添付資料 4.64

2018 年春期研修「Business Planning」で作成されたアクションプラン

OVERVIEW OF WASA FAISALABAD

FAISALABAD CITY IS SITUATED ON FLAT TOPOGRAPHY WHICH NOT ALLOW DISPOSAL OF SEWERAGE AND STORM WATER FROM THE CITY THROUGH GRAVITY FLOW.

FOR THIS PURPOSE MULTI STAGE PUMPING IS FREQUENTLY PERFORMED BY TH WASA FAISALABAD

1 **SEWERAGE SERVICES**

DISPOSAL STATION	34
POPULATION SERVED	2.23 M
LENGTH OF SEWERAGE SYSTEM	1711km
MAIN CHANNEL LENGTH	62km
GENERATED SEWERAGE WATER	280MDG
DOMMESTIC CONNECTIONS	127972
COMMERCIAL CONNECTIONS	18808
INDUSTRIAL CONNECTIONS	904
WASTE WATER TREATMENT PLANT CAPACITY	20MDG

OVERVIEW OF WASA FAISALABAD

2 **WATER SERVICES**

PROVIDE SAFE AND HEALTHY WATER IS ONE OF THE MAJOR FUNCTION OF WASA FAISALABAD

UNFORTUNATELY THE GROUND WATER OF CITY FAISALABAD QUITE SALINE, HENCE NOT ACCEPTABLE FOR HUMAN INTAKE.IN ABSENTECISM OF PROPER SWEET WATER SOURCES THE WASA FAISALABAD HAS TO PUMP AND BRING SWEET FROM THE CITY DISTRICT CHANIOT

CHANIAB RIVER

DRAWS WATER FROM CHANIOT	56MDG	
NO.OF TUBEWELLS RESERVIOR(TR)	29	LOCATED 27 KM AWAY FROM TERMINAL

JHUNG BRANCH

DRAWS WATER	20MDG	
NO. OF TUBEWELLS	25	LOCATED 13 KM AWAY FROM TERMINAL RESERVIOR(TR)

RAKH BRANCH CANAL

DRAWS WATER	8MDG

OVERVIEW OF WASA FAISALABAD

WATER WORKS	
MILLAT TOWN +JAHAL KANUWANA	4.5MDG
DOMMESTIC CONNECTIONS	110000
COMMERCIAL CONNECTIONS	2348
INDUSTRIAL CONNECTIONS	92
INDUSTRIAL AQF	443

Vision Statement
Mission Statement

Vision Statement

TO BE AN EXTRAORDINORY SERVICE PROVIDER FOR THE CITIZEN OF FAISALABAD AND THEREAFTER TO BE THE CENTER OF EXCELLENCE IN WATER AND SEWERAGE SECTOR OF THE COUNTER.

Mission Statement

TO MAKE OUR COUSTOMERS FEEL WELCOME ,APPRICIATED AND WORTHY OF OUR BEST EFFECTS IN EVERYTHING WE DO FOR PROVIDING WATER SUPPLY SEWERAGE AND DRAINAGE SERVICES.

SWOT Analysis

Strengths (S)
1.PROVIDE WATER SUPPLY AND SEWERAGE SERVICES IN FAISALABAD
2.GOOD GOVERNANCE
3.SKILLED MANPOWER
4.PLANNING AND DESIGN.(ENGERNNING)
5.ADVANCE TECHNOLOGY(EQUIPMENT)
6.COUSTOMER RELATION CENTER

SWOT Analysis

Weaknesses (W)		
1.NATURAL SOURCE OF WATER		
2.NO GRAVITY BASED SEWERAGE SYSTEM		
3.DAMAGER WARER SUPPLY/SEWERAGE PIPE LINES		
4.DELAY IN DEVELOPMENT WORK		
5COULD NOT GENERATE ENOUGH REVENUE.		
6.BILLING OUTSOURCING.		
7.POLITICAL INTERFARANCE		
8.OUTDATED DATABASE		
9.SHORTAGE OF STAFF		
10.LOW CAPACITY OF ENFORCEMENT		

SWOT Analysis

Opportunities (O)
1.SURVAY OF LAND FOR WATER&SEWERAGE
2.WATER AND SEWERAGE SERVICES FOR CATCHMENT AREAS OF FAISALABAD.
3.SKILLED STAFF FOR REVENUE COLLECTION.
4.AWARENESS OF CONSUMERS.
5.LIMITATIONS TO ATTEND CONSUMER COMPLAINTS.

SWOT Analysis

Threats (T)
1.LOW BUDGET
2.HIGH DEMAND OF WATER SUPPLY AND SEWERAGE SERVICES
3UN-SATISFIED CONSUMERS
4.POLITICAL INFULANCE
5.COMMUNICATION GAP WITH OTHER DEPARTMENTS

Costing and Budgeting

WASA	Tasks	Cost Year 1	Cost Year 2	Cost Year 3	Total Cost
WASA FAISALABAD	Sewerage line laying in Al-Masoom Town	80	90 Million	30Million	200 Million
	Peak Unit Consumption (PKR M)	0.5	0.13	0.1	0.1
	MDI Unit Consumption (PKR M)	-	-	-	-
	Power Factor Penalty (PKR M)	6.3 M	5 M	8 M	19.3 M
	Non-Revenue Water (%)	6 M	10M	18M	34M

Service Improvement

Type	Base Line			Target A		
	A (Length) (m)	A (Length) (m)	A (Length) (m)	Y 1 (Length) (m)	Y 2 (Length) (m)	Y 3 (Length) (m)
Sewerage	1,400	1,200	1,000	1,400	1,200	1,000
				39%	34%	27%

Collection Efficiency (GAP Analysis & Target Setting)

			Target		
Indicator	Unit	Current Status	2018-19	2019-20	2020-21
Collection Efficiency (Physical)	%	45%	55%	60%	72%
Collection Efficiency (Financial)	%	30%	45%	50%	58%

Financial Evaluation of sewerage line laying in Al-Masoom Town					
	Assumptions/ inputs		**Monthly (Rs.)**	**Annual (Rs.)**	
Investment to Providing and laying Sewer line	200,000,000				
Rvenue collection per month	300		2,250,000	27,000,000	
working days per month	30		30	360	
New connections	4000x5500			220,000,000	
Rvenue collection per month from industries	28,000		224,000	2,688,000	
saving of Electricity bills			400000/M	4,800,000	
Total Revenue			2,474,030	254,488,000	
workers' salary	1,600,000		1,600,000	9,600,000	
Machinary	25,000		750,000	9,000,000	
transportation	1,000		30,000	360,000	
laying of pipe line	10Mx6500/M		30	23,400,000	
Total expenditure				42,360,000	
Surplus/ (Loss)				**212,128,000**	
Description	Years				
	0		**1**	**2**	**3**
Initial Investment		-200000000			
Annual Surplus/ (Loss)			212128000	212128000	212128000
Cashflows		-200000000	212128000	212128000	212128000
NPV @ 12%		309495663			
IRR		91%			

Performance Improvement Plan.

		3 YEARS				
Sr. #	**Areas of Improvement**	**Action Plan**	**Location**	**Budget**	**Responsible staff/ Supervision**	**Timeline**
1 YEAR	SEWERAGE FACILITY(FORCE MAIN)	SURVAY COORDINATION WITH OTHER DEPARTMENTS RE-ROUTING LAYING OF SEWER LINE MAKING CHAMBEER MAKING CONNECTIONS OF CONSUMERS INSTALLATION OF PUMPS INSTALLATION OF TRANSFORMERS MAKING VENT SHAFT	AL-MASOOM TOWN	80M	DIRECTOR (O&M)	1 YEAR
		RE-ROUTING				1 YEAR

Communication and Customer Service Improvement Plan

Issues	Strategy	Responsibility	Start Date	End Date	KPIs
BUDGET	DONNERS	MANAGEMENT	N/A		
TABLE TALK	TABLE TALK WITH INDIVISUAL AND IN GROUPS	R/O FIELD STAFF	DAILY BASIS		
AWARENESS	BANNERS	FIELS STAFF+IT DEPARTMENT	DAILY BASIS		
SMS	THROUGH MOBILE	IT DEPARTMENT	DAILY BASIS		
PHONE CALLS	THROUGH MOBILE	IT DEPARTMENT	DAILY BASIS		

Action Plan for Improvement of Outdated Consumer Database

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1	ILLEGAL CONNECTIONS	SURVAY	THIRD PARTY+FIELD STAFF	2-Feb-18	2-Feb-19	INCREASE NO. OF PAYEES
2	CATCHMANT AREAS	SURVAY	THIRD PARTY+FIELD STAFF	3-Feb-18	3-Feb-19	INCREASE REVENUE
3	SHORTAGE OF STAFF	THIRD PARTY	THIRD PARTY	4-Feb-18	4-Feb-19	INCREASE REVENUE

Action Plan for Improvement in Bill Distribution and Receipt

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1	Delayed of Delivery	Third Party(Timely distribution)	Directors	30-01-2018	30-02-2018	TIMELY PRINTING AND DISTRIBUTION
2	Confirmation	SMS Alert, Automatic Calls	IT Deparment	Daily Basis	One Month	
3	Online Printing	Duplicate Bills	IT Deparment	Daily Basis	24 hour	GOOD PERFORMANCE

Action Plan for Additional Sources of Revenue

Sr. No.	Sources	Strategy	Responsibility	Start Date	End Date	KPIs
1	RENTAL INCOME	RENTOUT ASSETS	MANAGEMENT	AS PER REQUIRMENT		INCREASE REVENUE
2	ADVERTISMENT	BANNERS	MANAGEMENT	AS PER REQUIRMENT		INCREASE REVENUE
3	SERVICES	IN PRIVATE COLONIES	MANAGEMENT	AS PER REQUIRMENT		INCREASE REVENUE
4	BOTTLE WATER	INSTALLATION OF WATER PLANTS	MANAGEMENT	AS PER REQUIRMENT		SAFE DRINKING WATER
5	TESTING	WATER TESTING LABS	MANAGEMENT	AS PER REQUIRMENT		ACCURACY

OVERVIEW OF WASA FAISALABAD

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NO. OF TUBEWELLS 25 LOCATED 13 KM AWAY FROM TERMINAL RESERVIOR(TR)

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INDUSTRIAL AQF	443

WASA FAISALABAD

Business Plan

For FY 2018-21

- Vision & Mission Statements

Vision Statement

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WASA FAISALABAD

Business Plan

For FY 2018-19 to FY 2020-21

- SWOT Analysis

Internal Factors	
Strengths (S)	**Weaknesses (W)**
1.PROVIDE WATER SUPPLY AND SEWERAGE SERVICES IN FAISALABAD	1.NATURAL SOURCE OF WATER
2.GOOD GOVERNANCE	2.NO GRAVITY BASED SEWERAGE SYSTEM
3.SKILLED MANPOWER	3.DAMAGER WARER SUPPLY/SEWERAGE PIPE LINES
4.PLANNING AND DESIGN.(ENGERNNING)	4.DELAY IN DEVELOPMENT WORK
5.ADVANCE TECHNOLOGY(EQUIPMENT)	5COULD NOT GENERATE ENOUGH REVENUE.
6.COUSTOMER RELATION CENTER	6.BILLING OUTSOURCING.
	7.POLITICAL INTERFARANCE
	8.OUTDATED DATABASE
	9.SHORTAGE OF STAFF
	10.LOW CAPACITY OF ENFORCEMENT
Opportunities (O)	**Threats (T)**
1.SURVAY OF LAND FOR WATER&SEWERAGE	1.LOW BUDGET
2.WATER AND SEWERAGE SERVICES FOR CATCHMENT AREAS OF FAISALABAD.	2.HIGH DEMAND OF WATER SUPPLY AND SEWERAGE SERVICES
3.SKILLED STAFF FOR REVENUE COLLECTION.	3UN-SATISFIED CONSUMERS
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5.LIMITATIONS TO ATTEND CONSUMER COMPLAINTS.	5.COMMUNICATION GAP WITH OTHER DEPARTMENTS
External Factors	

WASA FAISALABAD

Business Plan

For FY 2018-2021

Annex D: GAP Analysis & Target Setting of Key Performance Indicators (KPIs)

Conditional Assessment

WASA	Gaps	Base Line		Target Year 1		Target Year 2		Target Year 3	
		Poor D	Fair C	Poor D	Fair C	Poor D	Fair C	Poor D	Fair C
WASA FAISALABAD	Sewerage line laying in Al-Masoom Town	10	6	7	4	4	2	1	0
	Disposal	21%	64%	15%	45%	10%	30%	0.02	0.1

Costing and Budgeting					
WASA	**Gaps**	**Base Line**	**Target Year 1**	**Target Year 2**	**Target Year 3**
WASA FAISALABAD	Peak Unit Consumption (PKR M)	0.5	0.13	0.1	0.1
	MDI Unit Consumption (PKR M)	-	-	-	-
	Power Factor Penalty (PKR M)	0.5	15%	15%	10%
	Non-Revenue Water (%)	40%	30%	15%	5%

Costing and Budgeting					
WASA	Taks	Cost Year 1	Cost Year 2	Cost Year 3	Total Cost
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Service Improvement

Type	Base Line			Target A		
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Sewerage	1,400	1,200	1,000	1,400	1,200	1,000
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			Target		
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Collection Efficiency (Financial)	%	30%	45%	50%	58%

Financial Evaluation of sewerage line laying in Al-Masoom Town

	Assumptions/ inputs	Monthly (Rs.)	Annual (Rs.)

A. Review and Rationalization of Assumptions:

Initial Investment:

Investment to Providing and laying Sewer line	200,000,000		

Revenue:

Rvenue collection per month	300	2,250,000	27,000,000
working days per month	30	30	360
New connections	4000x5500		220,000,000
Rvenue collection per month from industries	28,000	224,000	2,688,000
saving of Electricity bills		400000/M	4,800,000
Total Revenue		2,474,030	**254,488,000**

Expenditures:

workers' salary	1,600,000	1,600,000	9,600,000
Machinary	25,000	750,000	9,000,000
transportation	1,000	30,000	360,000
laying of pipe line	10Mx6500/M	30	23,400,000
Total expenditure			**42,360,000**
Surplus/ (Loss)			212,128,000

B. Annual Cashflows:

Description	Years			
	0	1	2	3
Initial Investment	-200000000			
Annual Surplus/ (Loss)		212128000	212128000	212128000
Cashflows	-200000000	212128000	212128000	212128000

C. Financial Appraisal

NPV @ 12%	309495663
IRR	91%
BCR	2.55

WASA FAISALABAD

Business Plan

For FY 2018-21

Performance Improvement Plan.

		3 YEARS				
Sr. #	**Areas of Improvement**	**Action Plan**	**Location**	**Budget**	**Responsible staff/ Supervision**	**Timeline**
1 YEAR	**SEWERAGE FACILITY(FORCE MAIN)**	SURVAY COORDINATION WITH OTHER DEPARTMENTS RE-ROUTING LAYING OF SEWER LINE MAKING CHAMBEER MAKING CONNECTIONS OF CONSUMERS INSTALLATION OF PUMPS INSTALLATION OF TRANSFORMERS MAKING VENT SHAFT	**AL-MASOOM TOWN**	**80M**	**DIRECTOR (O&M)**	**1 YEAR**
2ND YEAR	**SEWERAGE FACILITY(FORCE MAIN)**	RE-ROUTING LAYING OF SEWER LINE MAKING MANHOLE CHAMBEERS MAKING CONNECTIONS OF CONSUMERS	**AL-MASOOM TOWN**	**90M**	**DIRECTOR (O&M)**	**1 YEAR**
3RD YEAR	**SEWERAGE FACILITY**	RE-ROUTING LAYING OF SEWER LINE MAKING MANHOLE CHAMBEERS MAKING CONNECTIONS OF CONSUMERS	**CATCHMENT AREAS OF Al-MASOOM TOWN**	**30M**	**DIRECTOR (O&M)**	**1YEAR**

WASA FAISALABAD

Business Plan

For FY 2018-19 to FY 2020-2021

Communication and Customer Service Improvement Plan

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1	BUDGET	DONNERS	MANAGEMENT	N/A		
2	TABLE TALK	TABLE TALK WITH INDIVISUAL AND IN GROUPS	R/O FIELD STAFF	DAILY BASIS		
3	AWARENESS	BANNERS	FIELS STAFF+IT DEPARTMENT	DAILY BASIS		
	SMS	THROUGH MOBILE	IT DEPARTMENT	DAILY BASIS		
	PHONE CALLS	THROUGH MOBILE	IT DEPARTMENT	DAILY BASIS		

WASA FAISALABAD

Business Plan

For FY 2018-21

Financial Improvement Plan

Action Plan for Improvement of Outdated Consumer Database

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1	ILLEGAL CONNECTIONS	SURVAY	THIRD PARTY+FIELD STAFF	2-Feb-18	2-Feb-19	INCREASE NO. OF PAYEES
2	CATCHMANT AREAS	SURVAY	THIRD PARTY+FIELD STAFF	3-Feb-18	3-Feb-19	INCREASE REVENUE
3	SHORTAGE OF STAFF	THIRD PARTY	THIRD PARTY	4-Feb-18	4-Feb-19	

Action Plan for Improvement in Bill Distribution and Receipt

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1	Delayed of Delivery	Third Party(Timely distribu	Directors	30-01-2018	30-02-2018	TIMELY PRINTING AND DISTRIBUTION
2	Confirmation	SMS Alert, Automatic Calls	IT Deparment	Daily Basis	One Month	
3	Online Printing	Duplicate Bills	IT Deparment	Daily Basis	24 hour	GOOD PERFORMANCE
4	Online Receipt	E-mail	IT Deparment	Daily Basis	One Month	
5	Bank Arrangment	Aggrement	IT Deparment + F	30-01-2018	30-01-2019	
6	Other options	Eaisy Paisas,UBL omni	IT Deparment + Finance			

Action Plan for Additional Sources of Revenue

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1	RENTAL INCOME	RENTOUT ASSETS	MANAGEMENT	AS PER REQUIRMENT		
2	ADVERTISMENT	BANNERS	MANAGEMENT	AS PER REQUIRMENT		
3	SERVICES	IN PRIVATE COLONIES	MANAGEMENT	AS PER REQUIRMENT		
4	BOTTLE WATER	INSTALLATION OF WATER PLANTS	MANAGEMENT	AS PER REQUIRMENT		
5	TESTING	WATER TESTING LABS	MANAGEMENT	AS PER REQUIRMENT		

WASA Lahore

Business Plan Format

For FY 2017-18 to FY 2019-20

1. Vision/ Mission (Annex-A)

To provide best service in the field of water supply,sewarge and drainage to the citizens of Lahore.
Providing highest value of services to the customers,maintaning welfare of employees and ensure financial viability of WASA.

4. SWOT Analysis: (Annex-C).

5. GAP Analysis & Target Setting of Key Performance Indicators (KPIs) (Annex-D)

6. Performance/ Services Improvement Plan (Short Term, Medium Term and Long Term) (Annex-E)

7. Communication Plan (Annex-F)

8. Training Plan (Annex-G)

9. Financial Improvement Plan (Annex-H)

WASA Lahore

Business Plan

For FY 2017-18 to FY 2019-20

Annex A - Vision & Mission Statements

Vision Statement

To provide best service in the field of water supply,sewarge and drainage to the citizens of Lahore.

Mission Statement

Providing highest value of services to the customers,maintaning welfare of employees and ensure financial viability of WASA.

WASA Lahore

Business Plan

For FY 2017-18 to FY 2019-20

Annex B-Key Information (15th Feb 2017).

Sr #	Description	Unit	Value	Remarks
1	Total Population in Area	No.	6,310,000	
2	Population with Water Service	No.	5,679,000	
3	Population with Sewerage Service	No.	5,704,240	
4	Total Water Production	Gallons/day	442,000,000	2012.89liters/day
5	Total Water Sold	Gallons/Year	161,330,000,000	
6	Metered (Functioning) Water Sold	Gallons/Year	8,066,500,000	
7	Free Water	Gallons/Year	9,679,800,000	
8	Total number of Water connections	No.	651,867	
9	Number of Metered Connections	No.	67,535.00	
10	Number of Functioning Metered Connections	No.	31,034	
11	Total number of Sewerage connections	No.	654,063	
12	Length of Water Pipelines	KM	5890Km	
13	Length of Sewerage Pipelines	KM	4,334 Km	
14	Number of Water pipeline breakages	No./Year	0.096breaks/km/year	
15	Number of Sewerage line breakages	No./Year	-	
16	Number of Sewerage line Blockages	No./Year	16.6 blocks/km/year	
17	Number of Water pipeline leakages	No./Year	1.304leaks/km/year	
18	Total Operating Cost (O+R&M+HR+Fin)	Rs./Year	7436.819million	
19	Operating Cost (Electricity + Fuel)	Rs./Year	3080.068million	
20	Human Resource Cost	Rs./Year	2554.923million	
21	Repair & Maintenance Cost	Rs./Year	1035.962million	
22	Annual amount of Bill Distribution	Rs./Year	2624million	
23	Amount of Bill Collection (Ex-Arrears)	Rs./Year	2350million	
24	Amount of Arrears Collected	Rs./Year	680millio	
25	Total Number of Water Quality Samples	No./Year	9,125	
26	Biological Unfit Samples	No./Year	730	
27	Residual Cholorine Unfit Samples	No./Year	648	
28	Total Number of Complaints	No./Year	81,664	
29	Number of Water Complaints	No./Year	8,409	
30	Number of Sewerage Complaints	No./Year	73,255	

WASA Lahore

Business Plan

For FY 2017-18 to FY 2019-20

Annex C - SWOT Analysis

Internal Factors	
Strengths (S)	**Weaknesses (W)**
1. SKILLED STAFF 2. HYDROLOGY DEPARTMENT,3 .ENGINEERING WING, 4.WATER TESTING LAB, 5.CUSTOMER COMPLAINT CENTER, 6.AVAILABILITY OF FUNDS,7.TECHNICAL STAFF 8. FILTERATION PLANTS 9. WASA official whatsapp group,	1. LACK OF CUSTOMER FEED BACK, 2. LACK OF PROPER TRAININGS 3. TO THE CONCERNED STAFF 4. POLITICAL INFLUENCES, 5. LACK OF MOTIVATION IN EMPLOYESS 6. ILLEGAL CONNECTIONS, 7. LESS RECOVERY, 8. CAPACITY BUILDING OF EMPLOYESS
Opportunities (O)	**Threats (T)**
1. EXPAND THE AREA OF JURISDICTION 2. HIGHER RATE OF REVENUE FOR SUSTAINABILITY 3. AWARENESS OF PUBLIC 4. EFFICIENT OPERATION AND MAINTENACE SYSTEM 5. INSTALLATION OF WASTE WATER TREATMENT PLANT 6. INSTALLATION OF SURFACE WATER TREATMENT PLANT	1. HEALTH CONCERNS WHERE OUTDATED INFRASTRUCTURE 2. DEPLETION OF UNDERGROUND WATER LEVEL 3. WATER QUALITY IS BEING EFFECTED DUE TO ARSENIC 4. POLITICAL INFLUENCE, 5. NON TREATMENT OF WASTEWATER 7. CONTAMINATED WATER AND OUTDATED LINE
External Factors	

WASA Lahore

Business Plan

For FY 2017-18 to FY 2019-20

Annex D: GAP Analysis & Target Setting of Key Performance Indicators (KPIs)

Conditional Assessment

WASA	Gaps	Base Line		Target Year 1		Target Year 2		Target Year 3	
		Poor D	Fair C	Poor D	Fair C	Poor D	Fair C	Poor D	Fair C
Lahore	Pumping Efficiencty	278	75	261	75	235	75	200	75
	Tube well Condition	16	5	9	5	3	5	0	5
	Disposal Condition	21%	7%	15%	7%	10%	7%	4	7
	OHR condition	Nil							

Costing and Budgeting

WASA	Gaps	Base Line	Target Year 1	Target Year 2	Target Year 3
Lahore	Pumping Efficiency (Low + Fair)	353	336	310	275
	Tube Well Condition	21	14	8	5
	Disposal Condition	28%	22%	17%	11%
	OHR Condition				

Costing and Budgeting

WASA	Taks	Cost Year 1	Cost Year 2	Cost Year 3	Total Cost
Lahore					

Service Improvement

Type	Base Line			Targets C			Targets D			Targets F		
	C (Length) (m)	D (Length) (m)	F (Length) (m)	Y 1 (Length) (m)	Y 2 (Length) (m)	Y 3 (Length) (m)	Y 1 (Length) (m)	Y 2 (Length) (m)	Y 3 (Length) (m)	Y 1 (Length) (m)	Y 2 (Length) (m)	Y 3 (Length) (m)
Water	1641657.8	984509.439	21937.1649	1639157.8	1636657.8	1634157.8	983309.439	982109.439	980909.439	20937.1649	19937.1649	18937.16492
Sewerage	1710620	937348	36783	1708620	1706620	1704620	935848	934348	934348	35583	34383	33183

Collection Efficiency (GAP Analysis & Target Setting)

			Target		
Indicator	Unit	Current Status	2017-18	2018-19	2019-20
Collection Efficiency (Physical)	%	64	70	79	87
Collection Efficiency (Financial)	%	89.6	92	95	98

WASA Lahore
Business Plan
For FY 2017-18 to FY 2019-20

Annex E-Performance Improvement Plan.

		Short Tem (2017-18) 1 Year			
Sr. #	Areas of Improvement	Action Plan	Location	Budget	Responsible staff/ Supervision
1	Revenue Enhancement	awareness compain penalizing the non payee effective billing distribution revised tariff	Lahore		
2	reduction in O n M cost	installation of PFIs at tubewells and disposal station	lahore		concerned supervisory staff
3	Technical Trainings to staff	proper trainings will be conducted by concerned technical person	lahore		

	Medium Term (2018-21) 3 Years				
Timeline	Action Plan	Location	Budget	Responsible staff/ Supervision	Timeline
	construction of overhead reservoir by reaplacing old machinery with new one	lahore		concerned supervisory staff	

WASA Lahore
Business Plan
For FY 2017-18 to FY 2019-20

Annex F - Communication and Customer Service Improvement Plan

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1						
2						
3						
4						
5						

WASA Lahore

Business Plan

For FY 2017-18 to FY 2019-20

Annex G - Training Plan

Date	Course Title	Level	Aims	Objectives	Training Methods	Location	Materials	Assessment
	Recovery techniques	Basic	To enhance the efficiency of recovery teams	Maximization of Revenue and Increase in consumers	Training Session, Group discussion and on sites training,	WASA Lahore Academy	Power Point, SOPs Booklet	through Practical Demonstration
	Record Keeping Skills	Intermediate	To improve the record keeping techniques	Development of Efficient Database	Presentations, Training sessions	WASA Lahore Academy	Power Point,Manuals, Hand outs	Assesment form collection
	O & M of Equipment	advanced	To educate the staff for proper o n m	Maximiztion of efficiency and life of equipment	on site training	WASA Lahore Academy	Power Point, SOPs Booklet	through Practical Demonstration

WASA Lahore
Business Plan
For FY 2017-18 to FY 2019-20

Annex H - Financial Improvement Plan

Action Plan for Improvement of Outdated Consumer Database

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1						
2						
3						

Action Plan for Improvement in Bill Distribution and Receipt

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1						
2						
3						

Action Plan for Improvement in Arrears Recovery and Collection Efficiency

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1						
2						
3						

Action Plan for Additional Sources of Revenue

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1						
2						
3						

WASA Lahore

Business Plan Format

For FY 2017-18 to FY 2019-20

1. Vision/ Mission (Annex-A)

2. Basic Information: (Annex- B).

4. SWOT Analysis: (Annex-C).

5. GAP Analysis & Target Setting of Key Performance Indicators (KPIs) (Annex-D)

6. Performance/ Services Improvement Plan (Short Term, Medium Term and Long Term) (Annex-E)

7. Communication Plan (Annex-F)

8. Training Plan (Annex-G)

9. Financial Improvement Plan (Annex-H)

WASA Lahore
Business Plan
For FY 2017-18 to FY 2019-20

Annex A - Vision & Mission Statements

Vision Statement

Provision of clean drinking water and sanitation services at door step

Mission Statement

Customers satisaction, improved services and self sustainence in services provision

WSSCM Lahore

Business Plan

For FY 2017-18 to FY 2019-20

Annex B-Key Information (15th Feb 2017).

