

Under the Patronage of the Minister of Environment Water & Agriculture
Eng. Abdulrahman bin Abdulmohsen Al Fadhili

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"Sustainable Water.. for Sustainable Development"

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Ministry of Environment Water & Agriculture
Kingdom of Saudi Arabia المملكة العربية السعودية



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The Role of ECRA in Maintaining Water Sustainability

Abdullah M. Al-Shehri

ECRA

ECRA's Role in Water Services Regulation



Road Map's Recommended Initiatives 1/3

Policy, Planning & Inst. Setup

1 IWRM Planning	Integrated Planning Process	WRM Capabilities	Information Management Systems	Water Resources Development
2 Risk & Resiliency	Risk Management	Resiliency Infrastructure	Regulatory Role	Emergency Plans
3 Role Attribution	Update ECRA's Founding Regulation	Production & Wastewater Treatment and Privatization	Distribution Restructuring and Privatization	

Economics & Financials

4 Market Structure	Legal & Legislative	Market Liberalization & Operability	Procurement Models	Balanced Market
5 Commercial Setup	Commercial Agreements	Tariff Reform	Commercial Models	Price Signaling
6 Asset Base/ Costing	Asset Register & Valuation	Asset Management Plans	Costing	Business Unit Accounting

Road Map's Recommended Initiatives 2/3

Economics & Financials (Cont'd)

7 Revenue Requirements	Regulatory Review Process	Water Security Financing	Multi-Speed Framework	Incentive Schemes
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Asset Management & Operations

8 Project Delivery	Capital Project Planning	Maintenance & Outsourcing	Strategic Workforce Planning	HSE Review
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9 Asset Lifecycle	Asset Condition Assessment	Portfolio Modernization	Certification	Risk Management
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10 Meter to Cash	Metering Infrastructure	Meter Data Mgmt. Systems and Processes	Billing and Collection Programs	M2C Systems	Customer Care Processes
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11 NRW Reduction	NRW Strategy and Planning	GIS Enabled Hydraulic Model	Continuity of Supply	Zoning	Capability Building	Monitoring and Control
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Road Map's Recommended Initiatives 3/3

Customer Care & Performance Management

12 Customer Care	Customer Complaint Mgmt. System	Customer Care Infrastructure & Processes	Customer Rights Code	Customer Awareness Campaigns	Customer Engagement Plan	Customer Advocacy Groups
13 Performance Management	KPIs and Targets	Data Collection and Reporting	Performance Assessment Process	Benchmarking and Data Publishing	National Water Sector Database	






Organization & Capabilities

14 Capacity Building	Stakeholder Collaboration	External Partnerships		Skills and Certifications
15 Innovation and Digitization	Innovation & Digitalization Capability Buildup	Innovation & Digitalization Operations		Innovation Socialization

KPI's for the water and wastewater sectors

KPI Categories

KPIs

 Service Coverage and Quality	Population Coverage - Water Network	Population Coverage - Wastewater Network	Continuity of Supply	Water Quality Compliance	Wastewater Quality Compliance
 Economic Sustainability	Collection Ratio	Cost Coverage Ratio - Distribution	Cost Coverage Ratio - Wastewater	Operating Cost per Cubic Meter - Distribution	Operating Cost per Cubic Meter - Wastewater
 Operational Indicators	Meter Reading Ratio		Non-revenue Water	Employees per Connection	
 Environmental Sustainability	Wastewater Treated			TSE Reuse Rate	
 Customer Care	Billing Adherence	Service Complaints	Average Time to Resolve Complaints	Average Time to Fulfill a Water Connection	Average Time to Fulfill a Wastewater Connection

Regulatory Framework Implementation Timeline

Midterm (2019-2023)

Long Term (2023+)

		Midterm (2019-2023)		Long Term (2023+)	
1	Economic Regulation	Assess asset base		Incentivize achievement of ISO 55000	
		Develop cost baseline		Incentivize asset base costing	
		Develop tariff framework and plan		Phasing out of account balancing	
		Multispeed regulation to review business plans & set revenue req.		Multi-year price caps w/ incentives	
2	Commercialization	Review commercial agreements		Oversee implementation of privatization and corporatization	
		Participate in contracting process		Commercial model review e.g. TSE, irrigation	
3	Planning	Align on IWRM planning	Review and approve demand for non self supplied systems		
4	Codes and Standards	Publish service delivery standards			Update and refine standards and codes
		Publish and update codes (e.g. metering, distribution)			
		Publish standards and guidelines (e.g. quality standards, metering)			
5	Licensing	Grant licenses to all stakeholders			
		Enforce licensing process			
6	Performance Management	Set KPIs and Targets	Start monitoring with limited enforcement	Publish performance reports and statistics	
				Incentivize performance	
		Enforce monitoring and conduct benchmarking			
7	Consumer Protection	Establish ECRA's role and develop platform		Participate / establish customer advocacy	
8	Capacity Building	Restructure and Recruit	Develop update and maintain database		
			Build strategic partnerships and alliances		

