



PHNOM PENH WATER SUPPLY AUTHORITY

KINGDOM OF CAMBODIA
NATION RELIGION KING
3

Water Supply Management of PPWSA



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A- OVERVIEW OF PRESENT CONDITION OF PPWSA

INFORMATION AND ORGANIZATION CHART OF PPWSA

OPERATIONAL INFORMATION OF PPWSA

1- WATER TREATMENT

2- WATER SUPPLY NETWORK

3- NON REVENUE WATER REDUCTION

4- ACTIVITIES OUTSIDE PPWSA WITH JAPANESE ODA PROJECT

B- BUSINESS PLAN OF PPWSA 2020-2030

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2- EXPANSION OF WATER TRANSMISSION AND DISTRIBUTION PIPELINE

3- EXPANSION OF WATER CONNECTION

C- OPPORTUNITY FOR JAPANESE INVESTOR



INFORMATION OF PHNOM PENH WATER SUPPLY AUTHORITY

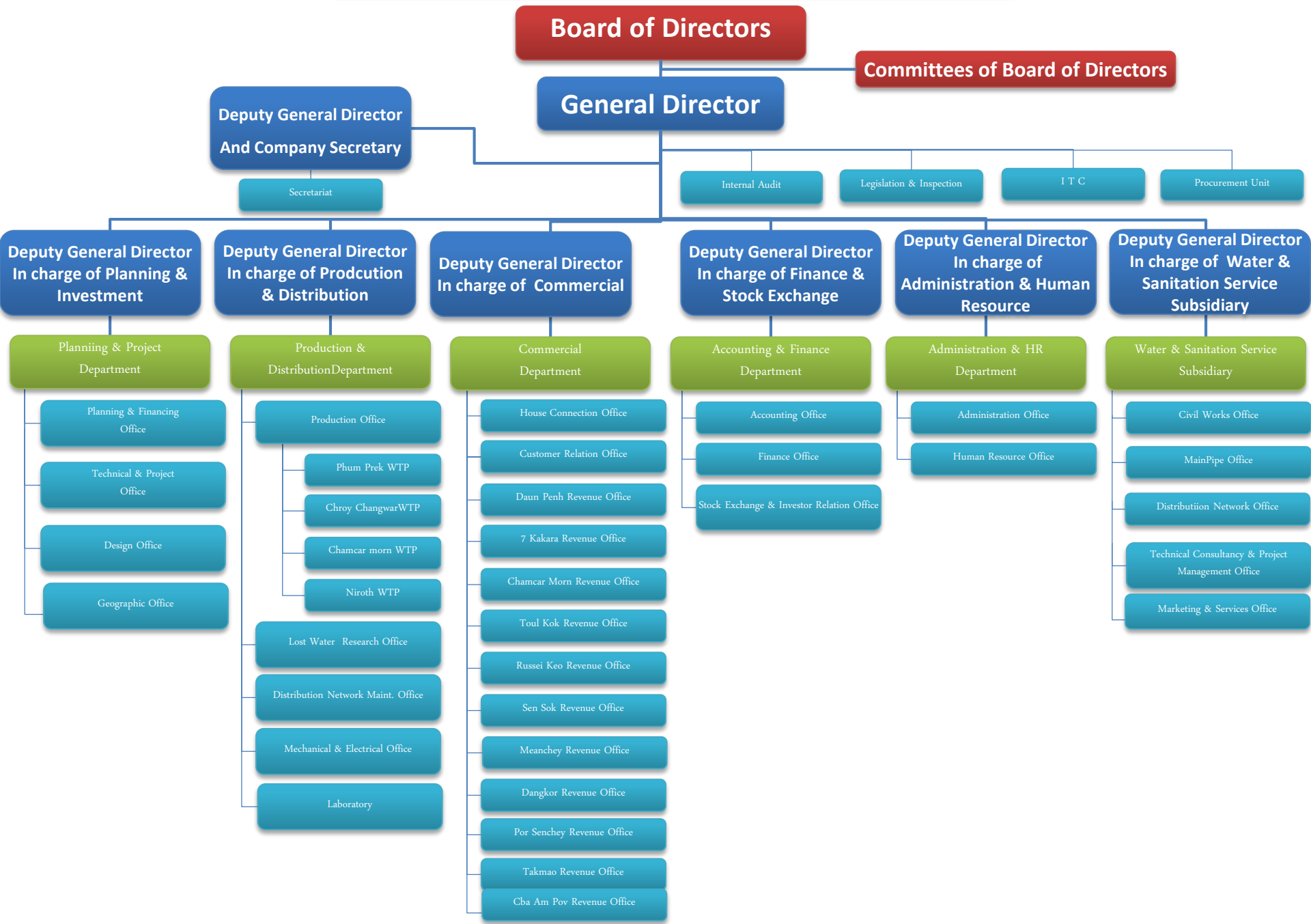


General Information of Phnom Penh Water Supply Authority

PHNOM PENH WATER SUPPLY AUTHORITY (PPWSA)

- ◆ Standard Code: KH1000010004
- ◆ Address: #45, Street 106, Sangkat Srah Chork, Khan Daun Penh, Phnom Penh,
Kingdom of Cambodia
- ◆ Phone number: +855(0)23 635 80 80 / 724 046
- ◆ Fax number: +855(0)23 427 657
- ◆ Website: www.ppwsa.com.kh
- ◆ Email: ir@ppwsa.com.kh
- ◆ Certificate of incorporation number: Co.0839Et/2012 Date: 27 March 2012
- ◆ License number: Anukret No. 52 Date: 19 December 1996
- ◆ Decision on approval of disclosure document Number: 012/12 Date: 23 March 2012
- ◆ Name of legal representative of PPWSA: D.R. SIM SITHA