Sr #	Description	Unit	Value	Remarks
1	Total Population in Area	No.	**450,000**	14 Ucs
	Total household		**64,286**	
2	Household with Water Service	No.	**57,857**	
3	Population with Sewerage Service	No.	**58,114**	
4	Total Water Production/tubewell	Gallons/hour	**12,000**	
	Total Water Production by 35 tubewells	Gallons/day	**2,520,000**	gallons/6 hrs
5	Total Water Sold	Gallons/Year	**919,800,000**	
6	Metered (Functioning) Water Sold to 3500 HH	Gallons/Year	**268,275,000**	30gallons/day/ capita
7	Free Water (nrw)	Gallons/Year	**651,525,000**	
8	Total number of Water connections	No.	3,500	
9	Number of Metered Connections	No.	-	
10	Number of Functioning Metered Connections	No.	3,500	
11	Total number of Sewerage connections	No.	64,286	
12	Length of Water Pipelines	KM	310	
13	Length of Sewerage Pipelines	KM	150	
14	Number of Water pipeline breakages	No./Year	10breaks/km/year	
15	Number of Sewerage line breakages	No./Year	10breaks/km/year	
16	Number of Sewerage line Blockages	No./Year	50breaks/km/year	
17	Number of Water pipeline leakages	No./Year	30breaks/km/year	
	Total number of waste collection vehicles	No.	20	
	Quantity of waste collected	Tons/day	240	
	Quantity of waste collected	Tons/year	74,880	
	Quantity of waste disposed	Tons/day	160	
	Quantity of waste disposed	Tons/year	49,920	
18	Total Operating Cost (O+R&M+HR+Fin)	Rs./Year	40million	
19	Operating Cost (Electricity + Fuel)	Rs./Year	2.2million	
20	Human Resource Cost	Rs./Year	3.5million	
21	Repair & Maintenance Cost	Rs./Year	1million	
22	Annual amount of Bill Distribution	Rs./Year	19.8million	
23	Amount of Bill Collection (Ex-Arrears)	Rs./Year	4.5 million	
24	Amount of Arrears Collected	Rs./Year	1million	
25	Total Number of Water Quality Samples	No./Year	35	35 samples once a year

26	Biological Unfit Samples	No./Year	2	
27	Residual Cholorine Unfit Samples	No./Year	2	
28	Total Number of Complaints	No./Year	3,500	
29	Number of Water Complaints	No./Year	1,000	
30	Number of Sewerage Complaints	No./Year	1,000	
31	Number of solid waste complaints	No./Year	2,500	

WSSCM Mardan

Business Plan

For FY 2017-18 to FY 2019-20

Annex C - SWOT Analysis

Internal Factors	
Strengths (S)	**Weaknesses (W)**
Human resource	Less no. of human resource
Technical expertise	Lack of equipment/tools/machinery
Financial resources	Low cost recovery
Quick decision making	Lack of baseline data/database
Ground water availibility	Lack of M&E system
Opportunities (O)	**Threats (T)**
Independent BoD	un cooperative customers
Un tapped resources (customers)	Lack of awareness
business oppertunities	political interference
Government support	weak coordination among gov departments
Proper billing	dependent on TMA for operational budget
Improved survices	
External Factors	

WSSCM Mardan

Business Plan

For FY 2017-18 to FY 2019-20

Annex D: GAP Analysis & Target Setting of Key Performance Indicators (KPIs)

Conditional Assessment									
WASA	**Gaps**	**Base Line**		**Target Year 1**		**Target Year 2**		**Target Year 3**	
		Poor D	**Fair C**	**Poor D**	**Fair C**	**Poor D**	**Fair C**	**Poor D**	**Fair C**
Mardan	Low & Fair Pump's Pumping Efficiency (No's)	10	25	7	28	4	31	0	35
	Tube well Condition	40%	60%	25%	75%	13%	87%	0%	100%
	Disposal Condition	60%	40%	45%	55%	30%	70%	10%	90%
	OHR Condition	10	25	7	28	4	31	0	35

Costing and Budgeting					
WASA	**Gaps**	**Base Line**	**Target Year 1**	**Target Year 2**	**Target Year 3**
Mardan	Peak Unit Consumption (PKR M)	32	22	12	2
	MDI Unit Consumption (PKR M)		-	-	-
	Power Factor Penalty (PKR M)	15.837	10	5	5
	Non-Revenue Water (%)	70%	50%	30%	10%

Costing and Budgeting					
WASA	Taks	Cost Year 1	Cost Year 2	Cost Year 3	Total Cost
Mardan	Low & Fair Pump's Pumping Efficiency (No's)	4.5 Million	4.5 Million	6 Million	15 Million
	Peak Unit Consumption (PKR M)	22 M	12 M	2 M	36 M
	MDI Unit Consumption (PKR M)	-	-	-	-
	Power Factor Penalty (PKR M)	10 M	5 M	5 M	20 M
	Non-Revenue Water (%)	1.2 M	1.2 M	1.2 M	3.6 M

Service Improvement

Type	Base Line			Targets C			Targets D			Targets F		
	C (Length) (m)	D (Length) (m)	F (Length) (m)	Y 1 (Length) (m)	Y 2 (Length) (m)	Y 3 (Length) (m)	Y 1 (Length) (m)	Y 2 (Length) (m)	Y 3 (Length) (m)	Y 1 (Length) (m)	Y 2 (Length) (m)	Y 3 (Length) (m)
Water	186000	93000	31000	232500	271250	310000	62000	31000	0	15500	7750	0
				75%	88%	100%	20%	10%	0%	5%	3%	0%
Sewerage	90,000	45,000	15,000	112,500	131,250	150,000	30,000	15,000	0	7,500	3,750	0
				75%	88%	100%	20%	10%	0%	5%	3%	0%

Collection Efficiency (GAP Analysis & Target Setting)

			Target		
Indicator	Unit	Current Status	2017-18	2018-19	2019-20
Collection Efficiency (Physical)	%	50	60	75	25
Collection Efficiency (Financial)	%	50	60	75	25

150000

WSSCM Mardan

Business Plan

For FY 2017-18 to FY 2019-20

Annex E-Performance Improvement Plan.

		Short Tem (2017-18) 1 Year			
Sr. #	**Areas of Improvement**	**Action Plan**	**Location**	**Budget**	**Responsible staff/ Supervision**
1	Rehabilitation of sewerage system	Project screening and phasing	Blockages removal, iron gratting, man hole covers and repair and maintenance in 14 Ucs		Deputy Manager Municipal services and AM Works
		Project design/proposal			
		capital investment plan			AM Works and CFO
		Team formation/hiring of expertise/tendering			AM Works, AM procurement
		Implementation plan			Contractor and DM MS
		Project information shairing with stakeholders/ residents			AM works and AM customer relations
		Execution of works			Manager Technical AM Planning and Monitoring and
		Monitoring of works and reporting			
		Project completion			

2	Rehabilitation of non functional tubewells (10 No.)	Project design/proposal	OH and pipeline system rehabilitation		Deputy Manager Municipal services and AM Works
		capital investment plan			AM Works and CFO
		Team formation/hiring of expertise/tendering			Contractor
		Implementation plan			Contractor and DM MS
		Execution of civil works			contractor, DM MS, AM Works
		Monitoring of works and reporting			Manager Technical AM Planning and Monitoring and
		Project completion			AM Works

	Medium Term (2018-21) 3 Years				
Timeline	**Action Plan**	**Location**	**Budget**	**Responsible staff/ Supervision**	**Timeline**
2-3 months	Project screening and phasing	Rehabilitation of sewerage sys in UC 1, 2, 3, 4 5, 6, 7, 8, 9, 10, 11, 12, 13, & 14		Deputy Manager Municipal services and AM Works	5-6 months
	Project design/ proposla				
	Financial capacity analysis and capital investment plan			AM Works and CFO	
	Team formation/hiring of expertise/tendering			AM Works, AM procurement	
1 month	Implementation plan			Contractor and DM MS, and Manager MS	2 month
2 WEEKS	Project information shairing with stakeholders/ residents			AM works and AM customer relations, M MS	2 Month
4 months	Execution of works			Contractor, AM Works, DM MS	20 months
On going process	Monitoring of works and reporting			Manager Technical, AM Planning and Monitoring and CFO, CEO	On going process
1 month for finisinhg	Revision of plan (if any coorective measures required)				
	Project completion			M MS, M technical	5 months for finisinhg

2-3 months	Project screening and phasing	Rehabilation of 10 non functional tubewells		Deputy Manager Municipal services and AM Works	5-6 months
	Project design/ proposla				
	Financial capacity analysis and capital investment plan			AM Works and CFO	
	Team formation/hiring of expertise/tendering			Contractor	
1 month	Implementation plan			Contractor and DM MS, and Manager MS	2 month
4 months	Execution of works			Contractor, AM Works, DM MS	20 months
On going process	Monitoring of works and reporting			Manager Technical AM Planning and Monitoring and CFO, CEO	On going process
1 month for finisinhg	Revision of plan (if any coorective measures required)				
	Project completion			M MS, M technical	5 months for finisinhg

WSSCM Mardan

Business Plan

For FY 2017-18 to FY 2019-20

Annex F - Communication and Customer Service Improvement Plan

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1						
2						
3						
4						
5						

WSSCM

Business Plan

For FY 2017-18 to FY 2019-20

Annex H - Financial Improvement Plan

Action Plan for Improvement of Outdated Consumer Database

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1	Outdated database	door to door consumer survey				1. Survey held 2. database developed
2	Un billed consumers	2. campigns and notices for registration 2. Communication strategy				1. number of campaigns 2. Comunication strategy and plan developed 3.
3	Less recovery	1. campigns and notices for bills payment, 2. involve public figures in campigns, 3. incentive for staff				1. No. of notices served 2. No. of public figures involved and campaign held 3. # of staff received incentives per month

Action Plan for Improvement in Bill Distribution and Receipt

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1	Manual billing,	1. Billing software 2. onlilne printing and payment options				1. Software installed 2. Online printing available,

2	Less staff	1. recruitment of staff in revenue unit 2. Independent monitoring unit 3. Automated calls/msgs in case 3 bills are not payed by a customer 4. Discount policy/advance billing concept with incentives				1. # of staff hired 2. M&E system in place 3. System developed for automated calls/msgs 4. Discount policy in place
3	Single point (office) for revenue collection	more then 1 option for bills payment (easy paisa, bank, office etc)				1. # of payment mode

Action Plan for Improvement in Arrears Recovery and Collection Efficiency

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1	More work load on less staff	1. Staff capacity buidilng 2. incentives based recovery				1. # capacity building sessions 2. # of staff receive incentives per month
2	illegal consumers	1. Campaign, notices, and enforcemnet of law 2. Communication strategy				1. # of campaigns held 2. Communication strategy in place
3	public unwillimg to pay	1. Social mobilization, 2. improved services, 3. instalaltion option for payment 4. Communication strategy 5. 'Water supporters' group formation and workshops 6. one time settlement startegy				1. No. of water supporter group 2. # of social mobilization sessions held

Action Plan for Additional Sources of Revenue

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1	No database of potentional customers and categorization	Updated database through door to door survey after 3 yrs				
2	Lack of information on services/assets for additional revenue sources	Identification of services/assets for additional revenue sources and categorization 2. Plan for additional revenue generation				
3	No proper customer management unit	1. Trained human resoruce in customer management unit 2. pro active initiatives 3. Communication strategy for customer management and enhanced company's visibility				

WSSC KOHAT

Business Plan Format

For FY 2017-18 to FY 2019-20

1. Vision/ Mission (Annex-A)

PROVISION OF BETTER SERVICES TO THE PEOPLE OF KOHAT THROUGH ADEQUATE QUANTITY OF PORTABLE WATER AND SANITATION FACILITIES AT PAR INTERNATIONAL SERVICES STANDARDS

2. Basic Information: (Annex- B).

WSSC KOHAT IS WORKING IN 6 URBAN U/Cs. WE HAVE 75 TUBE WELLS, BETTER DRAINAGE SYSTEM, SCATTERED POPULATION, SEWERAGE SYSTEM IN SOME PARTS OF CITY.

4. SWOT Analysis: (Annex-C).

WSSC KOHAT HAVE SOME STRENGTH THAN OTHERS WSSCS BUT SOME WEAKNESS WHICH CAN BE REMOVED BY GOOD ANALYSIS.

5. GAP Analysis & Target Setting of Key Performance Indicators (KPIs) (Annex-D)

DETAIL CAN BE SEEN IN RELEVANT SHEET THAT HOW TO IMPROVE THE SERVICES OF THE COMPANY KEEPING IN VIEW THE STATUS OF THE EXISTING ASSESTS.

6. Performance/ Services Improvement Plan (Short Term, Medium Term and Long Term) (Annex-E)

PERFORMENCA IMPROVEMENT PLAN CAN BE WORKED OUT SUBJECT TO AVAILABILITY OF FUNDS FROM GOVT. DEPARTMENT , DONOR AGENCY ETC.

7. Communication Plan (Annex-F)

COMMUNICATION PLAN REFECT THE IMPORTENANCE CONSUMERS IN THE EYE OF THE COMPANY

8. Training Plan (Annex-G)

DIFFERENT TYPES OF TRAINING OF MEDIUM AND ADVANCE LEVEL WILL BE REQUIRED FOR IMPROVEMENT OF SERVICES

9. Financial Improvement Plan (Annex-H)

DIFFERENT FINANCIAL IMPROVEMENT STRETAGIES WILL BE DEVISED TO INCREASE REVENUE USING MODERN TECHNIQUES

WSSC KOHAT

Business Plan

For FY 2017-18 to FY 2019-20

Annex A - Vision & Mission Statements

Vision Statement

Provision of better quality of life for the people of Kohat through Universal access to adequate quantity of portable water and sanitation facilities at par with international Service Standards

Mission Statement

Customers Satisfaction in provision of better quality water, hygiene, sanitation and environmental services

WSSC KOHAT

Business Plan

For FY 2017-18 to FY 2019-20

Annex B-Key Information (29th Jan 2018).

Sr #	Description	Unit	Value	Remarks
1	Total Population in Area	No.	300,000	
2	Population with Water Service	No.	240,000	30,000 HH
3	Population with Sewerage Service	No.	271,200	33,900 HH
4	Total Water Production	Gallons/day	7,200,000	30% of the water is sold
5	Total Water Sold	Gallons/Year	########## ####	
6	Metered (Functioning) Water Sold	Gallons/Year	39,420,000	
7	Free Water	Gallons/Year	47,304,000	
8	Total number of Water connections	No.	7,740	
9	Number of Metered Connections	No.	-	
10	Number of Functioning Metered Connections	No.	-	
11	Total number of Sewerage connections	No.	2,543	
12	Length of Water Pipelines	KM	109	
13	Length of Sewerage Pipelines	KM	48	
14	Number of Water pipeline breakages	No./Year	-	
15	Number of Sewerage line breakages	No./Year	-	
16	Number of Sewerage line Blockages	No./Year	720	
17	Number of Water pipeline leakages	No./Year	1,080	
18	Total Operating Cost (O+R&M+HR+Fin)	Rs./Year in Million	534	
19	Operating Cost (Electricity + Fuel)	Rs./Year in Million	67.20	
20	Human Resource Cost	Rs./Year in Million	105	
21	Repair & Maintenance Cost	Rs./Year in Million	35	
22	Annual amount of Bill Distribution	Rs./Year in Million	13	
23	Amount of Bill Collection (Ex-Arrears)	Rs./Year in Million	10	
24	Amount of Arrears Collected	Rs./Year in Million	3	
25	Total Number of Water Quality Samples	No./Year	45	
26	Biological Unfit Samples	No./Year	15	
27	Residual Cholorine Unfit Samples	No./Year	-	
28	Total Number of Complaints	No./Year	3,460	26-Jan-17

29	Number of Water Complaints	No./Year	510	
30	Number of Sewerage Complaints	No./Year	1,520	
31	Number of Sweeping Complaints	No./Year	708	
32	No, of Water Tanker, operators, etc	No./Year	722	

WSSC KOHAT

Business Plan

For FY 2017-18 to FY 2019-20

Annex C - SWOT Analysis

Internal Factors	
Strengths (S)	**Weaknesses (W)**
1 PROFESSIONAL STAFF	1 FINANCIAL STATUS OF PROVINCIAL GOVERNMENT
2 RESOURCES AVAILABLE FOR IMPROVEMENT OF SERVICES	2 DEVELOPMENT FUND ARE NOT AVAILABLE
3 WILLING WORKERS AND UNION REPRESENTATIVES	3 DEPENDS ON PARENT DEPARTMENT FOR OPERATIONAL BUDGET
4 BALANCED BOARD FOR QUICK DECISION	
5 MANAGABLE AREA FOR THE EXISTING STAFF	4 LACK OF BASELINE DATA WITH WSSC KOHAT
Opportunities (O)	**Threats (T)**
1 GOVT. IS WILLING TO OUT-SOURCE THE SANITATION SERVICES	1 ROLL BACK IDEA OF PRVINCIAL GOVT. FOR COMPANIES
2 DEVELOPMENT OF LINKAGES WITH JICA, USAID, WORLD BANK, KOCIA FOR DEVELOPMENT OF BASIC INFASTRUCTURE/ SETUP	2 UN-WILLINGNESS OF THE PARENTS DEPARTMENTS
	3 UNSATISFACTORY PERFORMENCA OF THE WSSCS
3 UTILIZATION OF LOCAL POLITICAL LEADER TO GET FUND FOR IMPROVEMENT OF WATER SUPPLY SERVICES.	4 WORKERS UNION ATTITUDE TOWARDS WSSCS
4 AVAILABLE SOCIAL MEDIA FOR CHANGE IN BEHAVOUR	
External Factors	

WSSC KOHAT

Business Plan

For FY 2017-18 to FY 2019-20

Annex D: GAP Analysis & Target Setting of Key Performance Indicators (KPIs)

Conditional Assessment

WSSC	Gaps	Base Line		Target Year 1		Target Year 2		Target Year 3	
		Poor D	Fair C	Poor D	Fair C	Poor D	Fair C	Poor D	Fair C
KOHAT	Low & Fair Pump's Pumping Efficiency (No's)	50	25	40	10	15	10	10	10
	Tube well Condition	20%	30%	15%	5%	10%	20%	5%	10%
	Disposal Condition	40%	30%	25%	5%	10%	25%	5%	5%
	OHR Condition	5	6	4	1	1	4	0	1

Costing and Budgeting

WSSC	Gaps	Base Line	Target Year 1	Target Year 2	Target Year 3	
KOHAT	Peak Unit Consumption (PKR M)	23.52	15	6	2.52	5600000
	MDI Unit Consumption (PKR M)	-	-	-	-	23.52
	Power Factor Penalty (PKR M)	1.41	0.99	0.28	0.14	1.4112
	Non-Revenue Water (%)	40%	20%	10%	5%	

Costing and Budgeting

WSSC	Taks	Cost Year 1	Cost Year 2	Cost Year 3	Total Cost

KOHAT	Low & Fair Pump's Pumping Efficiency (No's)	50 Million	25 Million	7 Million	82 Million
	Peak Unit Consumption (PKR M)	15	6	2.52	23.52
	MDI Unit Consumption (PKR M)	-	-	-	-
	Power Factor Penalty (PKR M)	0.99	0.28	0.14	1.41
	Non-Revenue Water (%)	20%	10%	5%	40%

Service Improvement

Type	Base Line			Targets C			Targets D			Targets F		
	C (Length) (m)	D (Length) (m)	F (Length) (m)	Y 1 (Length) (m)	Y 2 (Length) (m)	Y 3 (Length) (m)	Y 1 (Length) (m)	Y 2 (Length) (m)	Y 3 (Length) (m)	Y 1 (Length) (m)	Y 2 (Length) (m)	Y 3 (Length) (m)
Water	16350	38150	16350	0		16350	0	20000	18150	16350	0	0
				0%	0%	23%	0%	28%	26%	23%	0%	0%
Sewerage	9,600	12,000	7,200	-	3,000	-	1,000	8,000	7,000	-	5,000	6,000
				0%	10%	0%	3%	28%	24%	0%	17%	21%

Collection Efficiency (GAP Analysis & Target Setting)

			Target		
Indicator	Unit	Current Status	2017-18	2018-19	2019-20
Collection Efficiency (Physical)	%	65%	75%	80%	90%
Collection Efficiency (Financial)	%	67%	70%	80%	95%

WSSC KOHAT

Business Plan

For FY 2017-18 to FY 2019-20

Annex E-Performance Improvement Plan.

		Short Tem (2017-18) 1 Year				
Sr. #	Areas of Improvement	Action Plan	Location	Budget	Responsible staff/ Supervision	Timeline
1	Improvement of Water Supply Services	1. Conduct Water Quality Test and Chlorination of Water Supply	Kohat City (Center) and Kotal Township, Phase 1, Sectors 4,6,7 and 9			
		2. Re-boring of Damaged Tube Wells (9 No) and Construction of 5 new tube well			CEO WSSC Kohat	
		3. Solarization of 10 No. of tube wells for improvement of Water Supply of KDA and Kohat City		150,000,000	GM (E&S)	3 Months
					Manager (Operations)	
		4. Use of Better Quality Pipeline Network having low roughness cofficient and greater Life			Manager (Projects)	

2	Improvement of Sewerage / Drainage Services	1. Base line Data Collection of Sewerage line and Storm and sewage drains	All Urban U/Cs of Kohat		CEO KOHAT	3 Months
		2. Clearance of blocked Sewerage line and Storm and sewage drains		25,000,000	GM (E&S)	
		3. Clearance of clogged Sewerage line and Storm and sewage drains			Manager (Operations)	
		4. Consruction of damaged Sewerage line and Storm and sewage drains				
3	Improvement of Solid waste Disposal and conservency, insectidal Spray etc Services	1. Procurement of Machinery for Re-cycling Plant and land for dumping Ground	All Urban U/Cs of Kohat	130,000,000	BOARD OF DIRECTORS CEO KOHAT GM (E&S)	3 Months

Medium Term (2018-21) 3 Years				
Action Plan	**Location**	**Budget**	**Responsible staff/ Supervision**	**Timeline**
1. Conduct Water Quality Test and Chlorination of Water Supply, Uniform for Water Supply Staff and Renovation of Tube Wells	**Area and U/Cs with High W/S complaints**			
2. Replacement of W/S Damaged and rusted Pipeline Network along with Raising of W/S Pipeline from drains wetted perimeter to reduce contamination.			**CEO WSSC Kohat**	
		700,000,000	**GM (E&S)**	**3 Years**
3. Rehabilitation of Water Storage Tanks and Construction of additional Tanks in KDA and Kohat City (3 Surface Reservoirs and 5 New OHRs)			**Manager (Operations)**	
4. Feasibility of Gravity based W/S Scheme from Kaghazi Head works and Rehabilitation			**Manager (Projects)**	

of Gravity Scheme from Bona Sharif to Sangairh Storage Tank.			Donors Agencies	
1. FEASIBILITY STUDY OF STP AND ITS REHABILITATION	All Urban U/Cs of Kohat	650,000,000.00		3 Years
2. EXTENSION OF SEWERAGE LINE TO BENEFIT THE EXTENDED POPULATION OF THE CITY			CEO WSSC Kohat GM (E&S)	
3. SAFETY OF ENVIRONMRNT AND IRRIGATION WATER FROM CONTAMINATION BY WASTE WATER BY CONSTRUCTION OF PRIMARY DRAINS TO SEWERAGE TREATMENT PLANT			Manager (Operations) Manager (Projects)	
4. Consruction of damaged Sewerage line and Storm and sewage drains				
1. Hiring of Vehicles for Vector Control and insecticide, Uniform, gloves Uniform for Staff etc.	All Urban U/Cs of Kohat	10,000,000	CEO WSSC Kohat GM (E&S) Manager (Operations)	3 Years

WSSC KOHAT

Business Plan

For FY 2017-18 to FY 2019-20

Annex F - Communication and Customer Service Improvement Plan

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1	NON REDRESSAL OF COMPLAINTS	BRANDING COMPANY NAME BY BETTER SERVICES DELIVERY BY DESIGNING A COSUMER LIASON SECTION IN OPERATIONS WORKING DIRECTLY UNDER MANAGER (MONITORING)	OPERATIONS WING	1-Feb-18	30-Apr-18	BETTER RATE OF REGISTRATION OF CONSUMERS BEFORE DEC. 2107
2	HOW TO DESIMINATE MESSAGES OF COMPANY TO GENERAL PUBLIC	BRANDING OF COMPANY NAME & LOGO WITH STICKERS TYPES MESSAGES DISTRIBUTED TO GENERAL PUBLIC	MANAGER MEDIA & COMMUNICATION	1-Feb-18	30-Apr-18	MESSAGES CAN BE SEEN IN MANY PUBLIC PLACES AND STICKERS TYPES MESSAGE ON CARS RAKSHA ETC.

3	LACK OF IMPROVED COMMUNICATION MECHANISM BETWEEN THE COMPANY & CONSUMERS / GENERAL PUBLIC	INVOLVEMENT OF LOCAL CHAMPIONS, CELEBERITIES AND ELDERS FOR MEDIA TLAK ON THE BEHALF OF COMAPANY AND RELIGIOUS SCHOLAR LOAD SPEAKERS IN JUMMA PRAYERS	MANAGER MEDIA & COMMUNICATION	1-Feb-18	30-Apr-18	LOCAL REPRESENTATIVES AND ELDERS WILL TALK ON BEHALF OF COMPANY IN MAY 2018
4	IMPROPER MESSAGES DELIVERY TO GENERAL PUBLIC	BETTER COMMUNICATIONS MECHANISM BY ALLOWING A COMMUNICATION AND MEDIA MANAGER TO RESPOND THE PUBLIC AND MEDIA.	CEO KOHAT & GENERAL MANAGER	1-Feb-18	30-Apr-18	TRAINED COMMUNICATION & MEDIA MANAGER HIRED AND WORKING FOR PROMOTION OF ACTIVITIES
5	POOR & IMPROPER RESONSE OF THE COMPANY TO ITS CONSUMERS	FEED BACK POLICY SHOULD BE IMPROVED AND INCENTIVE SHOULD BE GIVEN TO SAFE GUARD THE CONSUMERS INTEREST	MANAGER (OPERATIONS)	1-Feb-18	30-Apr-18	CUSTOMERS SHOULD GIVE BETTER RESPONSE FROM COMPLAINT CELL TO BE VERIFED IN MAY 2018

WSSC KOHAT

Business Plan

For FY 2017-18 to FY 2019-20

Annex G - Training Plan

Date and Time	Course Title	Level	Aims
7th Feb.-9th Feb 2018, 9:00 am -4:00 pm	TRAINING ON WATER QUALITY MONITORING	Advanced Level	To ensure Zero Tolerance towards water Quality Issues in Water Supply Services and methods of Chlorinations of Water Storage Tanks and water to get Residual Chlorine of 0.2 mg/ lit at tap level
12th Feb-16th Feb,2018, 9:00 am-4:00 pm	TRAININAG ON LEAKAGE CONTROL AND NEW METHIDS FOR CONTROL OF UNDER GROUND LEAKAGES	Advanced Level	Training of W/S Staff on leakage Control and maintenance of W/S Networks and especially in HDPE pipelines Network to reduce NRW
19th Feb-23rd Feb, 2018, 9:00 am-4:00 pm	TRAINING OF ENERGY AUDIT	Advanced Level	Training of W/S Staff to reduce MDI and PEAK Factor Panelty and to increase pumping efficieny of tube Wells / Water Supply related Machinery
5th Mar-9th Mar, 2018, 9:00 am-4:00 pm	TRAINING ON IT TECHNIQUES FOR INCREASE OF LEGAL CONSUMERS	Medium Level	To trainer Manager (IT) and Manager (Billing and Collection) to conduct Baseline Survey

12th Mar-16th Mar,2018, 9:00 am-4:00 pm	TRAINING ON ARREARS RECOVER PLAN	Medium Level	To trainer Assistant (Manager Billing and Collection) and Revenue Officer for recovery of Arrears
19th Mar-23rd Mar, 2018, 9:00 am-4:00 pm	TRAINING ON ASSETS MANAGEMENT	Medium Level	To trainer Finance Manager to utilize its Assets and manage them in a better way to increase the business of the Company
26th Mar-30th Mar, 2018, 9:00 am-4:00 pm	TRAINING ON GIS/ ARC GIS	Basic Level	To trainer Manager (IT) and Manager (Assests) to know the status of Asseets

Note: These training plans will remain in a cycle for different batches for FY 2017-2018 TO FY 2019-2020

Objectives	Training Methods	Location	Materials	Assessment
For better health of the General Public	Therotical Session and Practical Practices	PCRWR & PCSIR Peshawar	WHO Standard Guidelines and PCRWR/PCSIR approach and books of research	
For better health of the General Public	Therotical Session and Practical Practices	Aljazari Acadamy Lahore	Books and Material of International Standard	
For reduction the expentiure of Company for Operational activities.	Theroitical and Practical Sessions	Aljazari Acadamy Lahore	Books and Material of International Standard	
To increase the Revenue of the Company	Theoritical Session (3 Days) and Practical Field Survey to Know legal and illegal Consumers	Aljazari Acadamy Lahore	Books and Material of International Standard	

To increase the Revenue of the Company	Theoritical Session (3 Days) and Practical Field Survey to Know legal and illegal Consumers	Aljazari Acadamy Lahore	Books and Material of International Standard	
To increase the Revenue of the Company	Theoritical Session (5 Days)	Aljazari Acadamy Lahore	Books and Material of International Standard	
To Keep a good Database of Assests of the Company	Theoritical Session (3 Days) and Practical (2 Days)to Know how to operated and ammend the Database from time to time	Aljazari Acadamy Lahore	Books and Material of International Standard	

WSSC KOHAT

Business Plan

For FY 2017-18 to FY 2019-20

Annex H - Financial Improvement Plan

Action Plan for Improvement of Outdated Consumer Database

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1	Baseline Survey for improvement outdated of Databas	Organizatioal Memory and record has to recover for detail information of Arrears	Assistant Manager (Billing & Collections) has to work it through AFIs	1-Mar-18	30-Mar-18	AFI will ensure the correct amount of arrears against the Consumers
2	Catagorization of outdated Consumer Database	Need to work out Customers database. 1. Database which is updated by the Billing staff on regular basis, 2. The Database of consumers which are not the willing to pay but getting water from the Network	Assistant Manager (Billing & Collections) has to work it through AFIs	1-Mar-18	30-Mar-18	AFI will ensure the correct amount of arrears against the Consumers
3	Database of the Consumer which are not getting water from Company Network	Need to know the Database for the knowledge of the Company. Those who are getting water from the Aquifer will be brough into network.	Assistant Manager (Billing & Collections) has to work it through AFIs	1-Mar-18	30-Mar-18	AFI will ensure the correct amount of arrears against the Consumers

Action Plan for Improvement in Bill Distribution and Receipt

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1	Late Delivery of bills	Out-sourcing of Bills Distribution	Board of Director, CEO Kohat	1-Mar-18	30-Mar-18	AFI will ensure the correct amount of arrears against the Consumers
2	Non-Delivery of bills	Integration of Consumer Database with MIS	CFO and Bill Disributors	1-Mar-18	30-Mar-18	AFI will ensure the correct amount of arrears against the Consumers

3	Un-willing Workers	Incentives for the staff (BD)for Bill Distribution	1 % of the Bill Distributed Amount per BD	1-Mar-18	30-Mar-18	AFI will ensure the correct amount of arrears against the Consumers

Action Plan for Improvement in Arrears Recovery and Collection Efficiency

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1	Very old Customers having dual source of Water (1. From his own well, 2. Government Connection)	Chronic Defaulter has to pay for Aquifer use only (ensuring the disconnection of Government Connection)	Assistant Manager (Billing & Collections) duly approved from Board of Director and CEO	2-Apr-18	30-May-18	Book Record show Registration before 20th of June 2018 as the Enforcement will be ensure along with 10 % Panelty after 30th May 2018
2	Consumers for Houses having area < 10 Marlas	Incentive for the Defaulters: 1. 10 % Decrease on debt which are greater than 5 years, 2. 5% Decrease on Debt which are less than 5 years and Greater than 2 Years., 3. 2% decrease in Debt which are greater than 1 Years and less than 2 years	Assistant Manager (Billing & Collection) duly approved from Board of Director and CEO	2-Apr-18	30-May-18	Book Record show Registration before 20th of June 2018 as the Enforcement will be ensure along with 10 % Panelty after 30th May 2018
3	Consumers for Houses having area > or = 10 Marlas	Incentive for the Defaulters: 1. 7 % Decrease on debt which are greater than 5 years, 2. 3% Decrease on Debt which are less than 5 years and Greater than 2 Years., 3. 1.5% decrease in Debt which are greater than 1 Years and less than 2 years	Assistant Manager (Billing & Collection) duly approved from Board of Director and CEO	2-Apr-18	30-May-18	Book Record show Registration before 20th of June 2018 as the Enforcement will be ensure along with 10 % Panelty after 30th May 2018

Action Plan for Additional Sources of Revenue

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1	After Outsourcing of Sanitation Services Machinery of the Company will need maintenance also	These machinery will be used to get business from other area which are not in the Jurisdiction of WSSC Kohat	CFO, CEO Kohat and Revenue Officer	1-May-18	30-May-18	Stock register will be checked to identifiy such machinery and will be used for revenue generation after 30th May
2	Maintenance of extra land lying WSSC Kohat need extra expenditure	These lands will be used for Lease purpose to generate Revenue	CFO, CEO Kohat and Revenue Officer	1-May-18	30-May-18	Identification of such land will be marked and will be leased to such Company before 30th May 2018
3	Rent from Towers and Advertisement	Stretagy for give the best Water Towers for rent to Telecom Sector to install Towers like Bahawal Nagar, Miagaan Colony, Sangairh, and use the other Tower in Kohat and Kotal Township for Advertisement	CFO, CEO Kohat and Revenue Officer	1-May-18	30-May-18	Different International Companies will be contacted for advertisement of his company's Product before 30th May 2018.

