none"> • Monthly key indicator reports • Quarterly progress reports 	Assumptions <ul style="list-style-type: none"> • Contractors maintain efficient work

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Rehabilitation of buildings and infrastructure	<ul style="list-style-type: none"> Water quality monitoring facilities established Zonal offices rehabilitated Training facilities strengthened 	<ul style="list-style-type: none"> Annual summary reports PPME reports ADB Mission reports As constructed drawings 	<p>program and have detailed logistical plan for supply of materials</p> <ul style="list-style-type: none"> Qualified workforce is available in the numbers required Trenchless technology can be optimally employed Authorities provide permits as required and without delay Funding is available as and when required Safeguards are in place and functioning Field supervision is uncompromising on quality standards required <p>Risks</p> <ul style="list-style-type: none"> Implementation arrangements are not maintained to schedule and quality standards are allowed to deteriorate
<p>Outputs - Component-C <i>Ring main distribution network expansion</i></p> <ul style="list-style-type: none"> Installation of clear water transmission mains 	<ul style="list-style-type: none"> 47 km pipelines 600 – 2400 mm Ø are laid and interconnected to the existing distribution network Necessary control systems are in place 	<ul style="list-style-type: none"> Quarterly progress reports PPME reports ADB Mission reports Design reports As constructed drawings 	<p>Assumptions</p> <ul style="list-style-type: none"> Synchronous completion with treatment plant works Network rehabilitation is completed <p>Risks</p> <ul style="list-style-type: none"> Completion is delayed Safeguards are not adhered to
<p>Outputs - Component-D <i>Surface water source development</i></p> <ul style="list-style-type: none"> Raw water intake structure Raw water transmission main 	<ul style="list-style-type: none"> Intake located near Kanchon Bridge on the Lakhya river Main located along Progati Sharani – Kanchon Bridge link road and 	<ul style="list-style-type: none"> Quarterly progress reports PPME reports ADB Mission reports Design reports 	<p>Assumptions</p> <ul style="list-style-type: none"> Funding source can be obtained through private party involvement under BOOT arrangements

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<ul style="list-style-type: none"> 500 Mld water treatment facility 	safeguards are implemented <ul style="list-style-type: none"> Located on suitable site in Khilkhet 	<ul style="list-style-type: none"> As constructed drawings 	<ul style="list-style-type: none"> Guarantor to sales is agreed ADB will finance if PP cannot be found as plant is essential for Dhaka population Risks <ul style="list-style-type: none"> Lack of PP interest Safeguards are not adhered to
Outputs – Component-E <i>Supply augmentation</i> <ul style="list-style-type: none"> New production wells installed Stand-by generators installed 	<ul style="list-style-type: none"> 50 production wells are installed taking water from the deeper aquifer Maximum of 200 stand-by generators are installed to insure continuous power supply to the production wells 	<ul style="list-style-type: none"> Monthly key indicator reports Quarterly progress reports Annual summary reports PPME reports ADB Mission reports 	Assumptions <ul style="list-style-type: none"> DWASA has compiled production well and groundwater decline data and determined which tubewells will go out of action when Locations for deep production wells are agreed within DWASA prior to loan effectiveness Risks <ul style="list-style-type: none"> Groundwater table decline increases more rapidly and the aquifer is permanently damaged
Outputs - Component-F <i>Surface water source development</i> <ul style="list-style-type: none"> Pretreatment facilities 	<ul style="list-style-type: none"> Located at Saidabad 	<ul style="list-style-type: none"> Quarterly progress reports PPME reports ADB Mission reports 	Assumptions <ul style="list-style-type: none"> Funding source can be obtained from Danida
<ul style="list-style-type: none"> 225 Mld water treatment facility 	<ul style="list-style-type: none"> Located at Saidabad 	<ul style="list-style-type: none"> Design reports As constructed drawings 	<ul style="list-style-type: none"> ADB will finance new raw water transmission main from Meghna if needed for proper functioning of treatment plant Risks <ul style="list-style-type: none"> Intake water quality is deteriorating at a faster rate due to uncontrolled discharge of sewage in tributaries

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Activities with Milestones - Component A <ul style="list-style-type: none"> • PMU established and fully staffed, and PICC established immediately after loan signing. • PIU offices established and staffed by 2 January 2008 • Project and TA consultants in field by 2 January 2008 • Pre-qualification of International contractors started in month 2 • Supply contract for water meters called in month 3 • Feasibility study for Khilkhet surface water treatment plant initiated by month 3 • Contract documentation 1st contract for rehabilitation works completed by end of month 6 • Contract documentation 2nd contract for rehabilitation works completed by end of month 18 			Inputs Component A <ul style="list-style-type: none"> • ADB: \$165 million • GoB: \$46 million •

ADB = Asian Development Bank, BBS = Bangladesh Bureau of Statistics, GOB = Government of Bangladesh, HRD = Human Resource Development, WTP = Surface Water Treatment Plant, NGO = nongovernmental organization, OHT = Overhead Tank, PCR = Project Completion Report, PICC = Project Implementation Coordination Committee, PIU = Project Implementation Unit, PLC = Public Limited Company, PMU = Project Monitoring Unit, PPME = Project Performance Monitoring and Evaluation, ROW = right of way, SDP-WSSB = Sector Development Programme-Water and Sanitation Sector of Bangladesh, WSS = water supply and sanitation.