Organization Chart of Phnom Penh Water Supply Authority



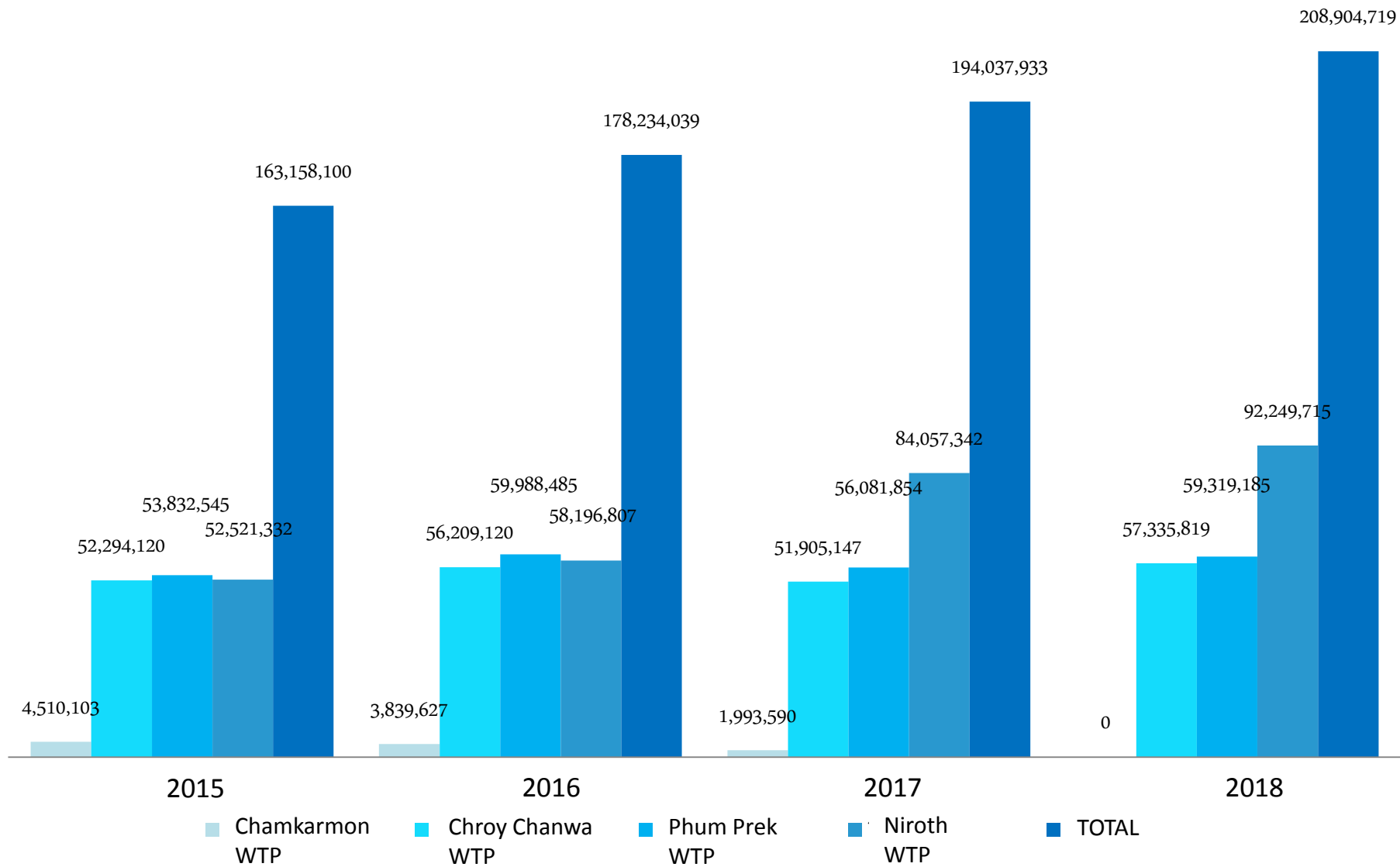
A- OPERATIONAL INFORMATION



1- WATER TREATMENT



1.1- Water Treatment Volume (m³)



1.2- Water Quality Control

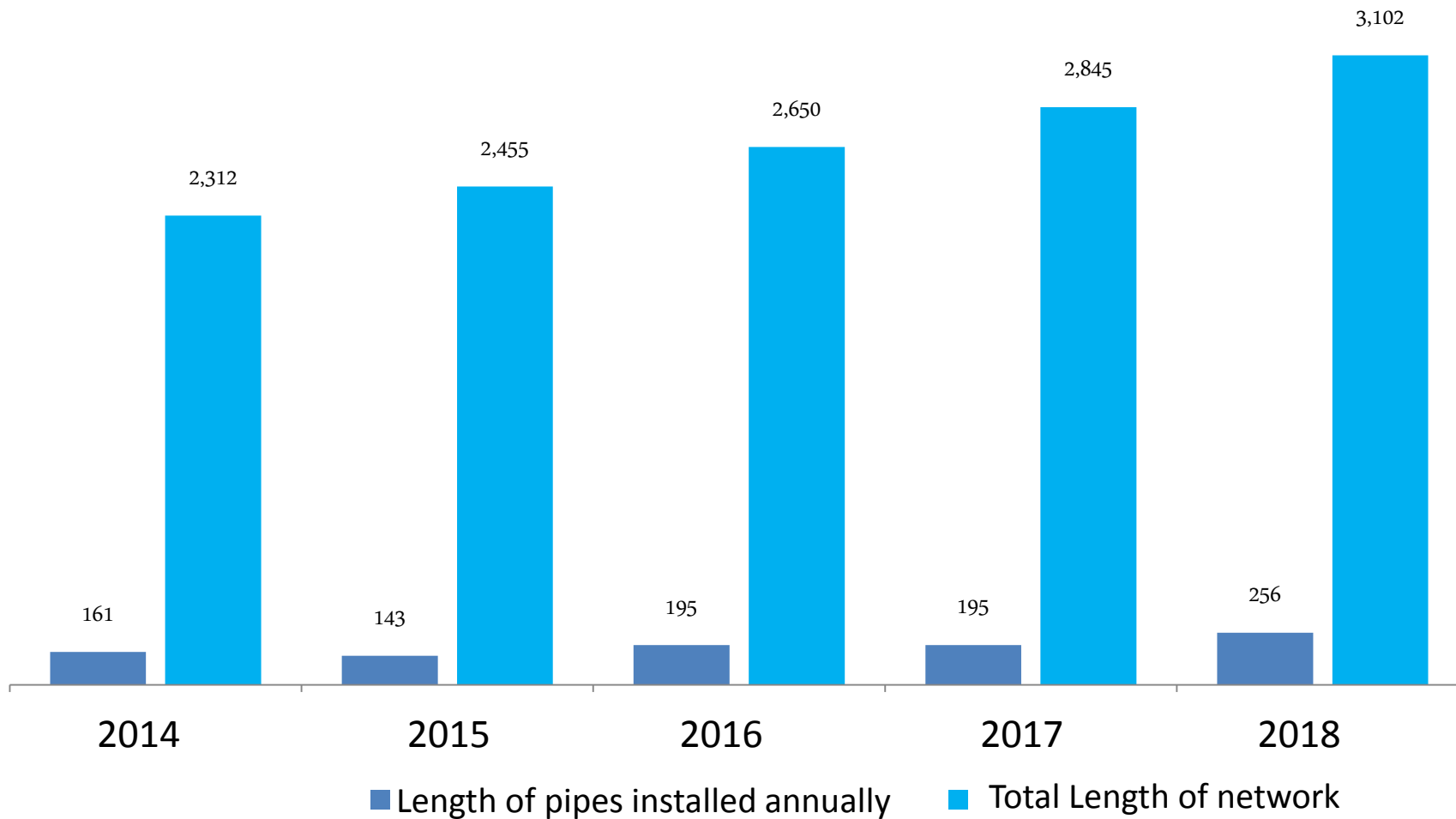
Parameters	Unit	WHO	Phum Prek Treatment Plant	Chroy Changvar Treatment Plant	Niroth Treatment Plant	Length of Networks
Turbidity	NTU	≤ 5	0.59	0.67	0.52	0.87
pH	pH	6.5 - 8.5	7.37	7.43	7.27	7.46
Free Chlorine	mg/l	0.1 – 1	1.09	0.88	0.86	0.20
Total Chlorine	mg/l	< 2	1.29	0.99	0.99	0.32
Coliform	cfu/100ml	0	0	0	0	0
E-Coli	cfu/100ml	0	0	0	0	0