WASA Lahore

Business Plan Format

For FY 2017-18 to FY 2019-20

1. Vision/ Mission (Annex-A)

2. Basic Information: (Annex- B).

4. SWOT Analysis: (Annex-C).

5. GAP Analysis & Target Setting of Key Performance Indicators (KPIs) (Annex-D)

6. Performance/ Services Improvement Plan (Short Term, Medium Term and Long Term) (Annex-E)

7. Communication Plan (Annex-F)

8. Training Plan (Annex-G)

9. Financial Improvement Plan (Annex-H)

WASA RAWALPINDI

Business Plan

For FY 2017-18 to FY 2019-20

Annex A - Vision & Mission Statements

Vision Statement

To be the most efficient customer friendly WATER AND SANITATION AGENCY for Rawalpindi population.

Mission Statement

To provide quality water, sewerage and drainage services at Customer satisfactions.

WASA RAWALPINDI

Business Plan

For FY 2017-18 to FY 2019-20

Annex B-Key Information

Sr #	Description	Unit	Value	Remarks
1	Total Population in Area	No.	######### ####	Apxx.
2	Population with Water Service	No.	836,000	WASA's Juridiction 40% of Total Population
3	Population with Sewerage Service	No.	418,000	20%
4	Total Water Production	Gallons/day		2012.89liters/day
5	Total Water Sold	Gallons/Year		Litres/Day
6	Metered (Functioning) Water Sold	Gallons/Year		Litres/Day
7	Free Water	Gallons/Year		Litres/Day
8	Total number of Water connections	No.	126,000	As per census 2017 conducted by RWASA
9	Number of Domestic Connections	No.	115,000	
10	Number of Commercial Connections	No.	11,000	
11	Total number of Sewerage connections	No.	25,200	
18	Total Operating Cost (O+R&M+HR+Fin)	Rs./Year	######### ####	Millions Appx.
19	Operating Cost (Electricity + Fuel)	Rs./Year	583.200	45M/PM , 2M/PM, 1.6M/PM contingency
20	Human Resource Cost	Rs./Year	387.600	32.3M/PM
21	Repair & Maintenance Cost	Rs./Year	######### ####	116.5M/PM
22	Annual amount of Bill Distribution	Rs./Year	424.160	70.740M Bi monthly
23	Amount of Bill Collection (Ex-Arrears)	Rs./Year	890.000	Appx. Arrears to be collected upto 12/2017
24	Amount of Arrears Collected	Rs./Year	129.810	21.635M Bi monthly
25	Other Sources	Rs./Year	145.000	(MES, PIMS, WaterTankers,Connections)
26	UIP Tax	Rs./Year	-	
27	Total Number of Water Quality Samples	No./Year	2,190	6 /Pday
28	Biological Unfit Samples	No./Year		
29	Residual Cholorine Unfit Samples	No./Year		
30	Total Number of Complaints	No./Year	4,788	
31	Number of Water Complaints	No./Year	2,520	
32	Number of Sewerage Complaints	No./Year	2,268	

WASA RAWALPINDI

Business Plan

For FY 2017-18 to FY 2019-20

Annex C - SWOT Analysis

Internal Factors			
Strengths (S)		**Weaknesses (W)**	
1	Water supply from Rawal Dam (Filtration Plant)	1	Low Tarrif Rate
2	Water and Sewerage Equipments	2	High energy cost
3	Natural surface structure (Quick drain out storm / rain water)	3	Lack of skilled staff
4	Own Buildings (H/Office, Complaint Offices, Filtrationn Plant Buildings)	4	non availability of treatment plant for waste water
5	Execellent Interaction with Local and Government Instituions	5	Lack of leak detecting equipments
6	Low Risk Flood	6	Low Level of under ground water
7	Manpower	7	Week Financial Position
8	One window operation centre	8	Political Influence
Opportunities (O)		**Threats (T)**	
1	Assets in shape of land	1	High Water demand
2	Conservation of energy by transferring tubewells to solar system	2	Increasing number of consumers by expansion of jurisdiction area
3	Treatment of waste water for reuse in parks, construction and service stations		
4	Utilization of services by Nominating Mediator	3	Suspension of water supply from khanpur dam due to non paymnet of share
5	Tarrif Enhancement by providing quality services		
6	Increase in volume of revenue by rental of assets (Equipment, Land, Services)		
External Factors			

WASA RAWALPINDI

Business Plan

For FY 2017-18 to FY 2019-20

Annex D: GAP Analysis & Target Setting of Key Performance Indicators (KPIs)

Conditional Assessment

WASA	Gaps	Base Line		Target Year 1		Target Year 2		Target Year 3		Total 480
		Poor D	Fair C	Poor D	Fair C	Poor D	Fair C	Poor D	Fair C	
Rawalpindi	Low & Fair Pump's Pumping Efficiency (No's)	323	19	150	0	150	4	23	15	
	Tube well Condition	44%	56%	30%	25%	14%	25%	0%	6%	
	Disposal Condition	-	-	-	-	-	-	-	-	
	OHR Condition	-	-	-	-	-	-	-	-	

Costing and Budgeting

WASA	Gaps	Base Line	Target Year 1	Target Year 2	Target Year 3
Rawalpindi	Peak Unit Consumption (PKR M)	2.634	1.000	1.000	0.634
	MDI Unit Consumption (PKR M)	-	-	-	-
	Power Factor Penalty (PKR M)	3.600	1.000	2.000	0.600

	Non-Revenue Water (%)	-	-	-	-

Costing and Budgeting

WASA	Taks	Cost Year 1	Cost Year 2	Cost Year 3	Total Cost
Lahore/ Gujranwala/ Multan/ Faisalabad/ Rawalpindi/ NSUSC	Low & Fair Pump's Pumping Efficiency (No's)	-	-	-	-
	Peak Unit Consumption (PKR M)	1 M	1 M	0.634 M	2.6 M
	MDI Unit Consumption (PKR M)	-	-	-	-
	Power Factor Penalty (PKR M)	1 M	2 M	0.634 M	3.6 M
	Non-Revenue Water (%)				

Service Improvement

Type	Base Line			Targets C			Targets D			Targets F		
	C (Length) (m)	D (Length) (m)	F (Length) (m)	Y 1 (Length) (m)	Y 2 (Length) (m)	Y 3 (Length) (m)	Y 1 (Length) (m)	Y 2 (Length) (m)	Y 3 (Length) (m)	Y 1 (Length) (m)	Y 2 (Length) (m)	Y 3 (Length) (m)
Water	1685124.374	1028403.206	26696.20054	168512	505537	1011074	205680.6	359941	422781	24026	2669.6	0
				10%	30%	60%	20%	35%	45%	90%	10%	0
Sewerage	17,103	8,971	229	1,710	6,841	8,551	2,691	3,140	3,140	206	23	-
				10%	40%	50%	30%	35%	35%	90%	10%	0

Collection Efficiency (GAP Analysis & Target Setting)

			Target		
Indicator	Unit	Current Status	2017-18	2018-19	2019-20
Collection Efficiency (Physical)	%	60	65	70	85
Collection Efficiency (Financial)	%				

WASA RAWALPINDI

Business Plan

For I 2018 - 2021

Annex E-Performance Improvement Plan.

		2018-21 3 Year				
Sr. #	**Areas of Improvement**	**Action Plan**	**Location**	**Budget**	**Responsible staff/ Supervision**	**Timeline**

WASA RAWALPINDI

Business Plan

For FY 2017-18 to FY 2019-20

Annex F - Communication and Customer Service Improvement Plan

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1	No Team Breifing system about sensitive issues	Interaction with Staff about their issues relating organization/job/working condition	Administration	TBD	TBD	Review on Quarterly Basis
2	No incentive policy	Nomination for Star of the month	DA/M&E	TBD	TBD	Selection on most effective accompolishment of Task Assigned & Celebration for 1 person amongs 3 on Quarterly basis for certificate/cash award
3	Lack of Training opportunities	Regular Training Sessions on need basis/Assesment basis	DA	TBD	TBD	
4	Non participation of general Public	Arragemement of to regular Public Gathering on monthly basis/Advertisements/Corner meetings/celebrations of events/public holidays	DA/Ad (Information)	TBD	TBD	Quality Services/ Image Building of organization
5	No media compaigns (Print/Ads)	Cable advertisement/ Stickers/Posters/Brochures/Banners/Newspapers/Social Media	AD (Information)	TBD	TBD	30 days/year(3 compaigns/year) (first 10 days after four months)

WASA RAWALPINDI
Business Plan
For FY 2017-18 to FY 2019-20

Annex G - Training Plan

Date and Time	Course Title	Level	Aims	Objectives	Training Methods	Location	Materials	Assessment
01.03.2018 to 03.03.2018 09.00AM to 12:00PM	Financial Reporting	Medium	To enhance financial reporting	Skill enhancement of Staff	Lectures/Practice	Head office conference hall	Books/Printed	Performance and Capacity buiding
01.03.2018 to 03.03.2018 01.00PM to 04:00PM	Use of IT Techniques	Medium	To enhance financial reporting	Skill enhancement of Staff	class/Practice		Computer Based, case studies	
04.03.2018 to 06.03.2018 09.00AM to 12:00PM	Revenue Improvement plan	Medium/ Advance	Increase in efficiency	Arrears Recovery	Techniques / Strategies		Books/Printed	
04.03.2018 to 06.03.2018 01.00pM to 04:00PM	Arrears Recovery from chronic defaulters	Medium	Increase in revenue Efficiency building	Skill Development	Techniques / Strategies		Books/Printed	
07.03.2018 to 10.03.2018 09.00AM to 12:00PM	Monitoring & Evaluation	Advance	To improve efficiency of staff	Decrease in bad practices	Lectures/policies		Books/Printed	

Note: These training plans will remain in a cycle of quarterly basis for different batches though out FY 2017-2018 TO FY 2019-2020.

WASA RAWALPINDI

Business Plan

For FY 2017-18 to FY 2019-20

Annex H - Financial Improvement Plan

Action Plan for Improvement of Outdated Consumer Database

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1	Out dated Database	Reliable Survey by Self (OR) Third Party (every 3 years)	Revenue Directorate / MIS	TBD		E&T Database
2	Online Complaints	Timely solution of complaints by Integerated system	MIS/Revenue Directorate / WS/S&D	TBD		24/7 for WS,S&D / REV: 24Hrs
3	NOC/Law backing	Creation of Monitoring Unit / Enforcement	Management	TBD		Decrease in Deficit

Action Plan for Improvement in Bill Distribution and Receipt

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1	Late Delivery	M&E	Monitoring Unit	TBD		Bill Issued / Deliverd
2	Confirmation	SMS Service	MIS	TBD		SMS, Phone calls
3	Monitoring	M&E	Ins. Revenue	TBD		Inspectors team to visit default area

Action Plan for Improvement in Arrears Recovery and Collection Efficiency

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1	Unwilling Customers	Installments, Incentive(Waive off fine), Incentive for Employees	Ins Revenue/AD(A&C)/DDR	TBD		2017-2018 = upto 20%, 2018-2019 = upto 40%, 2019-2020 = upto 40%
2	Political Interference	Nomination of Mediator/Law Backing/Enforcement	Management	TBD		Communication through Mediator(Chairman) with Local Repesentative

3	Communication	Interaction with Customers, Advertisements through Print/Electronic Media	Area Inspectors, AD/DD	TBD		Benefits of bill payments/SOP/Laws&Regulations

Action Plan for Additional Sources of Revenue

Sr. No.	Sources	Strategy	Responsibility	Start Date	End Date	KPIs
1	Use of Spare Land/Plots	Use for rental income/Contruction of Shopping Mall/Restaurent	Management/Administration/Technical Team	As Rqr'd		Revenue Enhancement
2	Build up Bottling Plant at Spare/unused Land	Planning/Estimation for construction/Equipments/Installation	Management/Finance/ Technical Expert Team	TBD		Use of assets for income purpose
3	Use of OHR Rental purpose	Installation of Billboard / advertisement	Adminstration/Finance /Technical Team	As Rqr'd		Social Impact/Benefits for cost/Revenue
4	Services	Use of HR/sale of water/Water Testing Lab	Management/Admin/ /WaterSupply	As Rqr'd		24/7, Decrease in Deficit, Revenue Generation

Financial Evaluation of Water Bottling Plant at Rawalpindi
(Liaqat Bagh, Shamsabad, Saidpur Road)

	Assumptions/ inputs	Monthly (Rs.)	Annual (Rs.)
A. Review and Rationalization of Assumptions:			
Initial Investment:			
Investment to build the factory	7,000,000	We have own land.	
Revenue:			
production per day	1,400	30,800.00	369,600.00
working days per month	25	25.00	300.00
unit price	60	2,100,000.00	25,200,000.00
Total Revenue			**25,200,000**
Expenditures:			
workers' salary	25,000.00	400,000.00	4,800,000
electricity	5.00	154,000.00	1,848,000
membrane cartridge	49,540.00	8,257.00	99,084
transportation	4.80	147,840.00	1,774,080
Printed wrapper per bottle	3.45	106,260.00	1,275,120
empty bottle per cost	5.70	175,560.00	2,106,720
PVC bottle cap	4.32	133,056.00	1,596,672
Packing box	10.00	308,000.00	3,696,000
Manager/Supervisory staff salary	75,000.00	225,000.00	2,700,000
Total expenditure		1,657,973.00	**19,895,676**
Surplus/ (Loss) Surplus		442,027.00	**5,304,324**

B. Annual Cashflows:

Description	Years			
	0	1	2	3
Initial Investment	(7,000,000)			
Annual Surplus/ (Loss)		5,304,324	5,304,324	5,304,324
Cashflows	(7,000,000)	5,304,324	5,304,324	5,304,324

C. Financial Appraisal

NPV @ 14%	20,054,280
IRR	56%
BCR	3.86

PREPARED BY : Ishrat Ali
Atif razzaq
RWASA

WASA Multan

Business Plan Format
For FY 2018-19 to FY 2020-21

1. Vision/ Mission (Annex-A)

VISION: To provide better services to the residents of Multan.

2. Basic Information: (Annex- B).

Total Area Covered = 781 sq. km.
Total Population in Area = 2 Million

4. SWOT Analysis: (Annex-C).

Using its own Land and Recovery Resources, WASA Multan has been struggling hard to provide services with customer satisfaction, despite of the lack of working resources e.g. environment, infrastrcture, un skilled staff.
However, despite of political hinderances within and outside the department, WASA officers and officials have been working day and night to cover the opportunity gaps.

5. GAP Analysis & Target Setting of Key Performance Indicators (KPIs) (Annex-D)

6. Performance/ Services Improvement Plan (Short Term, Medium Term and Long Term) (Annex-E)

7. Communication Plan (Annex-F)

8. Training Plan (Annex-G)

9. Financial Improvement Plan (Annex-H)

WASA Multan
Business Plan
For FY 2018-19 to FY 2020-21

Annex A - Vision & Mission Statements

Vision Statement

To provide better services to the residents of Multan.

Mission Statement

Our customers feel free to appreciated and worthy of our best efforts in everything we do for providing water supply, sewerage and drainage services.

WASA Multan

Business Plan

For FY 2018-19 to FY 2020-21

Annex B-Key Information (1st Feb 2018).

Sr #	Description	Unit	Value	Remarks
1	Total Population in Area	No.	2 Million	
2	Population with Water Service	No.	1.43 Million	
3	Population with Sewerage Service	No.	1.21 Million	
4	Total Water Production	Gallons/day	54.9 Million	
5	Total Water Sold	Gallons/Year		
6	Metered (Functioning) Water Sold	Gallons/Year	-	
7	Free Water	Gallons/Year		
8	Total number of Water connections	No.	67,200	
9	Number of Metered Connections	-		
10	Number of Functioning Metered Connections	-		
11	Total number of Sewerage connections	No.	234,698	
12	Length of Water Pipelines	KM	1,448	
13	Length of Sewerage Pipelines	KM	1,774	
14	Number of Water pipeline breakages	No./Year	3,648	
15	Number of Sewerage line breakages	No./Year		SEW
16	Number of Sewerage line Blockages	No./Year	18,000	
17	Number of Water pipeline leakages	No./Year	3,648	
18	Total Operating Cost (O+R&M+HR+Fin)	Rs./Year	861.948 Million	
19	Operating Cost (Electricity + Fuel)	Rs./Year	303.633 Million	
20	Human Resource Cost	Rs./Year	456.136 Million	
21	Repair & Maintenance Cost	Rs./Year	102.179 Million	
22	Annual amount of Bill Distribution	Rs./Year	297.76 Million	
23	Amount of Bill Collection (Ex-Arrears)	Rs./Year	28.18 Million	
24	Amount of Arrears Collected	Rs./Year	269.575 Million	
25	Total Number of Water Quality Samples	No./Year		QUALITY
26	Biological Unfit Samples	No./Year	-	
27	Residual Cholorine Unfit Samples	No./Year	-	
28	Total Number of Complaints	No./Year	25,380	
29	Number of Water Complaints	No./Year	7,200	
30	Number of Sewerage Complaints	No./Year	18,180	

WASA Multan

Business Plan

For FY 2018-19 to FY 2020-21

Annex C - SWOT Analysis

Internal Factors	
Strengths (S)	**Weaknesses (W)**
SKILLED STAFF	POLITICAL INFLUENCE
WATER TESTING LAB	NO WASTEWATER TREATMENT PLANT
FILTERATION PLANTS	ILLEGAL CONNECTIONS
COMPUTERIZED COMPLAINT SYSTEM	LESS RECOVERY
MACHINE AND EQUIPMENTS	NO PROPER TRAINING TO CONCERN STAFF
OWN LAND RESOURCS	LACK OF CUSTOMER FEEDBACK
Opportunities (O)	**Threats (T)**
OWN LAND RESOURCES TO INVEST FOR COMMERCIAL BUILDINGS TO FILL THE RECOVERY DEFICIT	HEALTH CONCERNS
	DEPLETION OF UNDERGROUND WATER LEVEL
DRINKING WATER BOTTLING PLANT	WATER QUALITY IS BEING EFFECTED DUE TO ARSENIC
CONSUMER SURVEY TO REGULARIZE THE CONNECTIONS	MOONSOON SEASONAL VARIATION
	NEW SCHEMES PLANNED IN EMERGENCY
External Factors	

WASA Multan

Business Plan

For FY 2018-19 to FY 2020-21

Annex D: GAP Analysis & Target Setting of Key Performance Indicators (KPIs)

Conditional Assessment

WASA	Gaps	Base Line		Target Year 1		Target Year 2		Target Year 3	
		Poor D	Fair C	Poor D	Fair C	Poor D	Fair C	Poor D	Fair C
MULTAN	Low & Fair Pump's Pumping Efficiency (No's)	79	17	30	5	30	5	19	7
	Tube well Condition	4%	37%	2%	12%	2%	12%	-	13%
	Disposal Condition	3%	56%	2%	20%	1%	20%	-	16%
	OHR Condition	NOT FUNCTIONAL							

Costing and Budgeting

WASA	Gaps	Base Line	Target Year 1	Target Year 2	Target Year 3
MULTAN	Peak Unit Consumption (PKR M)	3.6	1	1	1.6
	MDI Unit Consumption (PKR M)	-	-	-	-
	Power Factor Penalty (PKR M)	7.1	2	2	3.1
	Non-Revenue Water (%)	22	10	7	5

Costing and Budgeting

WASA	Taks	Cost Year 1	Cost Year 2	Cost Year 3	Total Cost
MULTAN	Low & Fair Pump's Pumping Efficiency (No's)	20 Pumps 10.14 Million	20 Pumps 10.14 Million	20 Pumps 10.14 Million	30.43 Million
	Peak Unit Consumption (PKR M)	41.6	41.6	66.8	150
	MDI Unit Consumption (PKR M)	-	-	-	-
	Power Factor Penalty (PKR M)	0.55	0.55	0.86	1.96
	Non-Revenue Water (%)	13.63	13.63	13.63	41

Service Improvement

Type	Base Line			Targets C			Targets D			Targets F		
	C (Length) (m)	D (Length) (m)	F (Length) (m)	Y 1 (Length) (m)	Y 2 (Length) (m)	Y 3 (Length) (m)	Y 1 (Length) (m)	Y 2 (Length) (m)	Y 3 (Length) (m)	Y 1 (Length) (m)	Y 2 (Length) (m)	Y 3 (Length) (m)
Water	36618	66819	23200	10000	12000	14618	25000	22000	20000	10000	7000	6200
	20931	49351	129490	8000	7000	50931	20000	16000	14000	60000	40000	22000

Collection Efficiency (GAP Analysis & Target Setting)

			Target		
Indicator	Unit	Current Status	2017-18	2018-19	2019-20
Collection Efficiency (Physical)	%	31	13	10	8
Collection Efficiency (Financial)	%	D: 18, C: 44, I: 58	D: 25, C: 50, I: 65	D: 30, C: 55, I: 70	D: 33, C: 60, I: 73

WASA Multan

Business Plan

For FY 2018-19 to FY 2020-21

Annex E-Performance Improvement Plan.

		Short Tem (2017-18) 1 Year					Medium Term (2018-21) 3 Years				
Sr. #	Areas of Improvement	Action Plan	Location	Budget	Responsible staff/ Supervision	Timeline	Action Plan	Location	Budget	Responsible staff/ Supervision	Timeline
1	Sewerage (Manhole Covers)	Store Construction & Team Development for Manhole Covers Replacement	Adjacent to Govt College of Technology, Canal Road	3.5 Million	Qasimpur Sub division, Sewerage Division	2019					
2	5 Wet Wells Construction for Emergency Disposal	Construction of 5 Wet Wells for Emergency Response	Qasimpur	32.5 Million	Qasimpur Sub division, Sewerage Division	2019					
3	Replacement of Outlived sewerage	Replacement of Outlived Sewerage Pipe Lines						Qasimpur	5.95 Million	Qasimpur Sub division officers	2020
4	Disposal Improvement	Augmentation & Improvement of Disposal Station						Vehari Chowk	500 Million	Disposal (South Sub Division)	2020

		Short Tem (2017-18) 1 Year					Medium Term (2018-21) 3 Years				
Sr. #	Areas of Improvement	Action Plan	Location	Budget	Responsible staff/ Supervision	Timeline	Action Plan	Location	Budget	Responsible staff/ Supervision	Timeline
1	Water Supply (Tube Wells)	Impeller Replacement	Madina Colony Mumtazabad	3.5 Million	Water Works Sub Division	2019					
2	Water Supply Connections	Illegal Connections	Madina Colony Mumtazabad	5 Million	Recovery Division	2019					
3	Water Supply (OHR)	OHR Rehabilitation	Mumtazabad - I	4 Million	Water Works Sub Division	2019					
4	Water Supply	Leak Detection	Mumtazabad	5 Million	Water Supply Sub Division (South)	2019					
5	Water Supply (Distribution Pipes)						Replacement of Distribution Pipes	Mumtazabad, Nasirabda, Islampura	4.51 Million	Water Supply Sub Division (South)	2020

WASA Multan

Business Plan

For FY 2018-19 to FY 2020-21

Annex F - Communication and Customer Service Improvement Plan

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1	Communicating Public about WASA	T.V , Print Media	PRO, P&D, M.D	5-Mar	Forever	Public Disclosure
2	Facilitating Public	WASA Multan's website www.wasamultan.gop.pk	PRO, P&D, M.D	OnGoing	Forever	Consumer's Ease of Acces
3	Public Awareness Messages	Mass Informative Messages to Complainants	P&D, Complaint Cell, M.D, Finance, All related directorates	1-Apr	Forever	Consumer's Satisfaction
4	Public Awareness Messages	Painting Information on bills	Recovery, IT, All info concerned directorates, Finance	1-May	Forever	Recovery/ Information Awareness
5	Public Awareness Messages	Painting Information on running machinery	Field SDOs, DDs, Director Works, M.D, Finance	15-Apr	Forever	Public Awareness

WASA Multan

Business Plan

For FY 2018-19 to FY 2020-21

Annex G - Training Plan

Date and Time	Course Title	Level	Aims	Objectives	Training Methods	Location	Materials	Assessment
	Training on Water Meters & Bulk Meters	Intermediate	Understanding Water Production	Increase Technical Knowledge	Field Visits Workshops	Al Jazri		
	Preparation of Final Accounts & Audit Paras	Intermediate	Finalizing & settlement of paras	Reliable financial statements Decrease in audit paras	Group Exercises Workshops Lectures	Al Jazri		
	Improvement of Leadership skills & Motivational Levels	Advance	To Motivate Sub Ordinates	Management & Improvement in performance of Employees	Workshops Lectures Case Studies Coaching	Al Jazri		
	Learrning Softwares Related to NRW	Advance	Calculating NRW	Reduce NRW Real Time Calculation of Water Prodictivity will be achieved	Workshops Lectures Demonstration	Al Jazri		

WASA Multan

Business Plan

For FY 2018-19 to FY 2020-21

Annex H - Financial Improvement Plan

Action Plan for Improvement of Outdated Consumer Database

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1	New & Old Illegal Connections	Regular Monitoring of Field Staff High %age of Challan as Incentive Incentives on Entering/Observation of Illegal Connections	Recovery Inspectors, Assistants Circle Incharges, A.Ds, D.Ds. Finance Directors	Jun-18	Jun-19	50% Illegal Connections Penalized
2	Shortage & Unskilled Staff	Addition Staff in Pupulating Areas Training of Unskilled Staff	Recovery Directorate Admin Directorate(HR) Finance Directorate	Jun-18	Jun-19	20-25% Recovery Increment
3	Quick Correction of Bills/ Consumer's Applications in One Window Cell	Fix Redressal Time to 2 days for all concerned Staff (whole process) Monitoring of Progress Report Supervision from One Window Cell	One Window Staff Recovery Directorate	Mar-18	30-Sep	100% Consumer Satisfaction for Redressal

Action Plan for Improvement in Bill Distribution and Receipt

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1		Updating Consumer's Basic Database.e.g Contacts	Admin Directorate Recovery Directorate	1-Mar	13-Mar	Updation of Consumers

2	In Time Bill Distribution	Billing Information throigh SMS	Recovery Directorate Finance Directorate			10% Recovery Increment
3		Cross Verification of proper bills distribution by WASA Staff	Reccovery Directorate	15-Mar	Regular Monitoring	40% Recovery Increment
4		Bills Availability Online at www.wasamultan.gop.pk	Admin Directorate A.D (Computer)			Consumer's Satisfaction & Recovery Increment
5	Bills Receipt	Bills Payment through Maximum No of Banks	D.D (HQ) Finance Directorate Recovery Directorate	1-Mar	30-Jun	Consumer's Satisfaction & 20 % Recovery Increment
6		Payment through Nadra	D.D (HQ) Finance Directorate Recovery Directorate	1-Mar	30-Jun	Consumer's Satisfaction & 20 % Recovery Increment. Decrease in cost
7		Payment through UBL OMNI, Easypaisa, Upaisa and other related resources	D.D (HQ) Finance Directorate Recovery Directorate	1-Mar	30-Jun	Consumer's Satisfaction & 20 % Recovery Increment. Decrease in cost