Started

Water Tariff Study

Rational

In line with the Kingdom's Vision 2030 and the National transformation Program 2020 to develop the water services sector and improve the financial efficiency to cover the actual cost, **ECRA initiated a study to develop an actual cost reflective tariff for the water services in the Kingdom of Saudi Arabia.**

Duration

Start: October 2018

End: May 2019

Study Objectives

- Data collection and current state assessment
- Develop tariff objectives to serve KSA policy objectives
- Determine water & wastewater true cost-of-service
- Develop a best-suited tariff setting methodology
- Model and design end-user water & wastewater tariffs
- Design a fit-for-purpose tariff regulatory framework
- Design a best-in-practice Tariff Review Unit and build its capability

Water Tariff Study ... continue

Study Progress

Tasks Completed

- Data collection and Current state assessment
- Develop tariff objectives
- Conducting benchmarking study
- Development of cost calculation model

Remaining work

- Produce the cost of service along the value chain
- Determine the suitable tariff for the Kingdom
- Develop the regulatory framework for the tariff review
- Assess the impact of the tariff change

Water Quality Study

Rational

In order to ensure that the water services and products provided to the consumer in the Kingdom are of high quality and reliability, ECRA has initiated a study to develop regulations, procedures and guidelines for monitoring the quality of water and sanitation in the Kingdom.

Duration

Start: November 2018

End: May 2019

Study Objectives

- To develop drinking water and wastewater quality standards;
- To develop a comprehensive policy, procedure and guidelines for monitoring of water and wastewater quality
- To develop a detailed implementation plan with the pertinent regulatory role and authority of ECRA and the responsibilities and commitments of the stakeholders regarding water and wastewater quality monitoring and corrective actions

Water Quality Study ... continue

Study Progress

First Phase – Completed

- Description of the current situation regarding the policies and procedures governing water quality
- Conduct benchmarking study
- Determining the regulatory role of ECRA in the field of water quality monitoring

Second Phase – Completed

- Development of standards for drinking water quality
- Development of standards for wastewater disposal and reuse

Study Deliverables

- Water Quality Standards Report
- Wastewater Quality Standards Report
- Water Quality Standards Booklet
- Role & Authority of ECRA
- Policy, Procedure and Guidelines Manual

Water Quality Study ... continue

Examples of Standard Parameters Developed for Drinking Water Quality (Seven Tables were developed with about 132 parameters)

TABLE A - Physical Parameters

Parameter	Unit	PCV*
Colour	mg/l pt/Co	<15
Total Dissolved Solids	mg/l	>100 (min) < 1000 (max)
Turbidity	NTU	<4
pH		Recommended: 6.5–8.5 Maximum : 9.2
Taste	Dilution number	Not objectionable
Odour	Dilution number	Not objectionable
Residual Chlorine (H)	mg/l	Recommended : 0.2 - 0.5 5 maximum (H)
Calcium Hardness	mg/l as CaCO ₃	>30
Total Hardness	mg/l as CaCO ₃	300
Langelier Saturation Index (LSI)		0.1-0.3 0.5 (maximum)

(H) = Health value

* Proposed Concentration Value

TABLE B – Inorganic Chemicals Parameters

Parameter	Unit	PCV
Aluminium	mg/l	0.2
Ammonia (as NH ₃)	mg/l	0.5
Chloride	mg/l	250
Copper (H)	mg/l	2
Fluoride (H)	mg/l	1.5
Iron	mg/l	0.3
Nitrate (as nitrate) (H)	mg/l	50
Nitrite (as nitrite) (H)	mg/l	3
Sodium	mg/l	200
Sulfate	mg/l	250
Zinc	mg/l	3

(H) = Health value

Water Quality Study ... continue

(Eleven Tables were developed with about 143 parameters)

TABLE A: Trade Effluent to Municipal Sewerage System Standard

Parameter	Unit of measurement	Prescribed Concentration or Value (maximum unless otherwise stated) (proposed value)
Coarse material/Floatables		max. 15 mm
Temperature	°C	< 45
pH		5 - 10
BOD ₅	mg/l	500
COD	mg/l	1000
Total Suspended Solids	mg/l	600
Total Dissolved Solids	mg/l	3000
Chloride	mg/l	1000
Sodium	mg/l	1000
Sulfate	mg/l	1000

TABLE B: TSE Inland Discharge and Reuse Standards

Parameter	Unit of measurement	Prescribed Concentration or Value (maximum unless otherwise stated) (proposed value)		
		Class A	Class B	Class C
pH		6.5 – 8.5	6.5 – 8.5	6.5 – 8.5
BOD ₅	mg/l	10 (monthly average) / 20 (Max)	20 (monthly average) / 35 (Max)	40 (Monthly average)
COD	mg/l	90	90	150
Total Suspended Solids	mg/l	10 (monthly average) / 20 (Max)	20 (monthly average) / 35 (Max)	40 (Monthly average)
Turbidity	NTU	<2 NTU (weekly ave); <5 NTU (Max)	-	-
Residual chlorine (minimum)	mg/l	> 0.5 (free) or > 1 (total)	> 0.5 (free) or > 1 (total)	> 0.5 (free) or > 1 (total)



THANK YOU