2- WATER SUPPLY NETWORK



Length of Networks

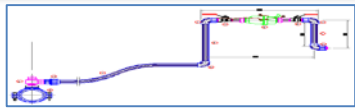
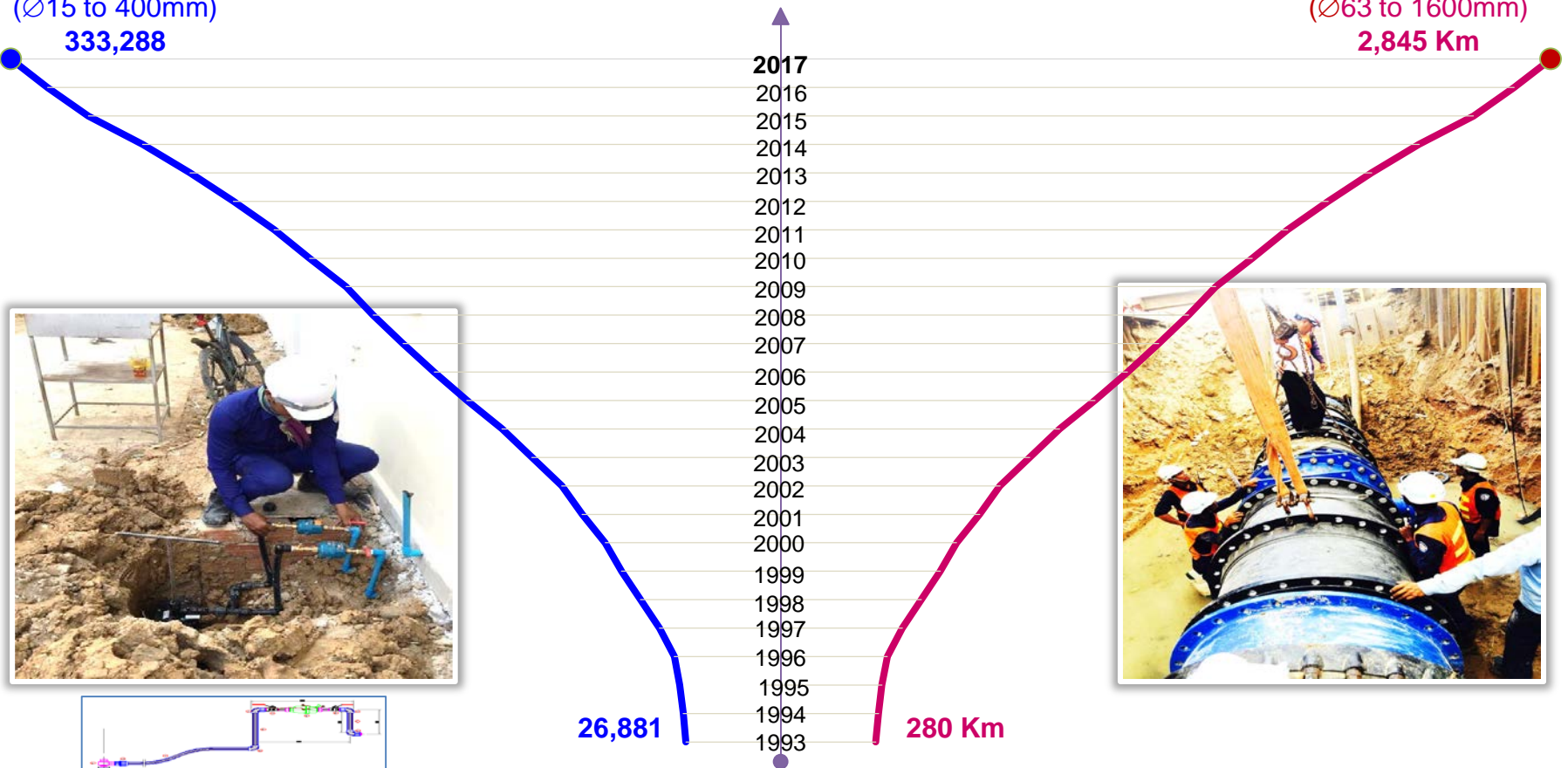
Lengths of pipes installed each year (Km)