		Payment through Netbanking	D.D (HQ) Finance Directorate Recovery Directorate	1-Mar	30-Jun	Consumer's Satisfaction & 20 % Recovery Increment. Decrease in cost
8		In time Redressal of Public Complaints/ Confidence with Consumers	Works Directorate	Regular Maintenance		40% Increment in Recovery

Action Plan for Improvement in Arrears Recovery and Collection Efficiency

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1	Long Term Pending Arrears Recovery. i.e >24 Months	See if these consumer CAN NOT PAY or WOULD NOT PAY. In case of WONT PAY, forward case to SJM	Recovery Directorate Special Judiciary Magestrate (SJM) Litigation Officer (LO)	Apr-18	Nov-18	eliminate all lomg term consumer's reluctant to payment
2	Prior Intimaion from WASA facility disconnection by consumer himself	Send disconnection cases to Tehsildaar under Land Revenue Act	Recovery Directorate Tehsildar	1-Apr	17-Nov	Decrease Bogus Arrears
3	Set Targets for Recovery Staff	Setting Targets & Incentives accordingly for the recovery staff	Recovery Directorate Finance Directorate	17-Apr	17-Nov	High Improvement in Recovery

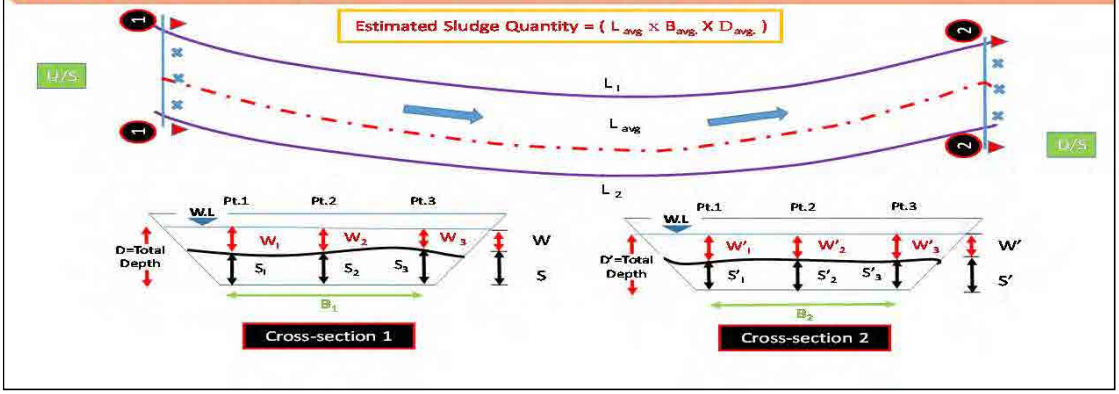
Action Plan for Additional Sources of Revenue

Sr. No.	Issues	Strategy	Responsibility	Start Date	End Date	KPIs
1	Utilization of OHRs for Revenue Generation	Survey for suitability of OHRs for Advertisement/ Teleco Companies Setting Up rent rates & SOPS	Property concerned SDOs, DDs Teleco Companies Advertisement Companies Admin Directorate Finance Directorate Litigation Officer P&D	Apr-18	May-18	Atleast 1 Million RS Revenue Genaration/ Month
2	utilization of vacant properties/ areas for renting as commercial units	Survey Leasing SOPs Contract	Admin Directorate Related SDOs, DDs having offices within these properties	15-May	30-Jun	Atleast 5 Million RS Revenue Genaration/ Month
3	Renting Machinery Hourly	Evaluating Machineries Status & Conditions Settinf Up Rne tRates SOPs	SDOs, DDs Works Directorate Finance Directorate	15-Mar	30-Mar	RS 0.5 Million Revenue/ Month
4	Water Bottling Plant	Planning Hiring Consultant Hiring Contractor	P&D M.D DMD			Initially 50 Million Profit / Year

添付資料 4.65

2018 年春期研修「O&M of Sewer and Storm Water Drainage」で作成された OJT 実施手順書

Sketches (Layout and Cross-section)



Sludge Volume Calculation

Cross sectional Area 1

		Point 1	Point 2	Point 3
Total Depth at cross section 1, D (m)	A			
Thickness of Water at cross section 1, W (m)	B			
Thickness of Sludge at cross section 1, S (m)	C=(A−B)			
Avg Thickness of Sludge at cross section 1, S_{avg} (m)	D=(C1+..Cn)/n			
Width at cross section 1, B_1 (m)	E			
Length , L_1 (m)	F			

Cross sectional Area 2

Total Depth at cross section 2, D' (m)	G			
Thickness of Water at cross section 2,W' (m)	H			
Thickness of Sludge at cross section 2, S' (m)	I=(G−H)			
Avg Thickness of sludge at cross section 2, S'_{avg} (m)	J=(I1+..In)/n			
Width at cross section 2, B_2 (m)	K			
Length, L_2 (m)	L			

General Calculation

Overall Avg Sludge Depth, S'' avg (m)	M=(D+J)/2	
Avg width, B_{avg} (m)	N=(E+K)/2	
Average Length, L_{avg} (m)	O=(F+L)/2	
Estimated Sludge Volume,V (m^3)	P=(M*N*O)	

OJT Implementation Procedure

Excavator Working Hours

Details	A	
Machine type	B	
Manufacturer	C	
Time required for single Cycle of Blow (sec)	D	
Time required for single Cycle of Blow (min)	E=(D/60)	
Bucket volume (m^3)	F	
Bucket Factor	G	
Bucket volume After Factor (m^3)	H=(F*G)	
Sludge volume (m^3)	I	
No of Blows Required	J=(I/H)	
Time Required (min)	K=(E*J)	
Time Required (hr)	L=(K/60)	

* Bucket factor is the volume of actual sludge against full bucket volume.

OJT Implementation Procedure

Transportation Time Calculation for Dump Truck

Truck no.	Manufacturer	Time (local)		Time consumed (min)	Truck capacity (m^3)	Capacity factor	Truck capacity after factor (m^3)	Sludge volume (m^3)
		Trip Start	Trip End					
A	B	C	D	E=D−C	F	G	H= F*G	I=(H1+H2+..Hn)
1								
2								
3								
4								
5								

添付資料 4.66

2018 年春期研修「O&M of Electrical Equipment」で作成された OJT 実施手順書

WASA: LAHORE Division: JUBILEE TOWN Sub Division: JUBILEE TOWN

Approved by: _____

Prepared by: TARIQ JAMIL

OJT Implementation Plan for Record Keeping, SOP & Device Inspection Activity of Electrical Panel

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	C-Block T/well	Raheel Ashraf	Tariq Jamil	Nitmay	Awais Saeed	Daily Operation Record SOP Check List Device Inspection Sheet	10/04/18			
2.						Daily Operation Record SOP Check List Device Inspection Sheet				

-Remarks-

OJT Implementation Procedure for O&M Manual, Record Keeping and Preventive Maintenance Activity of Diesel Generator

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	LDA Avenue I disposal	Raheel Ashraf	Tariq Jamil	Nitmay	Junaid	1. O&M Manual 2. Basic Specifications 3. Daily O&M Record 4. Preventive Maintenance Plan	10/4/18			

-Remarks-

(Hydrology Directorate)

WASA: LAHORE Division: _____ Sub Division: _____

Approved by: _____

Prepared by: FATIMA EIMAN

OJT Implementation Plan for Record Keeping, SOP & Device Inspection Activity of Electrical Panel

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	Outfall OFFICE (Hydrology Directorate)		AD			Daily Operation Record SOP Check List Device Inspection Sheet	30-May 2018			
2.						Daily Operation Record SOP Check List Device Inspection Sheet				

-Remarks-

OJT Implementation Procedure for O&M Manual, Record Keeping and Preventive Maintenance Activity of Diesel Generator

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	outfall office hydrology Directorate		AD			1. O&M Manual 2. Basic Specifications 3. Daily O&M Record 4. Preventive Maintenance Plan	30-May 2018			

-Remarks-

WASA: Lahore Division: Ravi Town Sub Division: Anarkali

Approved by: _____

Prepared by: Muhammad Waseem Malik

OJT Implementation Plan for Record Keeping, SOP & Device Inspection Activity of Electrical Panel

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	Haji Camp	Usman Babar	Fayyaz Ahmad	Waseem Malik		Daily Operation Record SOP Check List Device Inspection Sheet	May-2018			
2.	Mela Ram Park	Usman Babar	Fayyaz Ahmad	Waseem Malik		Daily Operation Record SOP Check List Device Inspection Sheet	June-2018			

-Remarks-

OJT Implementation Procedure for O&M Manual, Record Keeping and Preventive Maintenance Activity of Diesel Generator

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	Lakshami Chowk	Usman Babar	Fayyaz Ahmad	Waseem Malik		1. O&M Manual 2. Basic Specifications 3. Daily O&M Record 4. Preventive Maintenance Plan	June-2018			

-Remarks-

WASA: LAHORE Division: XEN O&M III (AI Town) Sub Division: ICHHRA .

Approved by: _____

Prepared by: AAMIR TUFAIL .

OJT Implementation Plan for Record Keeping, SOP & Device Inspection Activity of Electrical Panel

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	LOS TUBEWELL	FAISAL Khurram	ZAHID Hussain	AAMIR TUFAIL.	ASHFAQ	Daily Operation Record	30/03/18	30/03/18		
						SOP Check List		31/4/18		
						Device Inspection Sheet		31/4/18.		
2.	RASOOL PARK DISPOSAL STATION	"	"	"	ZAMEER.	Daily Operation Record	30/3/18	30/3/18		
						SOP Check List		31/4/18		
						Device Inspection Sheet		31/4/18		

–Remarks–

OJT Implementation Procedure for O&M Manual, Record Keeping and Preventive Maintenance Activity of Diesel Generator

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	PUNJ PIR Ichhra.	FAISAL Khurram.	ZAHID Hussain.	AAMIR TUFAIL.	FAISAL.	1. O&M Manual	30/3/18	4/4/18		
						2. Basic Specifications		"		
						3. Daily O&M Record		"		
						4. Preventive Maintenance Plan		"		

–Remarks–

WASA: Lahore Division: Waste water Treatment (WWT) Sub Division: _____

Approved by: _____

Prepared by: Maria Khalid

OJT Implementation Plan for Record Keeping, SOP & Device Inspection Activity of Electrical Panel

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	Future Treatment Plant at Babu Sabu		Maria Khalid			Daily Operation Record				
						SOP Check List				
						Device Inspection Sheet				
2.						Daily Operation Record				
						SOP Check List				
						Device Inspection Sheet				

-Remarks-

OJT Implementation Procedure for O&M Manual, Record Keeping and Preventive Maintenance Activity of Diesel Generator

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.						1. O&M Manual				
						2. Basic Specifications				
						3. Daily O&M Record				
						4. Preventive Maintenance Plan				

-Remarks-

WASA: LAHORE Division: Electricity Sub Division: X

Approved by: _____

Prepared by: Marroona

OJT Implementation Plan for Record Keeping, SOP & Device Inspection Activity of Electrical Panel

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	FE-College Tow.	–	Kashif Rasool.	–	–	Daily Operation Record	30/3/18	30/4/18		
						SOP Check List		30/4/18		
						Device Inspection Sheet		30/4/18		
2.						Daily Operation Record				
						SOP Check List				
						Device Inspection Sheet				

-Remarks-

OJT Implementation Procedure for O&M Manual, Record Keeping and Preventive Maintenance Activity of Diesel Generator

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	FE					1. O&M Manual				
						2. Basic Specifications				
						3. Daily O&M Record				
						4. Preventive Maintenance Plan				

-Remarks-

WASA: LAHOR Division: XEN (OSM) II Sub Division: Gulberg Town

Approved by: _____

Prepared by: Riaz Ellahi

OJT Implementation Plan for Record Keeping, SOP & Device Inspection Activity of Electrical Panel

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	4-DI Town Ship	Shamas Ayoob	Areez Irfan	Imran	Ghaffar	Daily Operation Record	1st June		1st December	
						SOP Check List				
						Device Inspection Sheet				
2.						Daily Operation Record				
						SOP Check List				
						Device Inspection Sheet				

-Remarks-

OJT Implementation Procedure for O&M Manual, Record Keeping and Preventive Maintenance Activity of Diesel Generator

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	4-DI Town Ship	Shamas Ayoob	Areez Irfan	Imran	Ghaffar	1. O&M Manual	Daily			
						2. Basic Specifications	Basic			
						3. Daily O&M Record				
						4. Preventive Maintenance Plan				

-Remarks-

Areez Irfan.

EC-IP-01

WASA: Lahore Division: XEN O&M 1 Sub Division: Green Town

Approved by: _____

Prepared by: Areez Irfan

OJT Implementation Plan for Record Keeping, SOP & Device Inspection Activity of Electrical Panel

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge								
		XEN	SDO	Sub Engineer	Operator					
1.	4D1	Shamas Ayoub	Areez Irfan	Imran Qamar	Ghaffar	Daily Operation Record	1st June		1st December	
						SOP Check List				
						Device Inspection Sheet				
2.						Daily Operation Record				
						SOP Check List				
						Device Inspection Sheet				

-Remarks-

OJT Implementation Procedure for O&M Manual, Record Keeping and Preventive Maintenance Activity of Diesel Generator

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge								
		XEN	SDO	Sub Engineer	Operator					
1.	4D1	Shamas Ayoub	Areez Irfan	Imran Qamar	Ghaffar	1. O&M Manual	Daily		Daily.	
						2. Basic Specifications				
						3. Daily O&M Record				
						4. Preventive Maintenance Plan				

-Remarks-

WASA: LHR Division: _____ Sub Division: _____

Approved by: _____

Prepared by: Ammar Arshad

OJT Implementation Plan for Record Keeping, SOP & Device Inspection Activity of Electrical Panel

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	Canal Bridge	Suleman Nisar	Jawad	Rao		Daily Operation Record SOP Check List Device Inspection Sheet	10-04-2018		15-04-2018	
2.	Mada Lal Hussain	Latif	Ammar	Zaheer		Daily Operation Record SOP Check List Device Inspection Sheet	10-04-2018			

-Remarks-

OJT Implementation Procedure for O&M Manual, Record Keeping and Preventive Maintenance Activity of Diesel Generator

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	Jubliee Town Disposal	Raheel	Tariq	Nimra	Junaid	1. O&M Manual 2. Basic Specifications 3. Daily O&M Record 4. Preventive Maintenance Plan	1-05-2018		1-05-2018	

-Remarks-

EC-IP-01

WASA: Gujranwala Division: Head Office Sub Division: _____

Approved by: _____

Prepared by: Samad

OJT Implementation Plan for Record Keeping, SOP & Device Inspection Activity of Electrical Panel

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge								
		XEN	SDO	Sub Engineer	Operator					
1.	X-Block	Ghulam Abbas	Iqbal	Abdul Rehman		Daily Operation Record ✓	23/4/18			
						SOP Check List ✓				
						Device Inspection Sheet				
2.						Daily Operation Record				
						SOP Check List				
						Device Inspection Sheet				

-Remarks-

OJT Implementation Procedure for O&M Manual, Record Keeping and Preventive Maintenance Activity of Diesel Generator

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge								
		XEN	SDO	Sub Engineer	Operator					
1.	Peoples Colony	Ghulam Abbas	Iqbal	Abdul Rehman		1. O&M Manual ✓	23/4/18			
						2. Basic Specifications ✓				
						3. Daily O&M Record				
						4. Preventive Maintenance Plan				

-Remarks-

WASA: Faisalabad Division: WWM Sub Division: East

Approved by: _____

Prepared by: Ahmad Gill

OJT Implementation Plan for Record Keeping, SOP & Device Inspection Activity of Electrical Panel

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	PS-31	Adnan Gul	M. Boota	Tahir Shabir		Daily Operation Record	4.4.18	5-4-18		
						SOP Check List		6-4-18		
						Device Inspection Sheet		7-4-18		
2.	Disposal Abdullah Pur	"	"	"		Daily Operation Record	5.4.18			
						SOP Check List				
						Device Inspection Sheet				

-Remarks-

OJT Implementation Procedure for O&M Manual, Record Keeping and Preventive Maintenance Activity of Diesel Generator

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	PS-38	Adnan Gul	Alvi Sb.	Ghulam Sarwar		1. O&M Manual	6-4-18			
						2. Basic Specifications				
						3. Daily O&M Record				
						4. Preventive Maintenance Plan				

-Remarks-

WASA: FSD Division: WATER Sub Division: Water Resources (T.R).

Approved by: _____

Prepared by: _____

OJT Implementation Plan for Record Keeping, SOP & Device Inspection Activity of Electrical Panel

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	T.R	Sajjad Ullah	Zafar Sipra	Farooq Ahmad.	Aftab	Daily Operation Record ✓ SOP Check List ✓ Device Inspection Sheet	12/3/2018			
2.						Daily Operation Record SOP Check List Device Inspection Sheet				

-Remarks-

OJT Implementation Procedure for O&M Manual, Record Keeping and Preventive Maintenance Activity of Diesel Generator

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	J.B.C	Sajjad Ullah	Zafar Sipra	Farooq Ahmad		1. O&M Manual 2. Basic Specifications 3. Daily O&M Record ✓ 4. Preventive Maintenance Plan ✓	10/3/2018			

-Remarks-

WASA: Rawalpindi Division: WEST Zone Sub Division: Commercial market.

Approved by: Sadeer ABBASI.

Prepared by: Asif Hussain.

OJT Implementation Plan for Record Keeping, SOP & Device Inspection Activity of Electrical Panel

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge								
		XEN	SDO	Sub Engineer	Operator					
1.	T/well 107 Pagliwari	Asim Nazir	Javed Iqbal	Awais S/E	Asif Mehmood	Daily Operation Record ✓	10 4/18	30 4/18		
						SOP Check List				
						Device Inspection Sheet				
2.						Daily Operation Record	✓			
						SOP Check List				
						Device Inspection Sheet				

-Remarks-

OJT Implementation Procedure for O&M Manual, Record Keeping and Preventive Maintenance Activity of Diesel Generator

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge								
		XEN	SDO	Sub Engineer	Operator					
1.	T/well No. 119-D Block	Ahmad Manzoor Sb.	Javed Iqbal	Sadeer ABBASI	Nadeem Ahmad.	1. O&M Manual	10/04/18			
						2. Basic Specifications ✓				
						3. Daily O&M Record ✓				
						4. Preventive Maintenance Plan				

-Remarks-

WASA: Multan Division: Water Supply Sub Division: North

Approved by: M. Mustafa S.S.E.

Prepared by: Sheraz.

OJT Implementation Plan for Record Keeping, SOP & Device Inspection Activity of Electrical Panel

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	T/W Aamir Khan Bagh	Abdus Salam	Umar Ghumman	Aamir	Asif	Daily Operation Record ✓ SOP Check List Device Inspection Sheet	10-4-18	30-4-18		
2.						Daily Operation Record SOP Check List Device Inspection Sheet				

-Remarks-

OJT Implementation Procedure for O&M Manual, Record Keeping and Preventive Maintenance Activity of Diesel Generator

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	Shamsabad	Abdus Salam	Asghar Hamid	Sarfraz	Sarwar	1. O&M Manual 2. Basic Specifications ✓ 3. Daily O&M Record ✓ 4. Preventive Maintenance Plan	10-4-18			

-Remarks-

WASA: Multan Division: South Sub Division: Garden Town

Approved by: Said Ullah.

Prepared by: Ahmad

OJT Implementation Plan for Record Keeping, SOP & Device Inspection Activity of Electrical Panel

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	Garden Town	Arfan Sahib	Wheed Sahib	Shoib	Ajmal	Daily Operation Record SOP Check List Device Inspection Sheet	10-4 18			
2.						Daily Operation Record SOP Check List Device Inspection Sheet				

-Remarks-

OJT Implementation Procedure for O&M Manual, Record Keeping and Preventive Maintenance Activity of Diesel Generator

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	Haggana Farwana	Arfan	Arfan	Asif Sahib		1. O&M Manual 2. Basic Specifications - 3. Daily O&M Record - 4. Preventive Maintenance Plan	10-4 18			

-Remarks-

WASA: _____ *Division:* _____ *Sub Division:* ✓

Approved by: _____

Prepared by: Syed Ali Raza

OJT Implementation Plan for Record Keeping, SOP & Device Inspection Activity of Electrical Panel

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	Disposal work Zone A			✓		Daily Operation Record	3/4/18	12-4-18	4-5-18	8-5-18
						SOP Check List		12-4-18		8-5-18
						Device Inspection Sheet		12-4-18		8-5-18
2.	Disposal Works Shookat Abad					Daily Operation Record	5/4/18	18-4-18	9/5/18	18-5-18
						SOP Check List		18-4-18		18-5-18
						Device Inspection Sheet		18-4-18		18-5-18

-Remarks-

OJT Implementation Procedure for O&M Manual, Record Keeping and Preventive Maintenance Activity of Diesel Generator

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	Disposal work zone A			✓		1. O&M Manual	3/4/18	12-4-18	4-5/18	8-5-18
						2. Basic Specifications		12-4-18		8-5-18
						3. Daily O&M Record		12-4-18		8-5-18
						4. Preventive Maintenance Plan		12-4-18		8-5-18

-Remarks-

WASA: _____ Division: _____ Sub Division: ✓

Approved by: _____

Prepared by: MEHMOOD 9&BA2

OJT Implementation Plan for Record Keeping, SOP & Device Inspection Activity of Electrical Panel

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	Disposal work zone 'A'		✓		✓	Daily Operation Record	3/4/2018	12-4-18	4/5/2018	8-5-18
						SOP Check List		12-4-18		8-5-18
						Device Inspection Sheet		12-4-18		8-5-18
2.	Disposal work Shelter Board					Daily Operation Record	5/4/2018	18-4-18	9/5/18	18-5-18
						SOP Check List		18-4-18		18-5-18
						Device Inspection Sheet		18-4-18		18-5-18

-Remarks-

OJT Implementation Procedure for O&M Manual, Record Keeping and Preventive Maintenance Activity of Diesel Generator

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	disposal work zon 'A'		✓		✓	1. O&M Manual	3/4/2018	12-4-18	4/5/2018.	8-5-18
						2. Basic Specifications		12-4-18		8-5-18
						3. Daily O&M Record		12-4-18		8-5-18
						4. Preventive Maintenance Plan		12-4-18		8-5-18

-Remarks-

WASA: Peshawar Division: _____ Sub Division: _____

Approved by: _____

Prepared by: SHAHRYAR ALI KHAN.

OJT Implementation Plan for Record Keeping, SOP & Device Inspection Activity of Electrical Panel

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	T-Well No-66 UC-8		✓			Daily Operation Record	03/06/18	✓	03/06/18	✓
						SOP Check List		✓		✓
						Device Inspection Sheet		✓		✓
2.	T-Well No-69 UC-8		✓			Daily Operation Record	04/06/18	✓	03/06/18	✓
						SOP Check List		✓		✓
						Device Inspection Sheet		✓		✓

-Remarks-

OJT Implementation Procedure for O&M Manual, Record Keeping and Preventive Maintenance Activity of Diesel Generator

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.						1. O&M Manual				
						2. Basic Specifications				
						3. Daily O&M Record				
						4. Preventive Maintenance Plan				

-Remarks-

There are no generators installed on tubewells in WSSP.

WASA: Peshawar Division: — Sub Division: —

Approved by: _____

Prepared by: FARRUKH ZEB

OJT Implementation Plan for Record Keeping, SOP & Device Inspection Activity of Electrical Panel

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	T.W #21 UC. 3		✓			Daily Operation Record	02-06-2018	—	02/6/18	✓
						SOP Check List		—		—
						Device Inspection Sheet		—		—
2.	T.W #67 UC. 8		✓			Daily Operation Record	02-06-2018	—	2/6/18	—
						SOP Check List		—		—
						Device Inspection Sheet		—		—

–Remarks–

OJT Implementation Procedure for O&M Manual, Record Keeping and Preventive Maintenance Activity of Diesel Generator

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.						1. O&M Manual				
						2. Basic Specifications				
						3. Daily O&M Record				
						4. Preventive Maintenance Plan				

–Remarks–

There are no generators installed on tubewells in WSSP.

WASA: WSSC Kohat Division: Kohat Sub Division: _____

Approved by: _____

Prepared by: Jahan Zaib Khan

OJT Implementation Plan for Record Keeping, SOP & Device Inspection Activity of Electrical Panel

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.	Eidgah No:5 OTS Road	Naeem	Jahan Zaib	Azmat	Shahid	Daily Operation Record SOP Check List Device Inspection Sheet	4.4.2018			
2.	Dhai banda	〃	〃	〃	Anees Ur Rehman	Daily Operation Record SOP Check List Device Inspection Sheet	5.4.2018			

–Remarks–

OJT Implementation Procedure for O&M Manual, Record Keeping and Preventive Maintenance Activity of Diesel Generator

Administrative Information						Contents of Activity	Planning Date	Completed	Planning Date	Completed
Site No.	Site Name	Name of the Persons in Charge: XEN	SDO	Sub Engineer	Operator					
1.						1. O&M Manual 2. Basic Specifications 3. Daily O&M Record 4. Preventive Maintenance Plan				

–Remarks–

Unavailable at any site.

添付資料 4.67

2018 年春期研修「O&M of Mechanical Equipment」で作成された OJT 実施手順書

OJT Implementation plan for Pump station

1. ACTIVITIES

- Visual inspection
- Detail inspection
- Rehabilitation / Modification of equipment
- 5S
- HSE

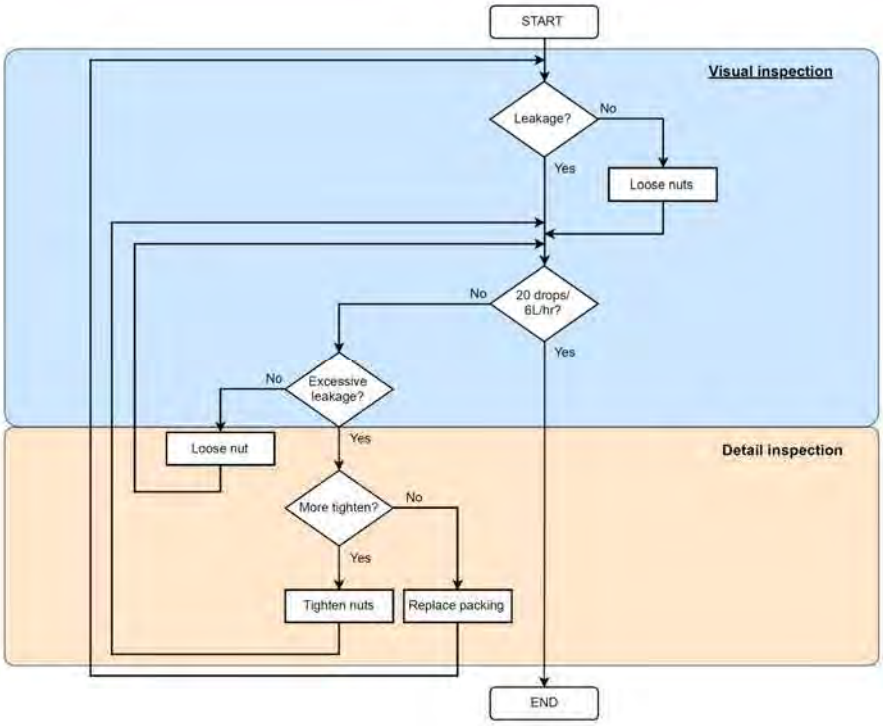
2. EQUIPMENT

a) Tubewell pump station

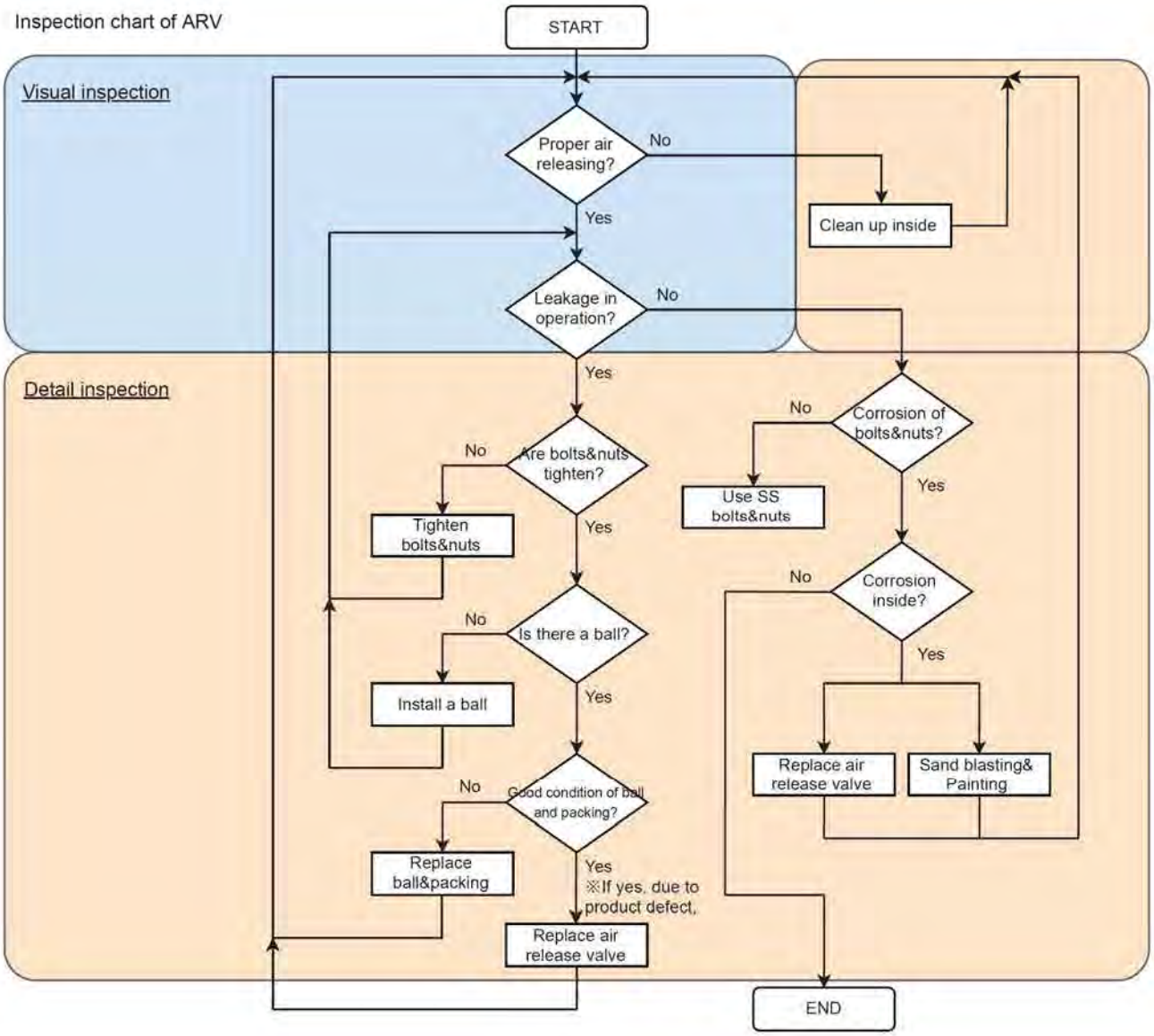
- Pump and Motor
- Air release valve
- Non return valve (Check valve)
- Sluice valve / Butter fly valve
- Pipe
- Flow meter
- Chlorinator
- Filtration system

3. Inspection flow chart

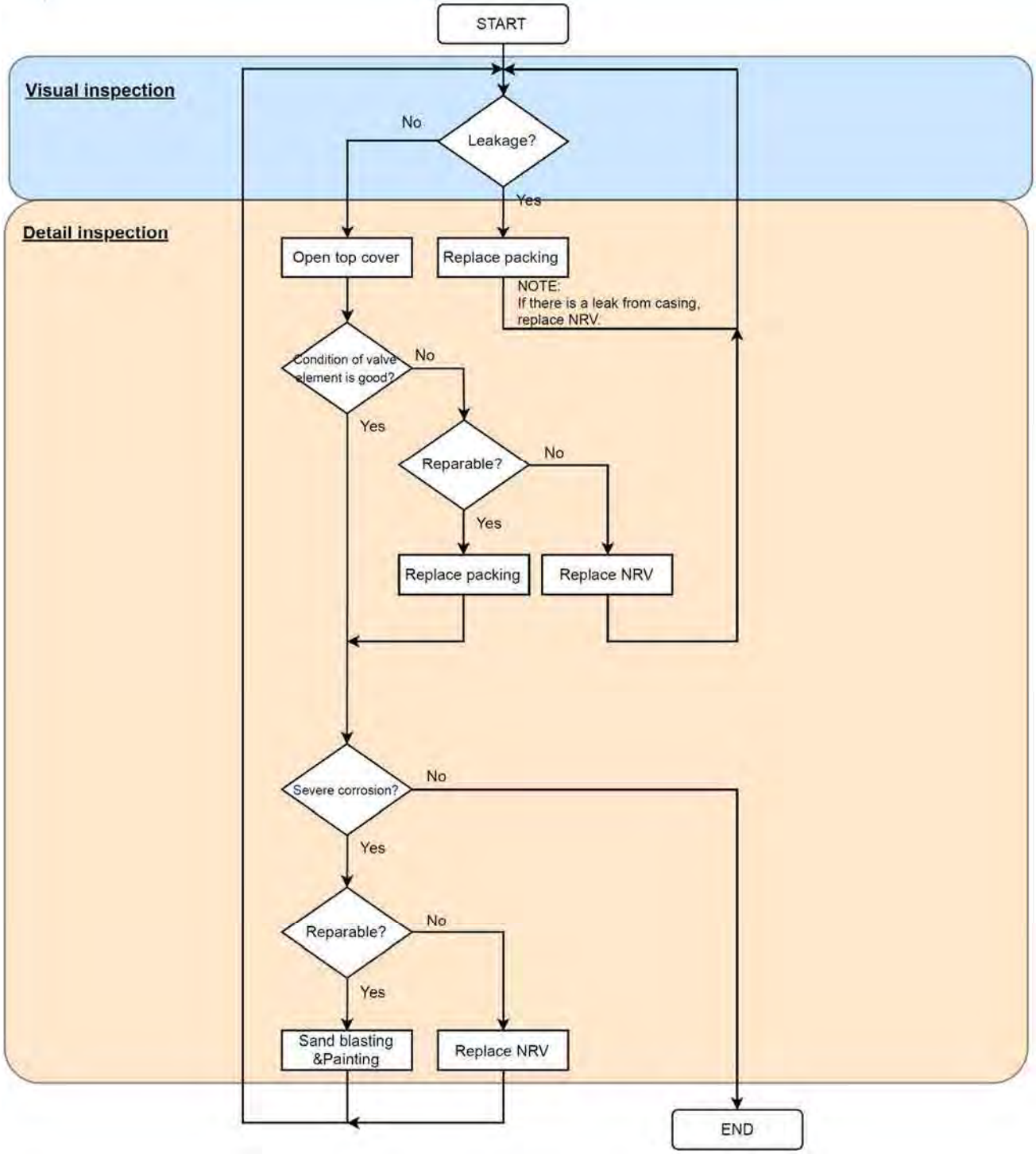
a) Gland packing



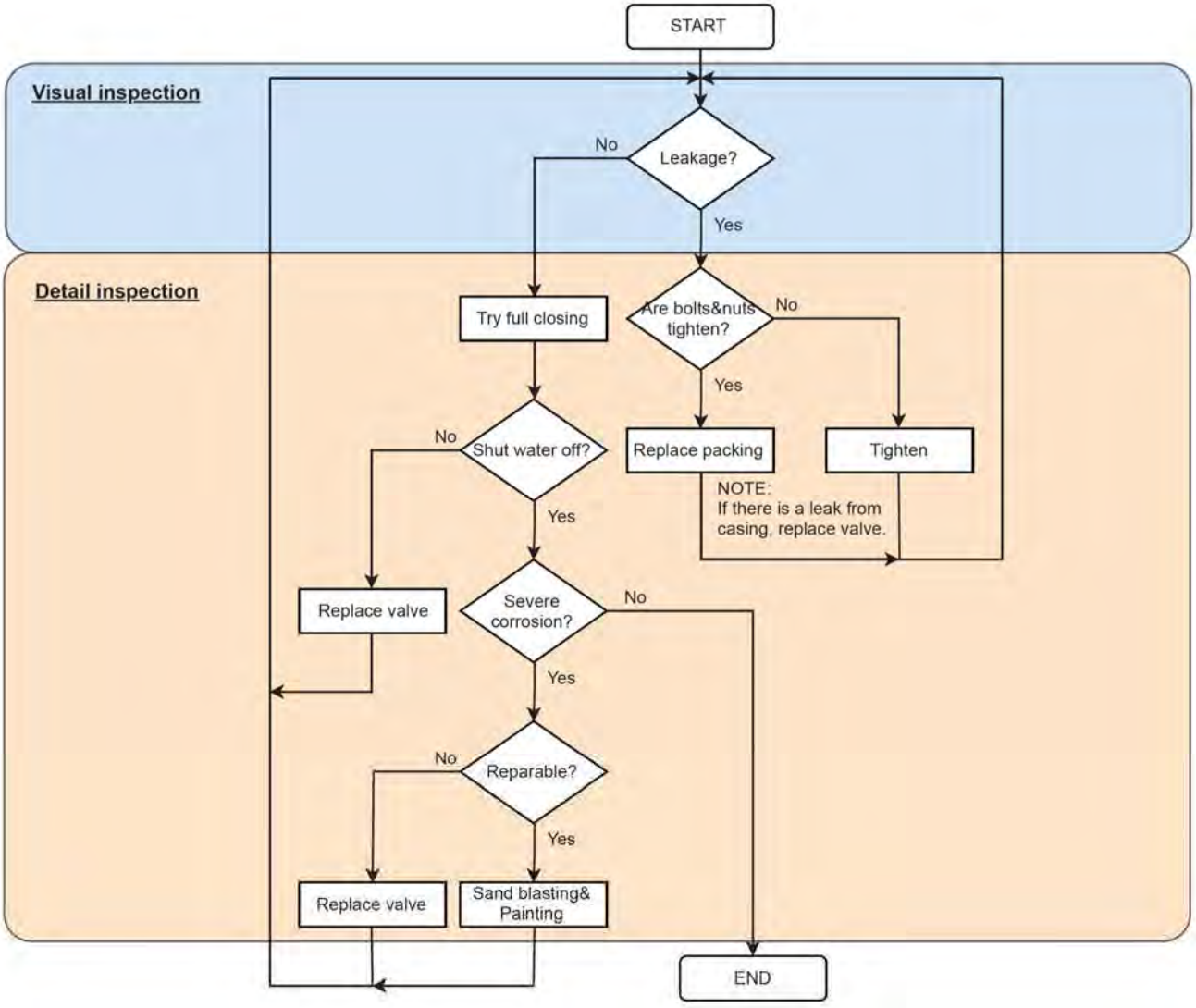
b) Air release valve



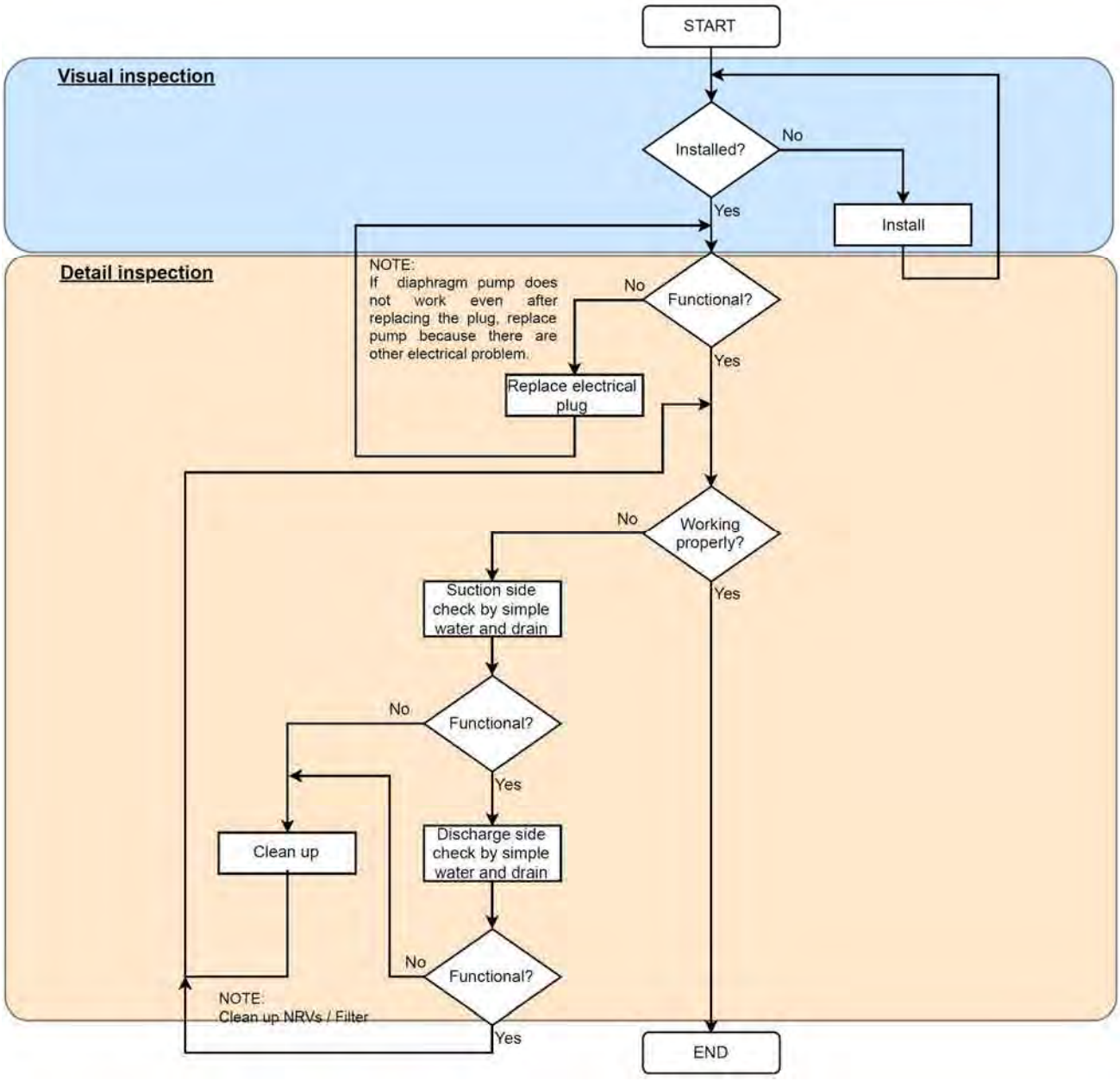
c) Non return valve



d) Sluice valve



e) Diaphragm pump



4. Visual inspection record

・Use daily operation record form. A sample is shown as bellow.

Table 4.1 Sample of daily operation record

Daily Operation Record (Tubewell Pumping Station)

Site: Kashmir block iqbal town | Pump : Flow Rate: 204m3/h | Voltage: 400V

Year: 2018 | Total Head: 64m | Ampere: 101 A | Approved by (Engineer)

Date / Month: 28Mar2018 | Motor Output: 55kW | Diaphragm pump: | Prepared by (Operator)

Inspection	No.	Items	Unit	Date/time										Frequency	Total
				28-Mar-18											
Operating Condition	1	Operating Time		~	: ~	~	~	~	~	~	~	~	~		
	2	Operating Hours	hrs	30 min											
	3	Diaphragm Pump Range	%	NA											
	4	Flow Meter Reading (Before start)	m^3											every	
	5	Flow Meter Reading (After Stopped)	m^3											every	
	6	Flow Amount (No.5 - No.4)	m^3	212.68m3/h										every	
	7	Pressure Gauge Reading (A few minutes after pump started)	Bar	1.4										every	
	8	Pressure Gauge Reading (Before stop)	Bar	1.8										every	
	9	Voltage	V	402.3										every	
	10	Ampere	A	78										every	
Visual Inspection	11	Cleanliness	Y / N	Y										1/day	
	12	Gland Leakage 6L/hr(20drops/min)	Nor/ High	High										1/day	
	13	Motor heating	Nor/ High	High										1/day	
	14	Motor Sound/Noise	Nor/ High	Nor										1/day	
	15	Non Return Valve Leakage	Y / N	N										1/day	
	16	Gate Valve Leakage	Y / N	N										1/day	
	17	Air Release Valve Lekage/Clogging	Y / N	Y										1/day	
	18	Chlorine Storage	Y / N	Y										1/day	

5. Detail inspection record

・Use inspection sheet form. A sample is shown as bellow.

Table 5.1 Sample of inspection sheet

Equipment Evaluation Sheet for Mechanical Facility (Tubewell pumping station)

Site Name Kashimir block iqbal town **Equipment Name** Pump

Sub division

Evaluation Criteria

✓ : Good / Yes　　× : No care at all or need to be newly installed

Δ : Need to be improved　　− : Not available to be checked

Code	Inspection Date	Inspected by	Approved by	Pump Specification					Inspection Items for Mechanical Facilities														
									Common				Pump				Motor		Valves			Diaphragm Pump	
				Rated Flow Rate	Rated Total Head	Rated Motor Output	Rated Voltage	Rated Ampere	Operation Record	Drawings	Vender Manual	Cleanliness	Flow Rate	Gland Leakage	Lubrication Tank	Pressure Gauge	Vibration	Voltage/Ampere	Non Return Valve	Gate Valve	Air Release Valve	Diaphragm Pump	Flowmeter
				(m3/h)	(m)	(kW)	(V)	(A)	Received	General arrangement, Sectional, Data sheet, Performance curve	Pump/Flowmeter/ Valves/Diaphragm pump	No dust, sand, spider's nest, insect, small animals	Discharge amount is within 80%-120% of Rated	20drps/mint Leakage amount is within spec	Should be filled with water and rust proof	Working properly	Volums are within spec	Volums are within spec	Leakage or othe defect	Leakage or othe defect	Leakage or othe defect	Working properly	Working properly
1	2-Apr-18	RYUTA KUDO		204	64	55	400	101	✓	-	-	✓	✓	Δ	✓	Δ	-	✓	✓	×	Δ	Δ	✓
2																							

- Remarks -

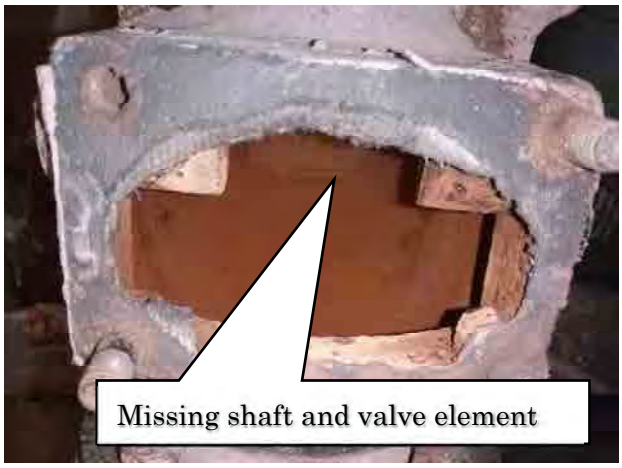
Please make note here if anything unusual or you did some corrective actions.

Site conditions in detail shall be mentioned here with relevant Code Number.

(Noise, Overheat, Vibration, Foreign Object, Moisture, Dust, Sandy etc.)

6. Rehabilitation / improvement of equipment

To improve current situation with photos. A sample is shown as bellow.

	
Before	After
	
Before	After
	
Before	After

7. Appendix

a) Pump and Motor troubleshooting

8 Trouble-shooting

⚠ WARNING

Improper remedial work on the pump (set)
Risk of injury!

- For any work performed in order to remedy faults on the pump (set) observe the relevant information given in this operating manual or the product literature provided by the accessories manufacturers.

A Pump pressure is too low
B Excessive pump discharge pressure
C Excessive flow rate
D Pump delivers insufficient flow rate
E Excessive power consumption
F Pump is running but does not deliver
G Pump stops during operation
H Vibrations and noise during pump operation
I Impermissible rise of temperature inside the pump
J Excessive bearing temperature
K Excessive leakage at the shaft seal
L Motor is overloaded
M Leakage at the pump

Table 9: Trouble-shooting

A	B	C	D	E	F	G	H	I	J	K	L	M	Possible cause	Remedy[16]
✗	✗	✗	✗	✗	✗	✗	✗	✗	✗		✗		Operating point B does not match the Q and H performance data calculated in advance.	• Re-adjust to duty point (e.g. close/open shut-off element accordingly).
✗			✗		✗								Pump or piping are not completely vented.	• Vent pump.
✗			✗		✗	✗	✗	✗					Inlet line or impeller clogged	• Clean the impeller. • Check system for impurities. • Remove deposits in pump and/or piping. • Check any strainers installed/ suction opening.
✗			✗		✗	✗	✗						Formation of air pockets in the piping	• Fit venting device. • Alter piping layout.
✗			✗		✗	✗	✗						NSPH available/water level too low.	• Check operating mode. • Increase back pressure by throttling. • Correct suction conditions. • Increase suction head. • Install pump at a lower level. • Fully open the shut-off element in the inlet line, if any. • Alter the inlet line if piping losses are too high, if any.

16) Pump pressure must be released before attempting to remedy faults on parts which are subjected to pressure.

A	B	C	D	E	F	G	H	I	J	K	L	M	Possible cause	Remedy[16]
										✗			Shaft seal worn/Score marks or roughness on shaft protecting sleeve.	• Check flushing liquid/barrier fluid pressure. • Clean barrier fluid, supply external barrier fluid, if necessary, or increase barrier fluid pressure. • Fit new shaft seal. • Replace worn components by new ones. • Replace shaft protecting sleeve.
✗			✗				✗		✗				Unfavourable flow to pump suction nozzle	• Check the inflow conditions of the intake reservoir and intake chamber. • Check whether pipe routing results in swirling or irregular flow (e.g. downstream of elbow) and correct, if necessary.
				✗				✗		✗			Gland follower, seal cover excessively tightened or tightened askew, incorrect packing material.	• Correct. • Replace. • Correct. • Replace gland packing. • Replace worn components by new ones.
								✗	✗	✗			Lack of cooling liquid or dirty cooling chamber.	• Check flushing liquid/barrier fluid pressure. • Clean barrier fluid, supply external barrier fluid, if necessary, or increase barrier fluid pressure. • Increase cooling liquid quantity. • Clean coolant/cooling chamber.
							✗		✗				Pump is warped or sympathetic vibrations in the piping.	• Re-align pump/drive. • Check piping connections and secure fixing of pump; improve fixing of piping, if necessary. • Fix pipelines using anti-vibration material.
									✗				Increased axial thrust	• Check duty point/pump selection. • Check operating mode. • Check suction side flow conditions.
							✗		✗				Insufficient or excessive quantity of lubricant or unsuitable lubricant	• Clean the bearings. • Top up, reduce or change lubricant.
									✗				Non-compliance with specified coupling distance	• Correct distance in accordance with the general arrangement drawing.

16) Pump pressure must be released before attempting to remedy faults on parts which are subjected to pressure.

A	B	C	D	E	F	G	H	I	J	K	L	M	Possible cause	Remedy[16]
✗			✗	✗							✗		Motor is running on 2 phases only.	• Replace defective fuses. • Check electrical connections. • Check switchgear.
							✗		✗	✗			Rotor out of balance	• Clean the rotor. • Check run-out; re-align, if necessary. • Re-balance the rotor.
							✗		✗	✗			Defective bearing(s)	• Replace.
							✗	✗					Flow rate is too low.	• Re-adjust to duty point. • Fully open shut-off element in suction/inlet line. • Fully open shut-off element in discharge line. • Re-calculate or measure hydraulic losses H_V.
✗			✗										In star-delta operation, motor sticks at star stage	• Check electrical connections. • Check switchgear. • Close or only slightly open the shut-off element in the discharge line during start-up.
✗			✗				✗						Impermissible air or gas content in fluid handled	• Check suction line for leakage, seal if necessary. • Replace defective parts.
✗			✗		✗	✗	✗						Air intake at pump inlet (e.g. air-entraining vortices)	• Check intake area for air-entraining vortices. • Correct suction conditions. • Reduce flow velocity at suction line inlet. • Increase suction head.
							✗						Cavitation (rattling noise)	• Correct suction conditions. • Check operating mode. • Increase suction head. • Install pump at a lower level.
							✗		✗				Foundation not rigid enough.	• Check. • Correct.
✗			✗		✗	✗	✗						Impermissible single-pump/parallel operation.	• Re-adjust to duty point. • Alter system conditions. • Adjust pump characteristic H.
							✗			✗			Shaft is out of true.	• Replace.
				✗			✗	✗	✗		✗		Impeller rubs against casing components.	• Check rotor. • Check impeller position. • Verify that piping has been connected without transmitting any stresses or strains.
											✗		Operating voltage is too low.	• Increase the operating voltage.
										✗			Excessive surface pressure in the mechanical seal's sealing clearance, lack of lubricant/circulation liquid	• Check installation dimensions. [18]

16) Pump pressure must be released before attempting to remedy faults on parts which are subjected to pressure.

18) Separate pump/pump set from the power supply and depressurise!

b) Diaphragm pump

Mechanical Faults

As the system is quite robust there are no apparent mechanical problems. Occasionally there might be a loss of liquid from the nipple because the tube nut has loosened, or more simply the discharge tubing has broken. Very rarely there may be losses caused by the breakage of the membrane, or by the membrane seals in which case they have to be replaced by disassembling the four screws of the pump head, when re-mounting the pump head ensure that the screws are replaced properly, along with "O" ring.

After repair, the metering pump will need to be cleaned of additive residues which can damage the pump casing.

1. The Metering pump Give Pulses but the additive is not injected

A.Discount the suction and discharge valves, clean them and replace. Should the valves be swollen, check valves material against our chemical resistance compatibility chart and fit correct valves. Standard valves are Viton. Upon request ball check valve, can be supplied.

B. Check clogging of the filter.

ATTENTION: When removing the metering pump from the plant, be careful as there might be some residual additive in the discharge hose.

Electrical Faults

1. All LED's off, The Pump does not pulse

Check power supply (socket, plug, power switch ON).if the pump does not work contact manufacturer customer services, Dealer or Distributor.

2. Green LED (Power) On, Red LED (Pulse) off, the Pump does not pulse

Check the flow rate adjustment Knob, turning it to max flow rate. If the pump does not work contact manufacturer customer service, Dealer or Distributor.

3. Pump Pulses are not constant

Check that supply voltage is within +/- 10% of rated voltage.

4. The Dosing Pump gives only one pulse

Disconnect the equipment and contact manufacturer customer service, Dealer or Distributor.

添付資料 4.68

2017 年秋期研修「O&M of Tube Well and Pump Facility」におけるフォローアップ調査

JICA

ALJAZARI ACADEMY

O&M of Tube Well and Pump Facility

Post Training Evaluation (3rd Cycle)

Date	31-10-17.	**WASA**	MULTAN.
Visitors Name (JICA/Al-Jazari Team)	Zia Mustafa (water Specialist) Muhammad Faisal (RA) Rizwan Jalil (RA)	**Sub Division**	SHUJABAD
		Location	SHUJABAD.
WASA Official	ABDUS SALAM.	**Designation**	Deputy Director.
Contact ~~Name~~ No.	0300-6303713	**Email**	wasa_mln@yahoo.com

Observations				
Sr. No.	**Parameter**	**Yes**	**No**	**Remarks**
1	Monitor availability of updated maps at WASA Sub Division	✓		
2	Monitor Chlorine Dosing at Tube well	✓		
3	Monitor chlorinator at tube well chamber in optimum working order	✓		
4	Check dosing schedule as per Quality of supplied Water		✓	
5	Checking of Water Quality	✓		Daily
6	Monitor status of bulk flow meter at source & domestic meter at consumer end	✓		
7	Monitor the measurement of pressure at Tube well		✓	
8	Recording and reporting of Discharge at tube well		✓	
9	Check residual chlorine at various locations of Water Distribution System	✓	~~✓~~	
10	Checking chlorine solutions at Tube Well and Reservoir	✓		Monthly weekly

Road Blocks/Issues
No issues

Proposals/Recommendations	
WASA	**AlJazari Academy**

WASA Officer: ABDUS Salam . Aljazari Officer: Zia Mustafa

Signature: 31/8/17. Signature:

O&M of Tube Well and Pump Facility

Sr. No.	Parameters to Monitor	Success level of Implementation	Remarks
1.	Monitor availability of updated maps at WASA Sub Division	1 2 3 4✓ 5	
2.	Monitor Chlorine Dosing at Tube well	1 2 3 4 5✓	
3.	Monitor chlorinator at tube well chamber in optimum working order	1 2 3 4 5✓	
4.	Check dosing schedule as per Quality of supplied Water	1 2 3 4 5	No chlorine dosing schedule was available at T.W chamber
5.	Checking of Water Quality	1 2 3 4 5✓	
6.	Monitor status of bulk flow meter at source & domestic meter at consumer end	1 2 3 4 5✓	
7.	Monitor the measurement of pressure at Tube well	1 2 3 4 5	No Pressure gauge was installed at T.W chamber
8.	Recording and reporting of Discharge at tube well	1 2 3 4 5	No discharge recording was observed at site

9.	Check residual chlorine at various locations of Water Distribution System	1	2	3	4	5 ✓	
10.	Checking chlorine solutions at Tube Well and Reservoir	1	2	3	4 ✓	5	

JICA ALJAZARI ACADEMY

O&M of Tube Well and Pump Facility

Post Training Evaluation (3rd Cycle)

Date	06-11-2017	WASA	Gujranwala
Visitors Name (JICA/Al-Jazari Team)	Zia ... (... Specialist) Mohammad ... (RA) ... (RA)	Sub Division	
		Location	... Block ... Colony
WASA Official	M. Abdur Rehman	Designation	Sub Engineer
Contact Name		Email	

Sr. No.	Parameter	Yes	No	Remarks
1	Monitor availability of updated maps at WASA Sub Division	✓		
2	Monitor Chlorine Dosing at Tube well	✓		
3	Monitor chlorinator at tube well chamber in optimum working order	✓		
4	Check dosing schedule as per Quality of supplied Water			
5	Checking of Water Quality	✓		
6	Monitor status of bulk flow meter at source & domestic meter at consumer end	✓		
7	Monitor the measurement of pressure at Tube well		✓	
8	Recording and reporting of Discharge at tube well	✓		
9	Check residual chlorine at various locations of Water Distribution System	✓		
10	Checking chlorine solutions at Tube Well and Reservoir	✓		After 30 days, solution ... changed

Road Blocks/Issues

No issues

Proposals/Recommendations	
WASA	**AlJazari Academy**

WASA Officer: S.E. P.C Zone M. ABDUL REHMAN

Aljazari Officer: Zia Mufti

Signature:

Signature:

O&M of Tube Well and Pump Facility

Sr. No.	Parameters to Monitor	Success level of Implementation	Remarks
1.	Monitor availability of updated maps at WASA Sub Division	1 2 3 4✓ 5	
2.	Monitor Chlorine Dosing at Tube well	1 2 3 4✓ 5	
3.	Monitor chlorinator at tube well chamber in optimum working order	1 2 3 4✓ 5	
4.	Check dosing schedule as per Quality of supplied Water	1 2 3 4 5	No dosing schedule was available at TW chamber
5.	Checking of Water Quality	1 2 3 4 5✓	
6.	Monitor status of bulk flow meter at source & domestic meter at consumer end	1 2 3 4 5✓	
7.	Monitor the measurement of pressure at Tube well	1 2 3 4 5	No Pressure Gauge was installed at TW chamber
8.	Recording and reporting of Discharge at tube well	1 2 3 4✓ 5	—

9.	Check residual chlorine at various locations of Water Distribution System	1 2 3 4 5✓	
10.	Checking chlorine solutions at Tube Well and Reservoir	1 2 3 4✓ 5	

O&M of Tube Well and Pump Facility

Post Training Evaluation (3rd Cycle)

Date	09-11-2017	WASA	Rawal Pindi
Visitors Name (JICA/Al-Jazari Team)		Sub Division	+
		Location	[illegible] TMA
WASA Official	Muhammad Khaleeq Afzal	Designation	SDO
Contact Name		Email	

Observations				
Sr. No.	Parameter	Yes	No	Remarks
1	Monitor availability of updated maps at WASA Sub Division	✓		
2	Monitor Chlorine Dosing at Tube well	✓		
3	Monitor chlorinator at tube well chamber in optimum working order	✓		
4	Check dosing schedule as per Quality of supplied Water		✓	
5	Checking of Water Quality	✓		15-3-21
6	Monitor status of bulk flow meter at source & domestic meter at consumer end	✓		
7	Monitor the measurement of pressure at Tube well		✓	
8	Recording and reporting of Discharge at tube well		✓	
9	Check residual chlorine at various locations of Water Distribution System	✓		
10	Checking chlorine solutions at Tube Well and Reservoir	✓		

Road Blocks/Issues

No issues

Proposals/Recommendations	
WASA	**AlJazari Academy**

WASA Officer: Muhammad Khaleeq Afzal Aljazari Officer: Zia Mustafa

Signature: _____ Signature: _____

O&M of Tube Well and Pump Facility

Sr. No.	Parameters to Monitor	Success level of Implementation	Remarks
1.	Monitor availability of updated maps at WASA Sub Division	1 2 3 4 ✓ 5	
2.	Monitor Chlorine Dosing at Tube well	1 2 3 4 5 ✓	
3.	Monitor chlorinator at tube well chamber in optimum working order	1 2 3 4 5 ✓	
4.	Check dosing schedule as per Quality of supplied Water	1 2 3 4 5	No chlorine dosing schedule was available at site
5.	Checking of Water Quality	1 2 3 4 5 ✓	
6.	Monitor status of bulk flow meter at source & domestic meter at consumer end	1 2 3 4 5 ✓	
7.	Monitor the measurement of pressure at Tube well	1 2 3 4 5	No Press. Gauge was installed at T.W
8.	Recording and reporting of Discharge at tube well	1 2 3 4 5	No recording of discharge was found at site

9.	Check residual chlorine at various locations of Water Distribution System	1 2 3 4 5✓	
10.	Checking chlorine solutions at Tube Well and Reservoir	1 2 3 4 5✓	

添付資料 5.1

供与機材のアカデミーへの譲渡（第 2 年次）

Project for Improving the Capacity of WASAs in Punjab Province in Islamic Republic of Pakistan

10th March, 2017

Dr. Kiran Farhan
Principal, Al-Jazari Academy

Transferring Ownership of Equipment

Dear Dr. Kiran

JICA is transferring an ownership of the listed equipment to Al-Jazari Academy, Lahore. In the process, the following conditions between JICA and Al-Jazari Academy were agreed:

1) The equipment will be used exclusively for training activities related to the "Project for Improving the Capacity of WASAs in Punjab Province in Islamic Republic of Pakistan".
2) After the project, Al-Jazari Academy will provide information (location, operation, condition, etc.) about the equipment at request.