*Pipe Laying & Water Meter Installation

Water meter
(Ø15 to 400mm)
333,288

Pipe laying
(Ø63 to 1600mm)
2,845 Km



3- NON-REVENUE WATER REDUCTION

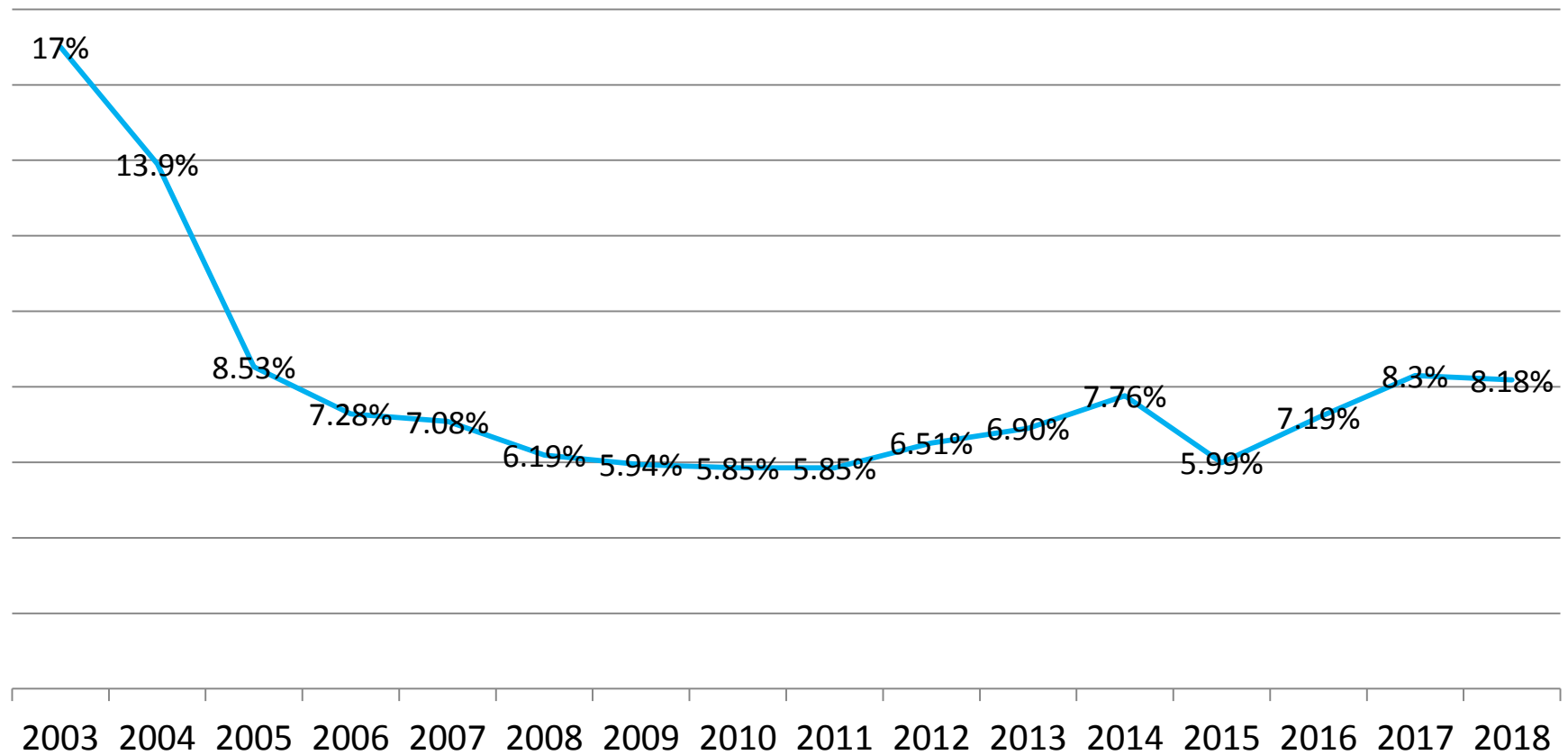


3.1- The 6 Countermeasures against NRW

- ✓ Customer Management
- ✓ Water Meter Management
- ✓ Pipe Replacement Works
- ✓ Timely Leak Repairs
- ✓ Zonal NRW Management
- ✓ Fighting against Illegal Connections

3.2- NRW (2003 – 2018)

NRW Trends from 2003 to 2018 (by percentage)



4- PPWSA COLLABORATION WITH JAPANESE ODA PROJECT



Result of PPWSA Collaboration with Japanese ODA Project 2012-2019

No.	Description of Project	Location of Project	Donor	Japanese Contractor	Duration	Situation
1	<p>Project for replacement and expansion of water distribution system «Installation distribution pipeline including civil work and pipe bridge:</p> <ol style="list-style-type: none"> 1. Pipe Installation in Battambang Province: HDPE63 to DIP 250_length is 71,580 m. 2. Pipe Installation in Pursat Province: HDPE63 to DIP300_length is 14,600 m. 	Battambang and Pursat Province	JICA Grant Aid	KUBOTA Construction Co., Ltd	2012-2013	Completed
2	<p>Project of expansion of water supply system in Battambang and Kampong Cham province:</p> <p>❖ Installation of distribution pipeline including civil work and pipe bridge, and installation of mechanical equipment and chemical dosing system for the water treatment plant:</p> <ol style="list-style-type: none"> 1. Pipe installation in Battambang province: HDPE63 to DIP600_length is 68,034 m. 2. Pipe installation in Kampong Cham province: HDPE63 to DIP 300_ length is 58,711 m. 	Battambang and Kampong Cham Province	JICA Grant Aid	KUBOTA Construction Co., Ltd	2014-2016	Completed
3	<p>Project of the renovation work of facilities of Marine Aquaculture Research and Development Center (MARDeC):</p> <p>❖ Installation of Seawater supply, air supply system, Drainage system and other work</p>	Sihanouk Ville	JICA Grant Aid	EL Conder Co., Ltd	2018	Completed