List of Equipment transferred to Academy

Item No.	Description of Goods		Quantity
1.	Power Analyzer	Model: KEW6315	6
2.	Computer (Laptop)	Specification: Intel Core i7	10
3.	Computer (Laptop)	Specification: Intel Core i5	10

Thank you very much for your attention.

Best regards

DR. NOBUYUKI SATO
Chief Advisor

cc: MD WASA Lahore
cc: CEO, The Urban Unit, Lahore

Received
14/3/17

添付資料 5.2

供与機材のアカデミーへの譲渡（第 3 年次）

Project for Improving the Capacity of WASAs in Punjab Province in Islamic Republic of Pakistan

22 November, 2017

Dr. Kiran Farhan

Principal AlJazari Academy.

Transferring an ownership of equipment

Dear Dr. Kiran

JICA is transferring an ownership of the equipment listed below to Aljazari Academy, Lahore. In the process, the following conditions between JICA and Aljazari Academy were agreed:

1) The equipment will be used exclusively for training activities related to the "Project for Improving the Capacity of WASAs in Punjab Province in Islamic Republic of Pakistan".
2) After the project, Aljazari Academy will provide information (location, operation, condition, etc.) about the equipment at request.

Item No.	Description of Equipment	Quantity
1.	Water Level Meter Model: WL100, Type 2B	7

Thank you very much for your attention.

Best regards,

佐藤伸幸

DR. NOBUYUKI SATO

Chief Advisor

cc: CEO, The Urban Unit, Lahore

Received

22/11

添付資料 6.1

PDM (Project Design Matrix) Version 0

Project Design Matrix

Project Title: **Project for Improving the Capacity of WASAs in Punjab Province**
Implementing Agency: **HUD/PHED, Urban Unit**
Target Group: **(Direct) The faculty of Punjab WATSAN academy and staff of 5 WASAs**
(Indirect) Residents of 5 cities and staff of public water sector in Punjab
Period of Project: **2015-2017 (3 years)**
Project Site: **City of Lahore, Rawalpindi, Gujranwala, Faisalabad and Multan**

Version 0
Dated June 10, 2014

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption	Achievement	Remarks
Overall Goal Water supply and sewerage service in 5 WASAs is improved.	1 The target of the performance indicators on management and O&M are achieved.[*1]	1 Statistical / annual report/Bench making report of WASAs			
Project Purpose Punjab WATSAN Academy is functioned as a training institute for capacity development of staff of WASAs and the public water sector.	1 Training courses are conducted as planned. 2 Performance indicators related to management and O&M are improved.[*2]	1 Training records 2 Performance indictor records of WASAs			
Outputs 1. Training system of Punjab WATSAN Academy is established.	1-1 Training curriculum and training material/manual are developed for tube well and pump facility, leakage detection, sewer and storm water drainage, disposal station, and asset management. 1-2 Evaluation mechanism for training course and WATSAN Academy staff is established. 1-3 Training curriculum and training material/manual are revised regularly. 1-4 Annual training plan is made every year.	1-1 Training curriculum and training material/manual[*3] 1-2 Evaluation report 1-3 Revised manual, training curriculum and training material 1-4 Annual training plan	1. Trained Punjab WATSAN Academy staffs do not leave Punjab WATSAN Academy		

2. The faculties at Punjab WATSAN Academy provide the training to staff of WASAs and the public water sector for improving the water supply and sewerage system and its management.	2-1 Regular training course(s) is conducted by Punjab WATSAN Academy staff. 2-2 More than 80 % of trainees participating in the training courses pass the level check test.	2-1 Training records 2-2 Records of level check test			
3. OJT is implemented by trainees of WASAs trained at Punjab WATSAN Academy for O&M of water supply, sewerage, storm water system, electrical and mechanical machinery and leakage management.	3-1 The following OJT activities are implemented with an application of the obtained knowledge and technique at Punjab WATSAN Academy. i) O&M of tube well and pump facility ii) leakage detection iii) O&M of sewer and storm water drainage iv) O&M of disposal station v) asset management	3-1 OJT records			

Activities	Inputs		Pre-Conditions
	The Japanese Side	**The Pakistan Side**	
1-1 To review Master Plan of Project and management plan including budget, facility, personnel and organization system, and provide recommendation if necessary. 1-2 To grasp needs for training of WASAs. 1-3 To assess capacities at WASAs for i) O&M on tube well and pump facility ii) leakage detection iii) O&M of sewer and storm water drainage iv) O&M of elect and mechanical equipment for disposal station, and sewerage and drainage v) Management of assets and operational and business planning 1-4 To develop capacity building a training framework, curriculum, training material and training aid related to i) basic knowledge and skills on water and sewerage business management including reporting Standard Operating Procedure, planning and design of water supply and sewer/storm water drainage including hydraulic analysis of pipeline network, water quality management and water safety plan, sewer and storm water drainage, and sewerage system management.	1.Expert 1) Chief advisor/ training management/O&M of water sector 2) Leak detection 3) O&M of Water supply facilities including Mechanical and electrical equipment 4) O&M of Drainage and Sewerage 5) Water utilities business management including asset management and planning 6) Curriculum development and Assessment 7) Training skill 2. Equipment 1) Equipment for O&M of water supply tube well and pump facilities 2) Equipment of leak detection 3) Equipment for safety precaution 3. Training in Japan - Counterpart trainees from Punjab WATSAN Academy and WASAs	1.Counterpart personnel 2.Office space and facilities 3.Necessary data/ information 4.Local cost 5. Suitable security arrangement and advice 6.- Alteration/renovation works - Electric Works - Services (Water supply and sewage) - Purchase of Furniture and Fixtures - Equipment and Machinery - Vehicles - Salaries for Punjab WATSAN Academy staff - Operation and Maintenance Cost (Other than salaries)	[Pre-conditions] 1. To be approved PC-1 by the Planning Commission (CDWP) 2. To employ Punjab WATSAN Academy staffs 3. To prepare management plan of Punjab WATSAN Academy including budget, facility, personnel and organization system **<Issues and countermeasures>**

ii) professional knowledge and skills on a) O&M of tube well and pump facility b) leakage detection and management c) O&M of sewer and storm water drainage including safety precaution and HSE d) O&M of disposal station. e) asset management for water supply and sewerage system. f) reporting and compliance 1-5 To formulate annual training implementation plan. 1-6 To train Punjab WATSAN Academy staff to acquire capacity of training coordination. 1-7 To train Punjab WATSAN Academy staff to acquire teaching and pedagogical skills. 1-8 To establish evaluation and testing mechanism for training course and Punjab WATSAN Academy staff for quality assurance. 1-9 To revise manual, training curriculum and training material for improving training course. 1-10 To develop and establish the procedure of Output 3.				

2-1 To conduct training course(s) for basic knowledge. 2-2 To conduct training course(s) for a subject of i) O&M of tube well and pump facility ii) leakage detection iii) O&M of sewer and storm water drainage including safety precaution iv) O&M of elect and mechanical equipment for disposal station, and sewerage and drainage v) asset management for water supply and sewerage system. vi) management of assets and operational and business planning 2-3 To prepare an OJT plan for a subject of i) O&M of tube well and pump facility ii) leakage detection iii) O&M of sewer and storm water drainage including safety precaution iv) O&M of disposal station v) asset management for water supply and sewerage system. 2-4 To conduct regular training course(s) updated contents through previous training and OJT activities for a subject of i) O&M of tube well and pump facility ii) leakage detection				

iii) O&M of sewer and storm water drainage including safety precaution iv) O&M of elect and mechanical equipment for disposal station, and sewerage and drainage v) asset management for water supply and sewerage system. 3-1 To conduct OJT to WASA's workers by the trainees at Punjab WATSAN Academy as planned on the activity 2-3 for a subject of i) O&M of tube well and pump facility ii) leakage detection iii) O&M of sewer and storm water drainage iv) O&M of elect and mechanical equipment for disposal station, and sewerage and drainage v) asset management for water supply and sewerage system			

Note:
*1: The detail will be defined before the end of the project.
*2: The detail will be defined on 1st JCC.
*3: Training curriculum describes training course with schedule including training methods, tools, class room and field component and contact time and assessment requirement . Training material includes but not limited to lectures, class room discussions, case study, guest lecture, site visits, use of equipment and assessment of existing situations is used for training course and its approaches. Manual describes how to use equipment and report with its O&M frequency and improvement strategies.
Pump facility is located at tube well. Disposal station is the place for pumping up including all civil, electrical and mechanical devises and system sewage.

添付資料 6.2

Lahore WASA によって探知された埋没したマンホール蓋の数

WATER AND SANITATION AGENCY (LDA) LAHORE
MAIN OUT FALL ROAD SANT NAGAR

No.XEN/LDC/ 559 Dated: 27/04/2018

SUBJECT:- PROGRESS REPORT OF DETAILED SURVEY OF DIFFERENT TOWNS FOR LEAKAGE DETECTION IN WATER SUPPLY NETWORK.

NAME OF TOWN (GBT)

SUB DIVISION	NOS OF BURIED MANHOLE S/V DETECTED BY LDC STAFF WASA LDA LAHORE	FROM - TO
Ravi Road	11	25-04-17 to 30-04-17
Gulshan-e-Ravi	12	06-11-17 to 12-11-17
Islam Pura	07	22-11-17 to 30-11-17
Anarkali	08(M/H) & 03 Nos (S/V)	31-11-17 to 10-12-17

GULBERG TOWN

SUB DIVISION	NOS OF BURIED MANHOLE S/V DETECTED BY LDC STAFF WASA LDA LAHORE	FROM - TO
Mozang	32	18-12-17 to 31-12-17
Gulberg	54	08-01-18 to 31-01-18

ALLAMA IQBAL TOWN

SUB DIVISION	NOS OF BURIED MANHOLE S/V DETECTED BY LDC STAFF WASA LDA LAHORE	FROM - TO
Ichhra	61	12-02-18 to 21-04-18

ABID HUSSAIN NAJAM
ASST. DIRECTOR LDC
WASA, LDA LAHORE

添付資料 6.3

Lahore WASA の Energy Audit 報告書

ENERGY AUDIT REPORT

Date: 15-02-2017

Location:A block Tajpura

Pump Data

Make KSB

Rated Discharge (Q) 2 cusecs

Rated Head (H) 210 ft

Discharge Dia. (D_d) Inch 8

Motor Data

Make Siemens

rated HP 80

Frequency 50 C/S

Sr. #	Parameter	Unit	Method	
1	**Disch. Pressure (p_d)**	**psi**	**Measured**	**0 to 5**
4	**Voltage (V)**	**Volt**	**Measured**	**385**
5	**Ampere (A)**	**Amp**	**Measured**	**51.7**
6	**Power Factor (Cos ø)**	**Nil**	**Measured**	**0.69**
7	**Motor Input Power (P_{input})**	**KW**	**Measured**	**67.0**
8	**Speed (N)**	**RPM**	**Measured**	**1476**
22	**Motor Vibration Upper Bearing**	**mm/s**	**Measured**	**11.7**
23	**Motor Vibration Lower Bearing**	**mm/s**	**Measured**	**3.9**
24	**Temperature at Upper Bearing**	**°C**	**Measured**	**24.5**
25	**Temperature at Lower Bearing**	**°C**	**Measured**	**29.9**

FINDINGS & RECOMMENDATIONS

Power factor improvement panel (PFI) is not working

Excessive leakages at the pump gland

Incorrect setting of under/over voltage relay and Timer which has been adjusted by the team.

Air at tap

ANUM JAVED
SDO (ELECTRICITY), WASA

ENERGY AUDIT REPORT

Date: 28-02-2017

Location: Kamran park Farkhabaad

Static Water Level (ft) 70

Total Dynamic Head (ft) 155

Pump Data

Make KSB

Rated Discharge (Q) 2 cusecs

Rated Head (H) 210 ft

Discharge Dia. (D_d) Inch 8

Motor Data

Make Siemens

rated HP 80

Frequency 50 C/S

Sr. #	Parameter	Unit	Method	
1	**Disch. Pressure (p_d)**	**bar**	**Measured**	**1.2**
2	**Flow (Q)**	**m^3/h**	**Measured**	**255**
3	**Pumping Water Level (h_{pl})**	**m**	**Estimated**	**33.0**
4	**Voltage (V)**	**Volt**	**Measured**	**400**
5	**Ampere (A)**	**Amp**	**Measured**	**78.1**
6	**Power Factor (Cos ø)**	**Nil**	**Measured**	**0.82**
7	**Motor Input Power (P_{input})**	**KW**	**Measured**	**44.4**
8	**Speed (N)**	**RPM**	**Measured**	**1476**
9	**Disch. Head (h_d)**	**m**	**Calculated**	**12.6**
10	**Frict. Losses (Discharge Head)**	**m**	**Calculated**	**0.50**
11	**Frict. Losses (Column Pipes)**	**m**	**Calculated**	**1.0**
12	**Static Disch. Head H_{sd}**	**m**	**Calculated**	**47.1**
13	**Disch. Velocity (v_d)**	**m/s**	**Calculated**	**2.2**
14	**Velocity Head (hv_d)**	**m**	**Calculated**	**0.2**
15	**Total Dynamic Head H_{TD}**	**m**	**Calculated**	**47.4**
16	**Water Power (P_w)**	**KW**	**Calculated**	**32.9**
17	**Motor Efficiency ($ń_m$)**	**%**	**Assumed**	**85.0**
18	**Motor Output Power (P_{output})**	**KW**	**Calculated**	**37.7**

19	**Power loss (Shaft Friction)**	**KW**	**Calculated**	**1.0**
20	**Pump Power Input**	**KW**	**Calculated**	**36.7**
21	**Pump Efficiency ($ń_{Pump}$)**	**%**	**Calculated**	**89.6**
22	**Motor Vibration Upper Bearing**	**mm/s**	**Measured**	**22.4**
23	**Motor Vibration Lower Bearing**	**mm/s**	**Measured**	**7.7**
24	**Temperature at Upper Bearing**	**°C**	**Measured**	**29.7**
25	**Temperature at Lower Bearing**	**°C**	**Measured**	**36.8**

FINDINGS & RECOMMENDATIONS

Water is being overpumped

Terminal box is not installed

Power factor improvement panel (PFI) is not working

Incorrect setting of under/over voltage relay which has been adjusted by the team

ANUM JAVED
SDO (ELECTRICITY), WASA

添付資料 6.4

Lahore WASA でのメンテナンス記録および機器チェック

Preventive Maintenance Sheet for Electrical Facility

Sub Division : Gulberg	**Motor Specification**			Rated Capacity (kW/HP)	55kw
Site Name: A-3 Gulberg	**Rated Voltage**	**Rated Ampere**	**Efficiency**	**Power Factor**	**RPM**
Equipment Name: Panel	(V) 400	(A) 101	- 92.1	- 0.85	1480

Date			25-4-2017			
Inspected By			Anum Javed			
Weather						
Bolt Tightening			✓			
Insulation Resistance (MΩ)	U1-E	U2-E	371MΩ	300		
	V1-E	V2-E	565	303.		
	W1-E	W2-E	311	526		
	U1-V1	U2-V2	733.	1109.		
	V1-W1	V2-W2	744	617		
	W1-U1	W2-U2	726	597.		
Voltage by Clamp Meter (V)	RY		388.			
	YB		394			
	BR		392			
Ampere by Clamp Meter (A)	R		75 A			
	Y		85.1A			
	B		85.4A			
Power Factor						
Vibration	Upper Bearing	Lower Bearing				
Revolution Per Minute (RPM)						
Temperature	Upper Bearing	Lower Bearing				
	Shaft					

Reference for Insulation Resistance Value: Good → more than 1.0MΩ

Need to Adjust, Clean,Care → 1.0MΩ ~ 0.4 Need to repair immediately →less than 0.4MΩ

- Remarks -

Device Inspection Sheet

Approved by :

Inspected by : Anum Javed

Motor Specification: Rated Capacity (kW/HP) 5.5kw

Rated Voltage (V) 400 Rated Current(A) 10.1 Efficiency 92.1

Power Factor 0.85 RPM 1480

Evaluation Criteria

✓ : Good ✕ : No care at all or need to be newly installed

△ : Need to be improved — : Not available to be checked

Sr. No.	Site /Pump Name	Inspection Date	Continuity Test of components (Using Clamp Meter)									Current Transformer			Relays Adjustments					
			Circuit Breakers					Magnetic Contactor			Fuse				Over/Under Voltage Relay			Over Current (Thermal) Relay		Y-Δ Timer
			MCCB	MCB 1	MCB 2	MCB 3	MCB 4	K1	K2	K3		CT1	CT2	CT3	Under Voltage Tripping Function	Over Voltage Tripping Function	±10% of rated voltage of motor	Tripping Function	Value Set	Not less than 5 seconds
1	K-Block A-3.	25/4/17.	✓	✓	✓	✓	△	✓	✓	✓	△	△	△	△	✓	✓	✓	✓	✓	✓
2																				
3																				
4																				
5																				

- Remarks -

添付資料 6.5

Faisalabad WASA のメンテナンス作業

مینٹیننس شیٹ

جے بی سی ٹیوب ویل نمبر 19

تاریخ	تفصیل	کیفیت
12-07-17	مین لائن کنٹیکٹر کی ڈی پی جلی ہوئی تھی لگا کر چالو کیا گیا	الیکٹریکل فالٹ / دیال
12-07-17	موٹر کے بیئرنگز کو گریس کی	مکینیکل ورک / M.Afzal
29-07-17	گلینڈ ڈوری سیٹ کی	مکینیکل ورک / M.Afzal
07-08-17	تین عدد کنکشن کنٹیکٹر جل گئے تھے نئے کنکشن کنٹیکٹر لگا کر چالو کیا	الیکٹریکل فالٹ / دیال
17-09-17	وولٹیج ریلے ٹرپ تھی ری سیٹ کر کے چالو کر دیا گیا	الیکٹریکل فالٹ / دیال
19-09-17	مین سوئچ اور سٹار کی تار جلی ہوئی تھی لگا کر چالو کر دیا گیا	الیکٹریکل فالٹ / دیال
22-09-17	پاور فیوز جلے ہوئے تھے فیوز لگا کر چالو کر دیا گیا	الیکٹریکل فالٹ / دیال
15-11-17	موٹر کے بیئرنگ کو گریس کی	مکینیکل ورک / M.Afzal
18-12-17	بال وال کی لیکج کے اوپر پیچک لگائی	مکینیکل ورک / M.Afzal
09-04-18	بال وال اتار کر ریپیئر کروا کر لگایا	مکینیکل ورک / M.Afzal

مینٹیننس شیٹ

جے بی سی ٹیوب ویل نمبر 20

تاریخ	تفصیل	کیفیت
27-12-17	ٹیوب لائیٹ چالو کی	الیکٹریشن [illegible] / دستخط
03-01-18	موٹر سے بیرنگ کو گریس کی	مکینیکل [illegible] / M Afzal
27-01-18	[illegible] کر دیا گیا	الیکٹریشن [illegible] / دستخط
27-01-18	موٹر سے بیرنگ کو گریس کی اور گلینڈ [illegible]	مکینیکل [illegible] / M Afzal
02-02-18	مال حال درست کیا	مکینیکل [illegible] / M Afzal
21-02-18	[illegible] الیکٹریشن [illegible] درست کر کے چالو کیا	الیکٹریشن [illegible] / دستخط
05-03-18	گلینڈ [illegible] تبدیل کیا	مکینیکل [illegible] / M Afzal
31-03-18	[illegible] اور سوئچ [illegible] درست کر کے چالو کر دیا گیا	الیکٹریشن [illegible] / دستخط

مینٹیننس شیٹ

جے پی سی ٹیوب ویل نمبر 21

تاریخ	تفصیل	کیفیت
20-10-17	مین ٹرانسفارمر کی ڈی او جلی ہوئی تھی ڈی او لگا کر چالو کر دیا گیا	الیکٹریک فالٹ /
29-10-12	دو کنٹیکٹر ریلے جل گئی ہے	الیکٹریک فالٹ /
17-11-17	موٹر کے بیرنگ کو گریس کی اور ڈھکن سیٹ کی	مکینیکل فالٹ / M. Afzal
20-11-17	موٹر کے کنکشن کو درست کیا	الیکٹریک فالٹ /
28-01-18	جمپر خراب تھا درست کر کے چالو کر دیا گیا	الیکٹریک فالٹ /
02-02-18	مین ٹرانسفارمر کا جمپر جلا ہوا تھا لگا کر چالو کر دیا گیا	الیکٹریک فالٹ /
14-03-18	گلینڈ (ڈھکنی) کا ہینڈل وال سیٹ کیا	مکینیکل فالٹ / M. Afzal
14-03-18	بال وال کو مرمت کیا	مکینیکل ورک / M. Afzal
04-04-18	مین ٹرانسفارمر کی ڈی او جلی ہوئی تھی ڈی او لگا کر چالو کیا	الیکٹریک فالٹ /

添付資料 6.6

Faisalabad WASA のモーター効率調査報告書

To,

The Deputy Director

Electric Cell WASA,

Faisalabad.

Subject: **MOTOR EFFICIENCY REPORT**

Respected Sir,

I visited Abdullah pur Disposal works and Mansoorabad Disposals Works along with electrician. We measured motor Input power voltages , current & Power factor with the help of power analyzer. I also measured motor & pump RPM with the help of Tachometer and then calculate the output power of the motor as well as its efficiency .

MOTOR NAMEPLATE DATA;

400 (V) , 105 (A) , 75 (HP) , 0.86 (PF) , 980 (RPM)

EFFICIENCY = Output power/Input power

Input power

Taken by Power Analyzer

RED PHASE	YELLOW PHASE	BLUE PHASE
387.1 V	393.1 V	383.0V
107.8 A	109.6 A	110.6 A
0.63 PF	0.62 PF	0.65 PF

P(in) = 3(V*I*PF) = 3 (393.1*109.6*0.62)

P(in) = 80135.7936 W

Output Power

Taken by Tachometer

992 RPM – Motor	895 RPM – Pump

P(out) = 2piNT/60

T= 5252*Hp/N = 5252*75/964 = 408.6099

P(out) = 2*3.14*895*408.6099/60 = 38277.2189 W

Efficiency = P(out)/P(in)

= 38277.2189/80135.7936 * 100

Efficiency = 48% (Abdullah pur Disposal Works)

MOTOR NAMEPLATE DATA;

400 (V) , 99 (A) , 0.86 (PF) , 75 (HP) , 1350 (RPM)

Input power

Taken by power analyzer

RED PHASE	YELLOE PHASE	BLUE PHASE
385.8 V	412.6 V	396.3 V
64.75 A	60.97 A	88.35 A
0.95 PF	0.69 PF	0.86 PF

P(in) = 3 (412.6*60.97*0.69)

= 52073.37954 W

Output power

Taken by Tachometer

992 RPM – MOTOR	1000 RPM - PUMP

P(out) = 2piNT/60

2*3.14*1000*397.88/60 = 41644.64 W

Efficiency = P(out)/P(in)

= 41644.64/52073.37954*100

Efficiency = 80% (Masoorabad Disposal Works)

I found that set no 45 of Abdullah pur disposal is working on 48% Efficiency and set no 2 of Mansoorabad disposal is working on 80% Efficiency . That means there are some losses , some of them are constant losses and some of them are variable losses and can be rectified.

Report is being

Presented by,

Engr M.Bilal Sarwar

添付資料 6.7

Gujranwala WASA の井戸状況調査

Project for Improving the Capacity of WASAs in Punjab Province

CONDITION SURVEY OF TUBE WELL **Date:** 03/03/18

WASA: Gujranwala **Zone:** KIZ **Site Name:** Pasco Chowk

Survey Conducted By: Mr. Sarmad Waheed – Sub Engineer, Mr. Zain Hassan (JICA Coordinator), Mr. Ismaeel Azeem khan (JICA Coordinator)

1. Asset Location Information	
Site Address	
Operator Name & Mobile Number	Sajjad Ahmed 0305-1709032

2. Asset Technical Information			
Operational Status (YES/No)	Yes	Operational Hours (Avg)	
Year of Installation		Last Rehabilitation/ Maintenance (Date)	
Water Test (Date)			
Pump Make		Serial Number	
Pump Design Discharge (Cusec)	2	Pump Design Head (ft.)	
Type of Pump (Turbine/Submersible/Centrifugal)		Power (BHP)	
Motor Make	Siemens	Serial Number	
Motor Rating (HP)	60	Type of Motor	
Attached to Over Head Reservoir (OHR) (Yes/ No)	NO	Year of Construction of OHR	
Operational Status of OHR (Operational / Non Operational)		Capacity of OHR (G)	

3. Asset Visual Condition Rating		
Items	Rating	Picture (If Possible)
Physical Condition of Pump	A	
Pump Name Plate	A	
Pump Vibration Status	B	-
Pump Noise Level	B	-
Lubrication Box	C	
Lubricant Leakages Condition	D	
Water Leakages	A	
Physical Condition of Motor	A	
Motor Name Plate	A	
Motor Temperature Control	D	
Cooling Fan Condition	A	
Electric Cable insulation	B	
Transformer Condition	B	

Energy Meter Condition	B	
Condition of Distribution Panel (Outside)	F	
Condition of Distribution Panel (Inside)	B	
Condition of Motor Control Unit (Outside)	A	
Condition of Motor Control Unit (Inside)	A	
Power factor Improvement Panel (Outside)	C	
Power factor Improvement Panel (Inside)	C	
Condition of Electrical wiring (Single Phase)	C	
Piping Condition	A	
Bulk Meter Condition	A	
Condition of Non-Return Valve	B	
Condition of Gate Valve	C	
Condition of Air Release Valve	C	
Pressure Gauges Condition	F	
Chlorinator Condition	A	
Civil Structure Condition	A	
OHR Condition	-	
Safety Equipment	F	
Ventilation Condition	A	
Log Book	A	

4. Asset Operating Data

Discharge (Cusecs) =	Pressure (Bar) =	Chlorine Dosing (%) = [illegible]
Power Factor =		
Current (R) = [illegible]	Current (Y) = [illegible]	Current (B) = [illegible]
Voltage (R-Y) = [illegible]	Voltage (Y-B) = [illegible]	Voltage (B-R) = [illegible]

A = Excellent: No noticeable defects. Some aging or wear may be visible.
B = Good: Only minor deterioration or defects are evident.
C = Fair: Some deterioration or defects are evident, but function is not significantly affected.
D = Poor: Serious deterioration in at least some portion of the structure. Poor Function.
F = Failed: No longer functional. General or complete failure of a major structural component.
N/A = Not Applicable: In case of asking item is not related to the site.
- = Not Available: In case of asking item is not available at site to be checked.

Project for Improving the Capacity of WASAs in Punjab Province

ALJAZARI

JICA

CONDITION SURVEY OF TUBE WELL Date: 23/12/18

WASA: Gujranwala **Zone:** KUZ **Site Name:** Nian Chowk

Survey Conducted By: Mr. Samad Waheed – Sub Engineer, Mr. Zain Hassan (JICA Coordinator), Mr. Ismaeel Azeem khan (JICA Coordinator)

1. Asset Location Information	
Site Address	
Operator Name & Mobile Number	Hafiz Abdullah

2. Asset Technical Information			
Operational Status (YES/No)	Yes	Operational Hours (Avg)	
Year of Installation		Last Rehabilitation/ Maintenance (Date)	
Water Test (Date)			
Pump Make		Serial Number	
Pump Design Discharge (Cusec)	2.	Pump Design Head (ft.)	
Type of Pump (Turbine/Submersible/Centrifugal)		Power (BHP)	
Motor Make		Serial Number	
Motor Rating (HP)		Type of Motor	
Attached to Over Head Reservoir (OHR) (Yes/ No)	No	Year of Construction of OHR	
Operational Status of OHR (Operational / Non Operational)		Capacity of OHR (G)	

3. Asset Visual Condition Rating Items	Rating	Picture (If Possible)
Physical Condition of Pump	B	
Pump Name Plate	B	
Pump Vibration Status	B	
Pump Noise Level	V	
Lubrication Box	A	
Lubricant Leakages Condition	A	
Water Leakages	A	
Physical Condition of Motor	A	
Motor Name Plate	A	
Motor Temperature Control	B	
Cooling Fan Condition	B	
Electric Cable Insulation	V	
Transformer Condition	B	

Energy Meter Condition	D	
Condition of Distribution Panel (Outside)	A	
Condition of Distribution Panel (Inside)	A	
Condition of Motor Control Unit (Outside)	A	
Condition of Motor Control Unit (Inside)	A	
Power factor Improvement Panel (Outside)	—	
Power factor Improvement Panel (Inside)	—	
Condition of Electrical wiring (Single Phase)	—	
Piping Condition	B	
Bulk Meter Condition	B	
Condition of Non-Return Valve	B	
Condition of Gate Valve	C	
Condition of Air Release Valve	F	
Pressure Gauges Condition	B	
Chlorinator Condition	F	
Civil Structure Condition	—	
OHR Condition	F	
Safety Equipment	B	
Ventilation Condition	F	
Log Book		

4. Asset Operating Data		
Discharge (Cusecs) =	Pressure (Bar) = –	Chlorine Dosing (%) =
Power Factor = —		
Current (R) = 76	Current (Y) =	Current (B) =
Voltage (R-Y)= 380	Voltage (Y-B)=	Voltage (B-R)=

A = Excellent: No noticeable defects. Some aging or wear may be visible.
B = Good: Only minor deterioration or defects are evident.
C = Fair: Some deterioration or defects are evident, but function is not significantly affected.
D = Poor: Serious deterioration in at least some portion of the structure. Poor Function.
F = Failed: No longer functional. General or complete failure of a major structural component.
N/A = Not Applicable. In case of asking item is not related to the site.
– = Not Available. In case of asking item is not available at site to be checked.

添付資料 6.8

Rawalpindi WASA の発電機、ブロア、塩素消費量に関する運転データ

Month/Year 03 - 2017

Date 03 - 2017

Approved by (Engineer)	
Prepared by (Opeerator)	Muhammad Yamin

	Items	Unit	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Total
Operation Record	Operating Time		9:00AM TO 9:15AM	9:00AM TO 9:15AM	9:00AM TO 9:15AM	9:00AM TO 9:15AM	9:00AM TO 9:15AM	9:00AM TO 9:15AM	9:00AM TO 9:15AM	9:00AM TO 9:15AM	9:00AM TO 9:15AM	9:00AM TO 9:15AM	9:00AM TO 9:15AM	9:00AM TO 9:15AM	9:00AM TO 9:15AM	9:00AM TO 9:15AM	9:00AM TO 9:15AM	9:00AM TO 9:15AM
	Operating Hours	hrs	15 min	15 min	15 min	15 min	15 min	15 min	15 min	15 min	15 min	15 min	15 min	15 min	15 min	15 min	15 min	15 min
	Voltage RS	V	404	407	403	405	406	403	407	406	409	407	404	406	409	407	404	405
	ST	V	401	403	401	402	403	401	404	401	407	406	401	404	405	409	401	404
	TR	V	403	404	405	404	405	404	401	404	406	403	405	401	403	401	401	401
	Frequncy	HZ	50.2	50.2	50.2	50.2	50.2	50.2	50.2	50.2	50.2	50.2	50.2	50.2	50.2	50.2	50.2	50.2
Maintenance Record	Coolant Level		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Fuel Level	L	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Engine Oil Level	%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Alternator and fan belts		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Walk around Inspection		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Daily Operation and maintenance Record (Genertor)

Month/Year 2-1-2018

Date 2-1-2018

Approved by (Engineer)	
Prepared by (Operator)	Waheed Niazi

	Items	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Operation Record	Operating Time		9:00 AM to 9:15	9:00 to 9:15	9:00 to 9:15	9:00 to 9:15	9:00 to 9:15	9:00 to 9:15	9:00 to 9:15	9:00 to 9:15	9:00 to 9:15	9:00 to 9:15	9:00 to 9:15	9:00 to 9:15	9:00 to 9:15	9:00 to 9:15	9:00 to 9:15
	Operating Hours	hrs	15 mints	15 mints	15 mints	15 mints	15 mints	15 mints	15 mints	15 mints	15 mints	15 mints	15 mints	15 mints	15 mints	15 mints	15 mints
	Voltag RS	V	401	397	398	401	403	405	409	397	401	401	405	398	397	411	413
	ST	V	398	405	401	411	407	401	398	403	411	414	403	405	403	409	397
	TR	V	402	403	405	414	402	411	401	405	402	398	411	407	401	415	401
	Frequncy	HZ	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502
Maintenance Record	Coolant Level		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Fuel Level	L	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Engine Oil Level	%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Alternator and fan belts		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Walk around inspection		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Nadeem U.

Daily Operation and Maintenance Record (Generator)

Month/Year 11-2017

Date 16-30/11

Approved by (Engineer)	
Prepared by (Operator)	[illegible]

	Items	Unit	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Total
Operation Record	Operating Time		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	Operating hours	hrs	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	
	Voltag RS	V	[illegible]	405	396	409	407	397	397	407	411	412	405	397	403	403	405	
	ST	V	398	407	402	411	401	409	405	403	397	401	398	401	414	397	411	
	TR	V	409	414	405	401	414	401	401	409	404	402	409	405	411	407	409	
	Frequncy	HZ	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	
Maintenance Record	Coolant Level		✓	–	–	✓	–	–	–	–	–	–	–	–	–	✓	–	
	Fuel Level	L	✓	✓	✓	✓	–	–	✓	–	–	✓	✓	✓	✓	✓	✓	
	Engine Oil Level	%	✓	✓	✓	✓	–	–	✓	–	✓	✓	–	✓	✓	–	✓	
	Alternator and fan belts		✓	✓	✓	✓	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Walk around Inspection		✓	✓	✓	✓	–	–	✓	✓	–	–	✓	✓	✓	✓	✓	

Operation Time record (Air Scour Blower)

Month/Year: February 2018
Date: 08 - 02 - 2018

Prepared by (Operator)
Checked by (Sub Engineer): M Iqbal · Mahmood Ahmed · Sabir Hussain

Shift No.	Operating Time		Operating Minutes	Voltage	Amp	Power Factor	Bed No.	Remarks
	Start	Stop						
MOHAMMAD IQBAL 12 to 8 AM 8 AM to 1								
MEHMOOD AHMED 8 AM to 4 PM 4 PM to 2	9:15 AM	9:30 AM	15 mins	394	85 -	0.910	07	
	11 - AM	11:15 AM	15 mins	410	96	0.922	11 -	
Sabir Hussain 4 PM to 12 AM 1 to 3	6:00 PM	To	6:16	Normal	97	0923	12 -	

Asstt. Director (E&M)

Operation Time record (Air Scour Blower)

Month/Year: Feb 2018

Date: 18-02-2018

Prepared by (Operator): SABIR - IQBAL - MR HMOOD

Checked by (Sub Engineer):

Shift No.	Operating Time		Operating Minutes	Voltage	Amp	Power Factor	Bed No	Remarks
	Start	Stop						
12-4 A-1								
8-4 A-1								
1								
8-4 A-2	8:00	8:10	10	398	103	0.920	12=	
4-12 A-2	9:00	9:15	15	402	105	0.924	14=	
2	11:00	11:10	10	406	101	0.916	7=	
4-12 A-3	4:45	5:00	15	400	103	0.905	11:-	
12-4 A-3	6:45 pm	7:00 pm	15 Mins	401	98	0.923	02=	
3								

SABIR HUSSAIN

M. IQBAL

MEHMOOD AHMED

Asstt. Director (E&M)

Chlorine Cylinders Consumption Sheet

SNO	Date	Cylinders NO	Remarks
26	10-06-2017	832	ok
27	16-06-2017	2456	ok
28	21-06-2017	691	ok
29	1-7-2017	2204	ok
30	7-7-2017	739	ok
31	12-7-2017	619	ok
32	18-7-2017	666	ok
33	23-7-2017	609	ok
34	29-7-2017	787	ok
35	3-8-2017	779	ok
36	8-8-2017	804	ok
37	13-8-2017	1000	ok
38	17-8-2017	144	ok
39	23-8-2017	811	ok
40	29-8-2017	684	ok
41	4-9-2017	640	ok
42	9-9-2017	600	ok
43	14-9-2017	10014	ok
44	20-9-2017	685	ok
45	25-9-2017	778	ok
46	2-10-2017	532	ok
47	8-10-2017	2448	ok
48	14-10-2017	3455	ok
49	21-10-2017	824	ok
50	24-10-2017	639	ok

Chlorine Cylinders Consumption Sheet

SNO.	Date	Cylinders NO	Remarks
1	02-01-2017	2456	ok
2	09-01-2017	946-601	ok
3	12-01-2017	700	ok
4	18-01-2017	600	ok
5	25-1-2017	670	ok
6	31-1-2017	629	ok
7	7-2-2017	841	ok
8	13-2-2017	718	ok
9	20-2-2017	746	ok
10	25-2-2017	2199	ok
11	4-3-2017	538-	ok
12	20-3-2017	2190	ok
13	26-3-2017	520-	ok
14	2-4-2017	641	ok
15	11-4-2017	701	ok
16	17-4-2017	698-	ok
17	24-4-2017	512-	ok
18	29-4-2017	580-	ok
19	3-5-2017	336-	ok
20	9-5-2017	778	ok
21	15-5-2017	699	ok
22	19-5-2017	740	ok
23	25-5-2017	812	ok
24	31-5-2017	10,008	ok
25	05-06-2017	737	ok

添付資料 8.1

JCC 議事録（開催日：2015 年 9 月 22 日）

MINUTES OF MEETING

ON

THE FIRST JOINT COORDINATING COMMITTEE

FOR

PROJECT FOR IMPROVING THE CAPACITY OF WASAs IN PUNJAB IN ISLAMIC REPUBLIC OF PAKISTAN

Lahore, September 22, 2015

Dr. Arshad Mahmood
Secretary
Housing, Urban Development and Public Health Engineering Department
Government of the Punjab

Dr. Nasir Javed
Chief Executive Officer
The Urban Sector Planning and Management Services Unit Pvt. Ltd. (Urban Unit)
Planning and Development Department
Government of the Punjab

Dr. Nobuyuki Sato
Chief Advisor
JICA Expert Team

Record of Meeting	
The first Joint Coordinating Committee (hereafter referred to as "JCC") meeting was held on September 22, 2015 at the conference room of Housing, Urban Development and Public Health Engineering Department (hereafter referred to as "HUD&PHED"), Lahore. Prior to the meeting, the Inception Report (hereinafter referred to as "ICR"), described in the basic strategy and the activities of the project, was submitted to JCC. In the meeting, the JICA Expert Team (hereinafter referred to as "JET") explained the Inception Report, the progress of the project, the proposal for staffing and training period, and work plan for next three months. The followings were discussed and concluded in the meeting.	
Sr. No.	**Discussion/Decisions**
1.	***Approval of ICR*** JCC approved the content of ICR.
2.	***Progress of Project*** JCC agreed on the progress of the Project.
3.	***Proposal for staffing and training period*** JCC understood the necessity of the proposed staffing, and the flexibility of the training period as proposed by PCC. JCC re-confirmed that PCC discusses and finalizes the training period and courses.
4.	***Work plan for next three months*** JCC endorsed the work plan for next three months with comments to include deliverables under each activity and its status next time by the JICA Expert Team under each output.

5.	***PDM (Project Design Matrix)*** PDM was proposed for revision in the following items and reasons. 1) The academy was re-named to "Al-Jazari Academy" from "Punjab WATSAN Academy" by official decision of Pakistan Government. According to this re-naming, the name of the academy shall be changed to "Al-Jazari Academy" in PDM, too. 2) The detail of "Performance indicators" described in "Objective Verifiable Indicators" of "Project Purpose" were agreed to define "on 1st JCC" in Record of Discussions singed on March 31, 2015 (hereinafter referred to as "the R/D"). However, PCC considered that it is too early to define the indicators in this moment because assessment of capacity and training needs for 5 WASA has not completed yet. The indicators will be defined after the completion of the assessment by the end of CY 2015 at the latest. 3) Since the trainings are offered to staff of PHED and Tehsil Municipal Administrations (TMAs) as a public water sector in addition to WASAs, an indication of PHED and TMAs shall be specified wherever a description of "public water sector" is indicated as in **Attachment II**. In accordance with the revision, "Project Purpose" and "Outputs" in "ANNEX I Master Plan" and "ANNEX IX Project Design Matrix" in the R/D are also to be revised. 4) Both sides agreed on the PDM ver. 1 which included all of above mentioned modifications. The items to be revised and the revised PDM are attached in **Attachment I and II**, respectively. According to the revision of PDM, the corresponding items described in the R/D are also revised.
6.	***PO (Plan of Operation)*** The activities in PO are copied from the activities in PDM will be updated as required.

7.	***Training course/module for plan/design and GIS*** Secretary HUD&PHED observed that the training course/module for plan/design of new projects related to WASA's activities in the WASA operational area needs to be included. He also pointed out that, the JICA shall provide support in terms of providing technical assistance in addressing operational and maintenance issues being faced by WASAs, PHED and TMAs along with long term planning and Human Resource Development. It was shared by the Principal Al Jazari Academy that basic skill of the area is already planned or included in training course/modules as mentioned in "section 1-4" of "ANNEX I Master Plan" in the R/D as below. *"....planning and design of water supply including network zoning and sewer/storm water drainage including hydraulic analysis of pipeline network"* Pakistani side emphasized that these aspects are important part of WASAs operations and separate comprehensive module needs to be prepared to inculcate these skills integrated with GIS skills needed for planning, operation and management of assets. Pakistani side offered to provide the Counterpart for GIS. Mr. Abid Hussainy confirmed that the Urban Unit has already provided relevant maps for 5 WASAs prepared by GIS to JICA Expert Team. Japanese side understood the importance of the request. However, the further consideration such as training period and subject priority, etc. is required to fulfil the request because the project emphasizes more on O&M. The strengthening for O&M in this project can be also observed in "ANNEX I Master Plan" in the R/D. Japanese side agreed to inform to JICA headquarters regarding the request. *Note: The list of Attendance is attached in* ***Attachment III.***

Attachment I

Comparison of Current and Revised Items

Item	Current PDM	Revised PDM	Reasons of Revision
Target Group	(Direct) The Faculty of Punjab WATSAN academy and staff of 5 WASAs	(Direct) The Faculty of Al-Jazari academy and staff of 5 WASAs	The name of academy changed to Al-Jazari Academy from Punjab WATSAN Academy.
Project Purpose	Punjab WATSAN Academy is functioned as a training institute for capacity development of staff of WASAs and the public water sector.	Al-Jazari Academy is functioned as a training institute for capacity development of staff of WASAs and the public water sector (PHED, TMAs).	The name of academy changed to Al-Jazari Academy from Punjab WATSAN Academy. Since trainings are offered to staff of PHED and TMAs, the expression of (PHED, TMAs) is added.
Outputs: 1	Training system of Punjab WATSAN Academy is established.	Training system of Al-Jazari Academy is established.	The name of academy changed to Al-Jazari Academy from Punjab WATSAN Academy.
Outputs: 2	The faculties at Punjab WATSAN Academy provide the training to staff of WASAs and the public water sector for improving the water supply and sewerage system and its management.	The faculties at Al-Jazari Academy provide the training to staff of WASAs and the public water sector (PHED, TMAs) for improving the water supply and sewerage system and its management.	The name of academy changed to Al-Jazari Academy from Punjab WATSAN Academy. Since trainings are offered to staff of PHED and TMAs, the expression of (PHED, TMAs) is added.
Outputs: 3	OJT is implemented by trainees of WASAs trained at Punjab WATSAN Academy for O&M...	OJT is implemented by trainees of WASAs trained at Al-Jazari Academy for O&M...	The name of academy changed to Al-Jazari Academy from Punjab WATSAN Academy.
Objectively Verifiable Indicators: 1-2	Evaluation mechanism for training course and WATSAN Academy staff is established.	Evaluation mechanism for training course and Al-Jazari Academy staff is established.	

Objectively Verifiable Indicators: 2-1	Regular training course(s) is conducted by Punjab WATSAN Academy staff.	Regular training course(s) is conducted by Al-Jazari Academy staff.	The name of academy changed to Al-Jazari Academy from Punjab WATSAN Academy.
Objectively Verifiable Indicators: 3-1	The following OJT activities are implemented with an application of the obtained knowledge and technique at Punjab WATSAN Academy.	The following OJT activities are implemented with an application of the obtained knowledge and technique at Al-Jazari Academy.	
Important Assumption: 1	Trained Punjab WATSAN Academy staffs do not leave Punjab WATSAN Academy	Trained Al-Jazari Academy staffs do not leave Al-Jazari Academy	
Activities: 1-6	To train Punjab WATSAN Academy staff to acquire capacity of training coordination.	To train Al-Jazari Academy staff to acquire capacity of training coordination.	
Activities: 1-7	To train Punjab WATSAN Academy staff to acquire teaching and pedagogical skills.	To train Al-Jazari Academy staff to acquire teaching and pedagogical skills.	
Activities: 1-8	To establish evaluation and testing mechanism for training course and Punjab WATSAN Academy staff for quality assurance.	To establish evaluation and testing mechanism for training course and Al-Jazari Academy staff for quality assurance.	
Activities: 3-1	To conduct OJT to WASA's workers by the trainees at Punjab WATSAN Academy as planned on the activity 2-3 for a subject of	To conduct OJT to WASA's workers by the trainees at Al-Jazari Academy as planned on the activity 2-3 for a subject of	
Input, The Japanese Side: 3	Training in Japan - Counterpart trainees from Punjab WATSAN Academy and WASAs	Training in Japan - Counterpart trainees from Al-Jazari Academy and WASAs	
Input, The Pakistan Side: 6	- Salaries for Punjab WATSAN Academy staff	- Salaries for Al-Jazari Academy staff	

Pre-Conditions: 2	To employ Punjab WATSAN Academy staffs	To employ Al-Jazari Academy staffs	The name of academy changed to Al-Jazari Academy from Punjab WATSAN Academy.
Pre-Conditions: 3	To prepare management plan of Punjab WATSAN Academy including budget, facility, personnel and organization system	To prepare management plan of Al-Jazari Academy including budget, facility, personnel and organization system	
Note *2	The detail will be defined on 1st JCC.	The detail will be defined on JCC.	It is too early to define the indicators.

Attachment III

List of Attendants

Pakistani Side

Name	Position and Organization
Dr. Arshad Mahmood	Secretary, Housing, Urban Development and Public Health Engineering Department, Government of the Punjab (Chairperson of JCC)
Mr. Shaihd Latif	Additional Secretary (Technical), HUD & PHED
Mr. Moazzam Malik	Deputy Secretary (UD), HUD & PHED
Mr. Abdul Qayyom	Assistant Chief (UD), Planning and Development Department, Government of the Punjab
Mr. Abid Hussainy	Senior Capacity Development Specialist, The Urban Unit
Dr. Kiran Farhan	Principal, Al-Jazari Academy
Mr. Ch. Naseer Ahmad	Managing Director WASA Lahore
Mr. Roohan Javed	WASA Faisalabad
Mr. Amir Rasheed	Deputy Managing Director WASA Rawalpindi
Mr. Wasim Bajwa	Managing Director WASA Multan
Mr. Khalid Bashir Butt	Managing Director WASA Gujranwala
Mr. Zia Mustafa	Water Supply Specialist, Al-Jazari Academy
Ms. Sadaf Hussainy	Curriculum & Instructional Design Specialist, Al-Jazari Academy
Mr. Ihsan ul Haq	Senior Instructor, Al-Jazari Academy
Engr. Tanveer Shahzad	Young Professional, Al-Jazari Academy
Mr. Salman Qureshi	Senior Tutor, Al-Jazari Academy
Mr. M Kashif	Municipal Development Specialist, The Urban Unit

Japanese Side

Name	Position
Dr. Nobuyuki Sato	Chief advisor/training management / O&M of water sector
Mr. Chiaki Suzuki	Leak detection
Mr. Takuji Okubo	O&M of Water supply facilities
Mr. Yasuyuki Kuroda	Water utilities business management including asset management and planning
Mr. Motoo Taki	Senior Representative, JICA Pakistan Office
Mr. Mahood A. Jilani	Chief Program Officer, JICA Pakistan Office

添付資料 8.2

JCC 議事録（開催日：2016 年 5 月 16 日）

MINUTES OF MEETING

ON

THE 2ND JOINT COORDINATING COMMITTEE

FOR

PROJECT FOR IMPROVING THE CAPACITY OF WASAs IN PUNJAB PROVINCE IN ISLAMIC REPUBLIC OF PAKISTAN

Lahore, May 16, 2016

Mr. Sohail Shahzad
Secretary
Housing, Urban Development and Public Health Engineering Department
Government of the Punjab

Dr. Nasir Javed
Chief Executive Officer
The Urban Sector Planning and Management Services Unit Pvt. Ltd. (Urban Unit)
Planning and Development Department
Government of the Punjab

Dr. Nobuyuki Sato
Chief Advisor
JICA Expert Team

Agenda of the 2nd Joint Coordinating Committee Meeting

The second Joint Coordinating Committee (JCC) meeting was held at 10 am on 16th May 2016 in the conference room of Housing Urban Development and Public Health Engineering Department (hereinafter referred to as "HUD/PHED"). The agenda of the meeting was to discuss in detail the courses outlines and their further detailing in modules outlines developed by both the JICA Expert Team (hereinafter referred to as "JET") and Academy Faculty.

The agenda also included discussion and approval of the training plan for first cycle of training starting in October 2016 till March 2017. Moreover, the organogram of the Academy Faculty was also to be presented, it was endorsed and approved in JCC. Lastly, the project monitoring sheet of JICA Expert team was discussed and approved along with their progress report.

The meeting started with the welcome note of the Secretary HUD&PHED to all the participants of the JCC. CEO Urban Unit, with the permission from the Chairperson, briefed the committee on the progress of the academy related to courses preparation. He explained the complete process of developing the course outlines and consequent module outlines. Afterwards Principal Al – Jazari Academy explained the agenda of JCC meeting, and requested Chief Advisor of JET to present the project progress and tentative training schedule for the coming year.

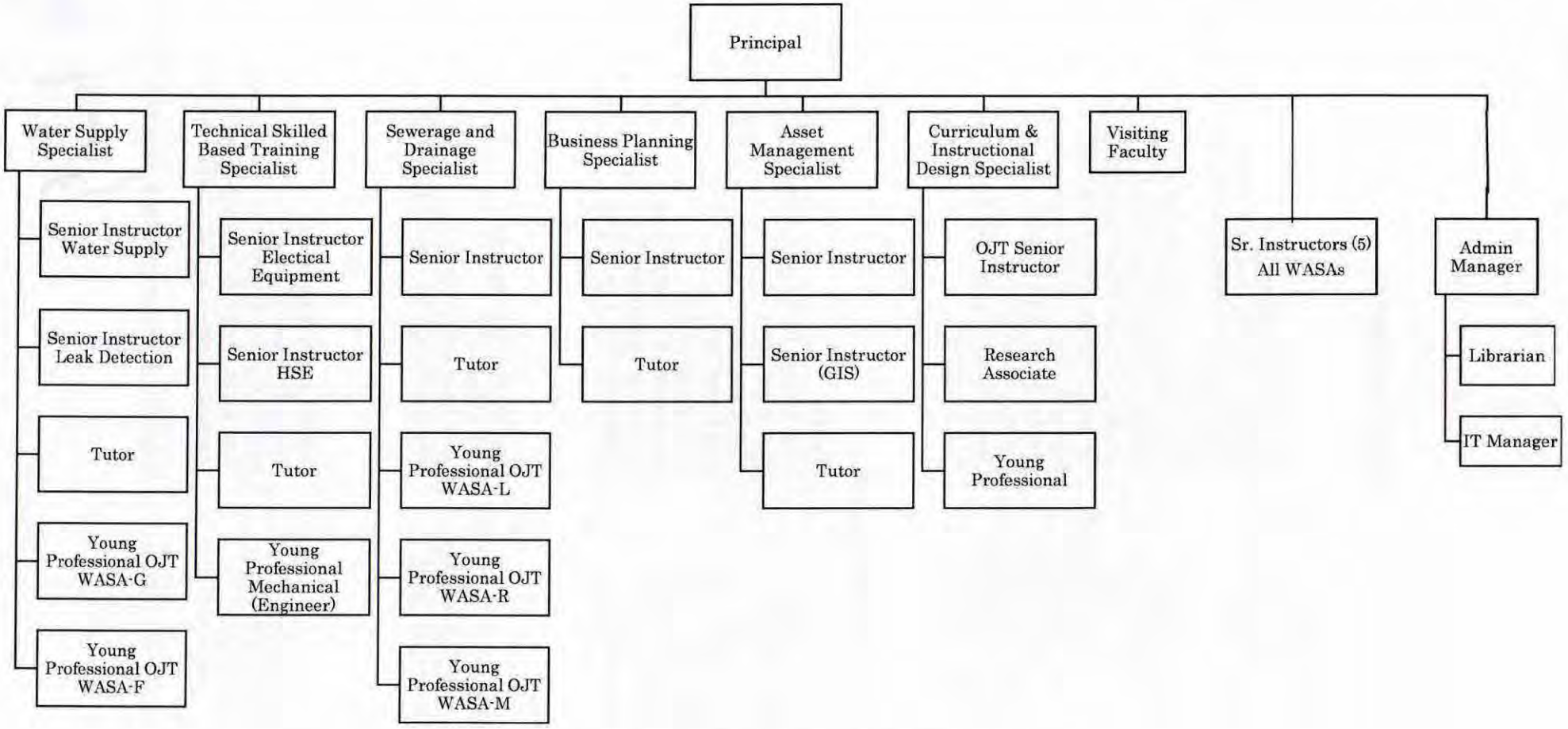
Based on detail deliberation and presentation by Dr. Sato, Chief Advisor of JET, and Dr. Kiran Farhan, Principal Al-Jazari Academy, JCC made the following decisions and recommendations.

JCC confirmed and agreed on the following decisions, which were made in 2nd PCC held on 14th May, 2016.

Sr. No.	Decisions
1.	JCC recognized approval of PCC for all six course outlines and module outlines, and the quality of intellectual input in preparing these outlines and process of getting feedback from WASAs.
2.	JCC endorsed the training duration for each course as jointly proposed by JET and Al-Jazari faculty. It was informed to JCC that the training duration may be revised after the review of the training materials.
3.	JCC recommended to Al-Jazari Faculty and JET for agreeing on the training schedule, delivery dates of these courses with total number of participants from WASAs including other provinces by 10th June 2016.
4.	JCC recommended Al-Jazari Faculty and JET for agreeing on the training lecture notes, reference materials and essential readings before start of trainings in Oct 2016.
5.	JCC recommended JET to work in collaboration with Al-Jazari faculty in upgrading training materials during corresponding JICA Experts' stay in Lahore under this project. It was confirmed to implement 2 cycles of training in Project Year Two for each course. This training cycle will have the exception of courses for business planning and asset management, which will be implemented one time during the same period. The courses will have good combination of Theory, Practice and OJT. During the first cycle, it was recommended that no training course will run in parallel and all Al-Jazari Academy faculty will attend all these courses to develop holistic understanding.
6.	JCC endorsed to notify these courses as mandatory requirement for promotion, confirmation and induction of officers at WASAs as per master plan of the project. It was recommended to prepare training system of all these programs.
7.	JCC approved the revised organogram of Al-Jazari Academy as presented in ***Annex I*** with recommendations to fill the vacant positions and endorsed that GIS Instructor and OJT faculty should be hired and the positions should be reflected in the organogram.
8.	JCC endorsed that the Principal Al-Jazari to seek participants' nominations from Managing Directors of all five WASAs and from Water Utilities of other provinces as appropriate for the first cycle of training which is going to start from October 2016.
9.	JCC endorsed the suggestion of PCC to maintain a comprehensive database of all five WASAs staff to realize actual needs and requirement of training for optimum use of academy premises and available resources.
10.	JCC endorsed the decision of PCC that the competent professionals nominated by WASAs must be deputed at the Al-Jazari Academy for the project. The Secretary HUD/PHED will issue directions for placement of at least one officer from all five WASAs for the period of next three years at Al-Jazari Academy. It was agreed that these professionals must be qualified engineers or graduates in relevant field of courses with at least 5 years of professional experience. They must be computer literate and have good analytical skills. These deputed officers will work with the course leaders as senior instructors and will be paid attractive salaries.