Result of PPWSA Colaboration with Japanese ODA Project 2012-2019

No.	Description of Project	Location of Project	Donor	Japanese Contractor	Duration	Situation
4	<p>Project of Expansion of Water supply system in Kampot:</p> <ul style="list-style-type: none"> ❖ Installation of raw water transmission main and distribution pipeline including civil work. ❖ Pipe Bridge, and installation of yards piping, mechanical and chemical dosing system at intake facility and water treatment. 	Kampot Province	JICA Grant Aid	SMCC and Swing JV	2016-2018	Completed
5	<p>Project of Siem Reap water supply expansion phase 2 of construction of distribution pipelines in zone 1 to 7:</p> <ul style="list-style-type: none"> ❖ Installation of distribution pipeline including civil work of air valve chamber, inter connection, wash out and section valve and bridge attachment pipe • HDPE 63 to DIP 600 _length is around 166,000 m. 	Siem Reap province	JICA's Loan	KUBOTA Construction Co., Ltd	2019-2022	On-going



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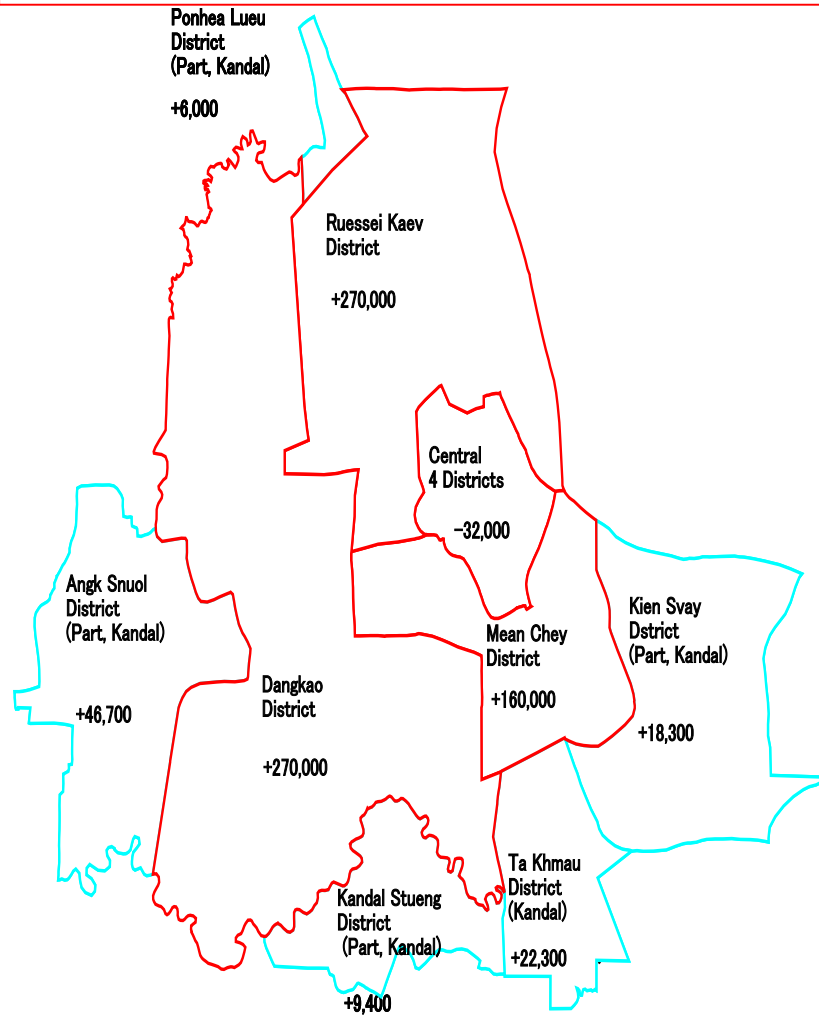
**Phnom Penh Water Supply Authority
“PPWSA”**