11.	Secretary HUD&PHED recommended that GIS based separate comprehensive module needs to be prepared to include planning and design of water supply including network zoning and sewer/storm water drainage including hydraulic analysis of pipeline network and GIS skills needed for planning, operation and management of assets. It was shared in the meeting that Pakistani side and JICA Chief Advisor has communicated to the JICA headquarters. The follow up is requested to the JICA Pakistan office.
12.	JCC informed all the members of JCC to provide their comments on Project Monitoring Sheet and Progress Report (PR1) within one week time. If there are any comments, these reports may be revised, otherwise, Project Monitoring Sheet and Progress Report (PR1) are considered to be approved by PCC. Principally, the course and module outlines were approved by the PCC.
13.	Dr. Sato JET shared that JICA equipment will arrive in September 2016. The Principal Al-Jazari Academy thanked all the participants and the chair formally closed the session. *Note: The list of Attendance is attached in* ***Annex II.***

Annex I



Organogram of Al-Jazari Academy

Annex II

List of Participants

PHED and WASAs Officials

Sr. No	Name	Position and Organization
1	Mr. Sohail Shahzad	Secretary, Housing, Urban Development and Public Health Engineering Department, Government of the Punjab (Chairperson of JCC)
2	Mr. Moazzam Malik	Deputy Secretary (UD), HUD & PHED
3	Mr. Ch. Naseer Ahmed	Managing Director WASA Lahore
4	Mr. Syed Zahid Aziz	Managing Director WASA Faisalabad
5	Mr. Raja Shaukat Mehmood	Managing Director WASA Rawalpindi
6	Mr. Khalid Bashir Butt	Managing Director WASA Gujranwala
7	Mr. Sheikh Munir Akhtar	Director Works, WASA Multan
8	Mr. Abdul Qadeer Khan	Director. WASA Lahore
9	Mr. Muhammad Siddique	Deputy Director Revenue, WASA Lahore
10	Mr. Captain Hafeez	WASA Faisalabad

JICA Expert Team and JICA Pakistan Office

Sr. No	Name	Position
1	Dr. Noboyuki Sato	Chief Advisor, JICA Expert Team
2	Mr. Chiaki Suzuki	JICA Expert Team
3	Mr. Takuji Okubo	JICA Expert Team
4	Mr. Yasuyuki Kuroda	JICA Expert Team
5	Mr. Abrar Khan	JICA Pakistan Office
6	Mr. Usman Ali Shah	Coordinator, JICA Expert Team
7	Mr. Zain Hassan	Coordinator, JICA Expert Team
8	Mr. Wajih ud Din	Coordinator, JICA Expert Team

Urban Unit Officials

Sr. No	Name	Position and Organization
1	Dr. Nasir Javed	CEO, Urban Unit
2	Engr. Abid Shah Hussainy	Senior Specialist, Urban Unit
3	Mr. Muhammad Kashif	Municipal Finance Specialist, Urban Unit

Al-Jazari Faculty

Sr. No	Name	Position and Organization
1	Dr. Kiran Farhan	Principal, Al-Jazari Academy
2	Mr. Faisal Qureshi	Business Planning Specialist, Al-Jazari Academy
3	Engr. Zia Mustafa	Water Supply Specialist, Al-Jazari Academy
4	Engr. Mubasher Ahmed Cheema	Technical Training Specialist, Al-Jazari Academy
5	Ms. Sadaf Shah Hussainy	Curriculum & Instructional Design Specialist, Al-Jazari Academy

6	Mr. Salman Ashraf Qureshi	Sr. Instructor Business Planning, Al-Jazari Academy
7	Mr. Muhammad Irfan	Sr. Instructor Sewerage and Drainage
8	Engr. Jawad Shahid	Sr. Instructor Electrical and Mechanical Equipment, Al-Jazari Academy
9	Mr. Muhammad Sami	Senior Tutor, Al-Jazari Academy
10	Engr. Tanvir Shahzad	Young Professional, Al-Jazari Academy

添付資料 8.3

JCC 議事録（開催日：2016 年 11 月 10 日）

MINUTES OF MEETING

ON

THE THIRD JOINT COORDINATING COMMITTEE

FOR

PROJECT FOR IMPROVING THE CAPACITY OF WASAs IN PUNJAB

IN ISLAMIC REPUBLIC OF PAKISTAN

Lahore, Thursday 10, 2016

Capt. (Retd.) Muhammad Khurram Agha

Secretary

Housing, Urban Development and Public Health Engineering Department

Government of the Punjab

Dr. Nasir Javed

Chief Executive Officer

The Urban Sector Planning and Management Services Unit Pvt. Ltd. (Urban Unit)

Planning and Development Department

Government of the Punjab

Dr. Nobuyuki Sato

Chief Advisor

JICA Expert Team

Record of Meeting
The third Joint Coordinating Committee (hereafter referred to as "JCC") meeting was held on November 10, 2016 at the conference room of Housing, Urban Development and Public Health Engineering Department (hereafter referred to as "HUD&PHED"), Lahore under the chairmanship of the HUD&PHED. The agenda of the meeting was to discuss in detail and approve the training program in Japan for year 2 of the project. Prior to the meeting, the Record of Discussion (**Annexure -1**), Japan Training Plan for 2nd year **(Annexure-II)** and the draft minutes of the 4th Project Coordination Committee (PCC) Meeting **(Annexure –III)** were submitted to JCC. Sr. representative JICA Pakistan, Advisor JICA Pakistan Office, Dr. Nobuyuki Sato, and JICA Expert team (hereinafter JET) were also present in the meeting. Discussion on nominations for the 2nd year training in Japan for the following courses were done in the JCC: **Sub course 1:** Operation and Maintenance for Water and Sewerage Facilities. **Sub course 2**: Institutional Improvement for Water Works Agencies. The list of participants is attached.

Sr. No.	Discussion/Decisions
1.	The meeting started with recitation of Holy Quran. The Secretary HUD&PHED welcomed, the JICA Team and WASAs & participants of the meeting. He started by stating that today objective is to finalise the training program for Japan for year 2 under the Project. He informed the house that the Training nomination and suggestion for Technical Course is proposed for Sub Engineer. The training nomination as suggested by the Chief Advisor JICA Expert Team needs detail deliberation. He expressed that the Govt. of Punjab and Department of HUD&PHED need to be fully convinced that the required training in Japan will be imparted to the WASA staff who have the responsibility and mandate of implementing the training & skills. Secretary HUD&PHED, then invited Chief Advisor Dr. Nobuyuki Sato for the Presentation on the subject.
2.	Dr. Sato, presented the training program, proposed list of officials for the training and scope of the training with details on day wise training plan. After presentation discussion started and the chair appreciated the training scope. He further commented that all members are convinced that Sub Engineers are directly related to the O&M of water and sewerage facility course and agreed on the names as proposed by the Chief Advisor JICA Expert but institutional reform training staff are

	not directly related to the scope of training and he discussed each and every staff TOR and Job Description and emphasized that in his view for the importance of international training, it is necessary that the trained WASA staff must bring the impact and implementation in the WASAs. However, he mentioned that nominated staff by Chief Advisor may not be able to bring in change. He also informed the house and JICA Officials that PCC has also reservation on the nominated staff as not being directly related with the Project activities as per PCC meeting & observation communicated to Secretary HUD&PHED.
3.	The Chair invited, the Urban Unit Representative to comment on the training in the sphere of the Institutional Reform. He informed the August House that in the agreed Mater Plan under MOM signed in 2014, between the Govt. of Pakistan, Govt. of Punjab and JICA, six course were agreed including Two courses linked with management and institutional spectrum of the project namely Asset Management and Business Planning courses. He further pointed out that the content to be taught in Japan under this training of year 2 are fully consistent with the courses of Asset Management and Business Planning. The courses and their participants to be trained in Al – Jazari Academy are approved by JCC, thus the same scale of participants who are asset managers and responsible for Asset Management & Business Planning in their organizations may be considered for the training in Japan also.
4.	Dr. Nasir Javed, CEO Urban Unit also made the same assertion and informed that the course participants shall learn the institutional aspects of service deliver in Japan, which in turn shall enable them to apply these learnings and participate in the institutional improvement of WASAs and through implementation in their respective fields. Moreover, CEO, Urban Unit informed the house that as per the discussions made in 4th PCC meeting, the Urban Unit has transferred two of the positions of its trainees to Female Officers of WASA Lahore so that the training can be more gender balanced during year – 2 training. He also proposed that project program officers are fully updated on project progress. MD WASA Lahore agreed with the training proposal.
5.	The Chair appreciated the work of Chief Advisor, however, said that JCC will like to keep the nomination to their domain so the training imparted in Japan is fully useful to the Project and for the Govt. of Punjab & its institutions. Mr. Jillani, Advisor JICA while agreeing with the Chair and CEO Urban Unit's views informed that as he is involved in this project since 2010 so he can relate to the recommendation of Govt. of Punjab which are consistent with the spirit and objectives of the Project.
6.	The JICA Pakistan Representative Mr. Ken Okumura thanked the participants. He stated that each agency has their ownership to think about fostering future

	generation. JICA is ready for re-consideration of the nominees from WASAs. He requested that in future more close collaboration & communication for next training in Japan between JICA Expert Team and Pakistani side. He informed JICA side will carry out necessary paper work to change the nominations for the Institutional Training in Japan. The representative of JICA Pakistan office requested to send the application forms of all nominees to JICA Pakistan office, in consultation with JICA Expert Team, by 25th November, 2016, through EAD. Nominees from Urban Unit and Al jazari academy should also be finalized as soon as possible.

The following decisions were made in the Third JCC meeting

1. The nomination for sub course on Operation and maintenance for water and sewerage facilities will not be changed.
2. The nomination for the sub course on Institutional Improvement for Water Works Agencies will be revised and submitted to EAD and JICA by HUD&PHED consistent with the program objective and mandate of the Participants by 25th November 2016.
3. The nomination from the Urban Unit and Al – Jazari Academy will be sent to JICA directly by CEO Urban Unit.

The meeting was closed with a vote of thanks by the Chair to all the participants.

Annexure I: List of the Participants of the 3rd JCC Meeting

Annexure II: Nominations according to decisions made in the JCC meeting

Annexure – I

List of the Participants of the 3rd JCC Meeting

Sr. No	Participant Name	Designation
1.	Capt. (Retd.) M. Khurram Agha	Secretary, HUD&PHE Department
2.	Dr. Nasir Javed,	CEO, the Urban Unit
3.	Dr. Kiran Farhan	Principal, Al- Jazari Academy
4.	Dr. Nobuyuki Sato	Chief Advisor, JICA Expert Team
5.	Mr. Ken Okumura	Representative JICA Pakistan office
6.	Mr. Mahmood A. Jilani	Advisor JICA
7.	Mr. M. Abrar Khan	Program Officer, JICA
8.	Mr. Ch. Naseer Ahmad	Managing Director, WASA Lahore
9.	Mr. Syed Zahid Aziz	Managing Director, WASA Faisalabad
10.	Mr. Raja Shaukat Mahmood	Managing Director, WASA Rawalpindi
11.	Mr. Khalid Bashir Butt	Managing Director, WASA Gujranwala
12.	Mr. Muhamamd Hafeez	Director, WASA, Gujranwala
13.	Mr. Sh. Muhammad Munir Akhtar	WASA Multan
14.	Mr. Khurram Butt DD(P&D)	WASA, Gujranwala
15.	Mr. Abid Shah Hussainy	Sr. Specialist, The Urban Unit
16.	Mr. Muhamamd Tauseef	Director (P&D) WASA Lahore
17.	Mr. Akira Hasebe	JICA Expert Team
18.	Mr. Yusuke Ando	JICA Expert Team
19.	Mr. Yasuyuki Kuroda	JICA Expert Team
20.	Mr. Ken Yokoyama	JICA Expert Team

Annexure – II

Nominations according to decisions made in the JCC meeting

No.	Name and Designation	Organization
1	Mr. Muhammad Zaheer Rana, Sub Engineer	WASA , Lahore
2	Mr. Saeed Ahmad Khan, Sub Engineer	WASA, Lahore
3	Mr. Rouf Ahmad, Sub Engineer	WASA, Faisalabad
4	Mr. Muhammad Shoaib Sarwer, Sub Engineer	WASA, Multan
5	Mr. Jahanzeb Arshad Chatta, Sub Engineer	WASA, Gujranwala
6	Mr. M. Khaleeq Afzal, Sub Engineer	WASA, Rawalpindi
7	Mr. Fahad Raheel, Assistant Director Finance and Revenue	WASA, Lahore
8	Ms. Sidra Saleem, Assistant Director Finance	WASA, Lahore
9	Mr. Shahid Ibrahim, Assistant Director Finance	WASA, Faisalabad
10	Mr. Muhammad Saeed, Assistant Director Finance	WASA, Multan
11	Mr. Rana Ghulam Murtaza, Assistant director Finance-Admin	WASA, Gujranwala
12	Mr. Muhammad Faisal Shehzad, Sr. Accountant	WASA, Rawalpindi
13	Ms. Anum Javed, Sub Divisional Officer (Mech)	WASA, Lahore
14	Ms. Sameena Asif, Assistant Director (P&D)	WASA, Lahore

添付資料 8.4

JCC 議事録（開催日：2017 年 5 月 31 日）

MINUTES OF THE MEETING

ON

THE 4th JOINT COORDINATING COMMITTEE (JCC)

PROJECT FOR IMPROVING CAPACITY OF WASAs IN THE PROVINCE OF PUNJAB
ISLAMIC REPUBLIC OF PAKISTAN

Lahore, Wednesday 31st May, 2017

Capt. (Retd.) Muhammad Khurram Agha

Secretary
Housing, Urban Development and Public
Health Engineering Department
Government of the Punjab.

Dr. Nasir Javed

Chief Executive Officer
The Urban Sector Planning and Management
Services Unit Pvt. Ltd. (The Urban Unit)
Planning and Development Department
Government of the Punjab.

Dr. Nobuyuki Sato

Chief Technical Advisor
JICA Expert Team

Agenda of the 4th Joint Coordination Committee

The fourth Joint Coordination Committee (hereafter referred to as JCC) meeting was held on Wednesday 31st May, 2017 at the meeting room of Housing Urban Development and Public Health Engineering Department (hereafter referred to as HUD&PHED), Lahore under the chairmanship of the Secretary, HUD&PHED.

The agenda of the meeting was to discuss the project activities and progress made so far, along with the duration of the upcoming courses and OJT system and policy. It was decided to hold a separate meeting in order to discuss the OJT system and policy in detail. The agenda also included an extension of this Project (hereinafter referred to as "Phase I Project") and discussion on the Project followed to this Project (hereinafter referred to as "Phase II Project"). Moreover, the report of the existing building condition was also presented. The list of the participants is attached in **Annex – I**.

The meeting started with the recitation from the Holy Quran. Later, Principal Al-Jazari Academy formally informed the agenda of JCC.

Based on the discussions, JCC made the following decisions and recommendations:

Sr. No.	Discussion/Decisions
1.	Chief Advisor, JICA Expert Team briefed about the approach and the progress of the project implemented in the second project year. Various field improvement activities, which were jointly conducted by JICA Expert Team and Al-Jazari Academy's Faculty at WASAs, were also highlighted. He also proposed the decrease in duration of each training course. This proposal was prepared according to a request from WASA Lahore. The Chairperson and all other JCC members exhibited contentment over the progress made so far, and the proposal of reduction in duration of each training course was accepted.
2.	Principal Al-Jazari Academy explained the approval process of the 3rd year draft Final Report. She stated that the general elections are expected in May, 2018, so the Project Coordination Committee (PCC) may have the authority to approve the draft Final Report in April, 2018. The Chairperson stated that PCC may have the authority for an approval of the report prepared by JICA Expert Team if JCC is not held within 1 month from the scheduled.
3.	Principal Al-Jazari Academy and Senior Specialist Urban Unit, Mr. Abid Shah Hussainy not only raised the issue of decrease in nominations of trainees from all WASAs in

	Punjab but also stressed to make trainings mandatory for departmental promotion of all WASA employees. MD WASA Lahore, Mr. Zahid Aziz and Director (P&D) WASA Lahore, Mr. Abdul Qadeer explained that the sufficient nomination could not be sent due to longer course durations and consecutive training schedules. MD WASA Gujranwala also mentioned about the shortage of staff during monsoon season activities. CEO Urban Unit clarified that there are no courses scheduled during the monsoon season. In addition, the course durations have been decreased with at least one week apart from the following training.
4.	CEO Urban Unit informed that the notification regarding making the trainings mandatory for the promotion of WASA employees has not yet been issued. He emphasized the issuance of the said notification. Deputy Secretary HUD&PHED assured the follow-up of the above said notification from Services and General Administration Department (S&GAD), Lahore.
5.	The Chairperson asked about the Business Planning course and its implementation at all WASAs in Punjab, in the context of revenue generation and self-sustainability. Course Leader Al-Jazari Academy Mr. Muhammad Kashif explained the objectives of Business Planning course. CEO Urban Unit informed to the Chairperson that for few WASAs the initial working has been completed and the same is also communicated to the Secretary Finance. He also emphasized a better tariff system, which is a key for sustainability of WASAs.
6.	Deputy Director WASA Faisalabad, Mr. Roohan Javaid presented his concern that the course content developed at Al-Jazari Academy must be made more advanced, pragmatic and profound to meet the perplexed O&M needs and requirements, especially at WASA Faisalabad. Chief Advisor, JICA Expert Team replied that the training material was prepared based on the information collected in the 1st Year of the Project. After training at the Academy and the field activities, new findings were expected and would be included in the upcoming training course material. Principal Al-Jazari Academy supported same approach by highlighting the evolutionary process in the course of knowledge and enrichment of training content.
7.	CEO, The Urban Unit emphasized on the development of On-the-Job (OJT) system for the WASA staff of BPS 1-10, which is also an essential and significant part of this Project. He also requested for a separate meeting to resolve the matter. Senior Specialist Urban Unit, Mr. Abid Hussainy supported Dr. Nasir Javed on this matter. Principal Al – Jazari Academy and representatives of all WASAs in Punjab along with HUD&PHED officials, unanimously requested for the ***extension*** of the Phase I Project. Representative, JICA Pakistan Office, Mr. Ken Okumura, (through skype) showed a

	consent over holding a meeting at JICA Pakistan Office soon, for further discussion and action regarding the matter raised in JCC meeting. The discussion may be made with a reference of a working paper prepared by Urban Unit.
8.	Principal Al-Jazari Academy submitted the Structural and Geotechnical Evaluation report of Al-Jazari Academy Building, which was prepared by UET (University of Engineering and Technology) Lahore. Copies of the evaluation report were received by the Secretary (HUD&PHED) and MD WASA Lahore, Mr. Zahid Aziz for their further actions.

Annex – I

List of Participants the 4th JCC Meeting

Sr. No.	Name	Designation	Organization
1.	Mr. Capt. (Retd.) Muhammad Khurram Agha	Secretary	HUD&PHED, Govt. of the Punjab
2.	Mr. Dr. Nasir Javed	Chief Executive Officer	The Urban Unit, Lahore
3.	Mr. Dr. Nobuyuki Sato	Chief Advisor	JICA Expert Team
4.	Mr. Syed Zahid Aziz	Managing Director	WASA, Lahore
5.	Mr. Khalid Bashir Butt	Managing Director	WASA, Gujranwala
6.	Mr. Nasim Khalid Chandio	Director (Works)	WASA, Multan
7.	Mr. Abdul Qadeer Khan	Director (P&D)	WASA, Lahore
8.	Mr. Roohan Javaid	Deputy Director	WASA, Faisalabad
9.	Mr. Salman Yusuf	Additional Secretary	HUD&PHED, Govt. of the Punjab
10.	Ms. Dr. Kiran Farhan	Principal	Al-Jazari Academy, Lahore
11.	Mr. Abid Hussainy	Senior Specialist	The Urban Unit, Lahore
12.	Mr. Muhammad Kashif	Municipal Finance Specialist	The Urban Unit, Lahore
13.	Mr. Asif Iqbal	Finance Specialist	The Urban Unit, Lahore
14.	Mr. Muhammad Samie	Senior Instructor, Business Planning Course	Al-Jazari Academy, Lahore
15.	Mr. Muhammad Irfan	Senior Instructor, Sewerage & Drainage	Al-Jazari Academy, Lahore
16.	Mr. Mubasher Ahmad Cheema	Technical Training Specialist	Al-Jazari Academy, Lahore
17.	Mr. Zia Mustafa	Water Supply Specialist	Al-Jazari Academy, Lahore
18.	Mr. Jawad Shahid	Senior Instructor, Electrical & Mechanical Equipment Course	Al-Jazari Academy, Lahore
19.	Mr. Ken Okumura (via Skype)	Representative	JICA Pakistan Office
20.	Mr. M. Abrar Khan (via Skype)	Programme Officer	JICA Pakistan Office

添付資料 8.5

JCC 議事録（開催日：2018 年 5 月 10 日）

MINUTES OF MEETING

5th (LAST) JOINT COORDINATION COMMITTEE (JCC)

PROJECT FOR IMPROVING THE CAPACITY OF WASAs IN PUNJAB PROVINCE

[ISLAMIC REPUBLIC OF PAKISTAN]

Lahore, Thursday 10th May, 2018

Capt. (Retd.) Muhammad Khurram Agha

Secretary,
Housing, Urban Development and
Public Health Engineering Department (HUD & PHED),
Government of the Punjab.

Dr. Nasir Javed

Chief Executive Officer,
The Urban Sector Planning and Management
Services Unit Pvt. Ltd. (The Urban Unit),
Planning and Development Department,
Government of the Punjab.

Dr. Nobuyuki Sato

Chief Technical Advisor,

JICA Expert Team

Minutes of Meeting

The 5th (last) Joint Coordination Committee (hereinafter referred to as JCC) meeting was held on Thursday 10th May, 2018 in the meeting room of Housing, Urban Development & Public Health Engineering Department (hereinafter referred to as HUD & PHED) Lahore, under the chairmanship of Mr. Salman Yousaf, the Additional Secretary, HUD & PHED.

1. Agenda of the 5th Joint Coordination Committee:

The agenda of the meeting was discussion about **1)** Information on completion of Project, **2)** Submission of draft final report, **3)** Training activities during phase-I, **4)** Suggestion for improvement, **5)** Future prospect of JICA project in water sector etc. **(6)** Budgetary requirements for sustainability of the Academy, which will be followed-up through a letter from The Urban Unit.

Mr. Salman Yousaf, the Additional Secretary HUD & PHED formally inaugurated the meeting at 12:15 PM.

2. Proceedings and discussions of meeting:

Based on the presentation and discussions, JCC made the following decisions and recommendations:

Sr. No.	Discussions / Decisions
1.	Dr. Nobuyuki Sato Chief Advisor, JICA through his presentation apprised the participants about the project activities along with its successes, with special focus on the improvements in WASA services after Phase-I of the trainings. He further explained the structure of Project Design Matrix (PDM) and elaborated that how the project was methodically monitored through the PDM encompassing training need analysis, courses development, training planning, Implementation in class, follow-up visit for OJTs and feedback into the continuous improvement cycle of the trainings material to solve next level of WASA Issues. In addition, Dr. Sato explained the definition of terminology in Project Purpose and Overall Goal of PDM which was agreed by PCC on 16th March, 2018 as follows: - It was agreed to define "performance indicators" in Item 2 of Project Purpose in PDM as "whether WASA applies activities trained through the training at Al-Jazari Academy or not". - It was agreed to define "target of the performance indicators" in Item 1 of Overall Goal in PDM as "whether WASA applies activities trained through the training at Al-Jazari Academy every year or not".

Sr. No.	Discussions / Decisions
	At the end of the presentation, the deadline for comments to Draft Final Report was informed. Comments are requested to be submitted before 18th May, 2018 to Al-Jazari Academy. If there is no comment, it is considered that Draft Final Report is approved.
2.	MD WASA-Lahore, Mr. Zahid Aziz expressed his gratitude and said that project phase -I has been successfully completed. He further added that trainings and subsequent improvement is a constant process that must be incessant.
3.	Deputy Secretary HUD & PHED Mr. Moazzam enquired from Dr. Nobuyuki Sato about the tangible project achievement. He also inquired if WASAs have the necessary equipment to implement the trainings. Dr. Nobuyuki Sato replied that, through revision of training courses after receiving feedback from WASA trainees and training follow-up visits/OJTs conducted by faculty, JICA experts and coordinators have produced tangible and measurable improvements, such as identification of over 200 lost or buried manholes in WASA Lahore. Dr Sato also explained that under this project, much needed equipment was given to all WASAs, representative of various WASAs confirmed the same.
4.	MD WASA-Faisalabad, Mr. Faqir Muhammad Chaudhary inquired if the WASA training needs are being implemented. Dr. Nobuyuki Sato answered that detailed training need analysis were performed at the beginning stage of this project and on the basis of TNA, training courses were developed and trainings were conducted at Al-Jazari Academy. Several consultative workshops were held to receive feedback from the training stake holders. Most importantly after every cycle of trainings, participants' feedback and requirements gathered through follow-up visits/OJT are fed back into the training planning and design to ensure continuous improvement of the trainings in order to meet WASA requirements.
5.	Deputy Secretary HUD & PHED Mr. Moazzam, formally asked about the future JICA projects for water sector of Punjab. Ms. Eriko Tamura from JICA Headquarters informed that although Aljazari Academy project is very important for water and sanitation sector in Punjab but due to some matters on the Japanese side, the approval is not yet granted and it may take some time before a formal approval for Phase-II by the Japanese Government. Therefore, it is not sure about the commencement of Phase-II in this moment.

Sr. No.	Discussions / Decisions
6.	Ms. Eriko Tamura from JICA Headquarters, thanked all meeting participants for their presence and support for JICA. She then elaborated three (3) proposals for the sustainability of the Al-Jazari project, which are as following: • WASA Faisalabad has recently conduct pilot project activities in NRW reduction. This project also contributes to improved accounts receivable services and improved the water supply line pressure. Other WASAs of Punjab may follow that methodology and replicate those achievements. Al-Jazari Academy may become a platform and its faculty can play a vital role in this regard. • Al-Jazari Academy should invite more visiting / guest lecturers from WASAs, especially WASA Lahore, in order to increase collaboration between the Academy and WASAs. This will also integrate the experiences of WASA officials in the training process. • Collaboration and cooperation between Al-Jazari Academy and WASA Lahore Training Centre (Gulshan-e-Ravi), to enhance capacity of the field staff. She expressed hope, that JICA will see the implementation of above mentioned suggestions, whenever they visit again.
7.	Mr. Salman Yousaf, the Additional Secretary, HUD&PHED concluded the meeting with agreement of presentation contents and discussion, and thanked all participants for attending this vital meeting and expressed that, despite non availability of Dr. Nasir Javed, CEO Urban Unit, the meeting was held due to the fact that JICA, Tokyo office delegates are traveling back the same night.
8.	The JCC ended with the vote of thanks to the chair and all others, around 01:00pm.

Annex-1

List of Participants [5th JCC Meeting]

Sr. No.	Name	Designation	Organization
1.	Mr. Salman Yousaf	Additional Secretary	HUD & PHED
2.	Mr. Kenji Ogasahara (P.E.)	Representative	JICA Pakistan Office
3.	Mr. Hironobu Nakayama	Technical Advisor	Global Environment Department, JICA Headquarter
4.	Ms. Eriko Tamura	Director	Global Environment Department JICA Headquarter
5.	Mr. Dr. Nobuyuki Sato	Chief Advisor	JICA Expert Team
6.	Mr. Shinichi Masuda	Director	Financial Cooperation Implementation Department JICA Headquarter
7.	Mr. Muhammad Abrar Khan	Programme Officer	JICA Pakistan Office
8.	Mr. Syed Zahid Aziz	Managing Director	WASA, Lahore
9.	Mr. Shakeel Ahmad Kashmiri	Managing Director	WASA, Gujranwala
10.	Mr. Faqir Muhammad Chaudhary	Managing Director	WASA, Faisalabad
11.	Mr. Raja Shaukat Muhammad	Managing Director	WASA, Rawalpindi
12.	Mr. Rao Muhammad Qasim	Managing Director	WASA, Multan
13.	Mr. Muhammad Naveed Mazhar	DMD (Eng.)	WASA, Lahore
14.	Mr. Muhammad Tanveer	Director	(P&D) WASA, Lahore
15.	Mr. Mubasher Ahmad Cheema	Technical Skills Training Specialist	Al-Jazari Academy
16.	Mr. Zia Mustafa	Water Specialist	Al-Jazari Academy
17.	Mr. Asif Iqbal	Financial Management Specialist	The Urban Unit
18.	Mr. Muhammad Irfan	Sr. Instructor	Al-Jazari Academy
19.	Mr. Jawad Shahid	Sr. Instructor	Al-Jazari Academy