BUSINESS PLAN 2019

Expected Service Coverage area and Actual Service Coverage area

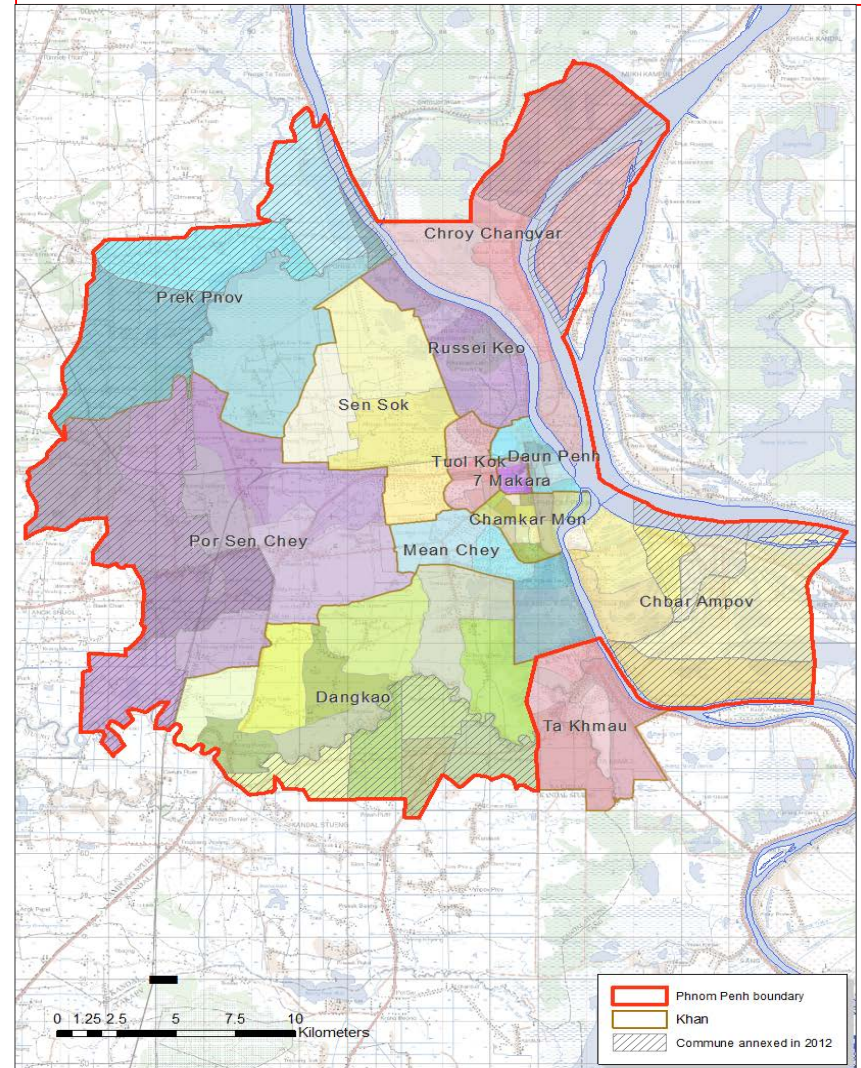
510 km²

7 Districts + Khrong Takhmau +4 Urban Areas in Kandal Province



710.16 km²

678.5 km² 14 Districts +31.66km² Khrong Takhmau



Third Master Plan – Period 2016-2030

Water Demand Forecast

In 2030, total production capacity of PPWSA for supplying to its customer will be reached 1,000,000m³ per day.

Years	Consumption (m ³ /Day)	NRW	Average Water demand (m ³ /Day)	Maximum Water demand (m ³ /Day)
2015	417,364	8%	453,656	521,705
2016	449,721	8%	488,827	562,151
2017	490,420	8%	533,065	613,025
2018	523,716	9%	575,513	661,840
2019	560,876	9%	616,347	708,799
2020	591,699	10%	657,443	756,060
2021	630,529	10%	700,587	805,676
2022	664,460	10%	738,288	849,032
2023	698,911	10%	776,568	893,053
2024	728,269	10%	809,187	930,565
2025	758,750	10%	843,056	969,514
2026	784,267	10%	871,408	1,002,119
2027	804,482	10%	893,869	1,027,949
2028	823,156	10%	914,618	1,051,810
2029	839,223	10%	932,470	1,072,340
2030	855,431	10%	950,478	1,093,050

Third Master Plan – Period 2016-2030 (Con't)

Graph of water demand and Water production capacity

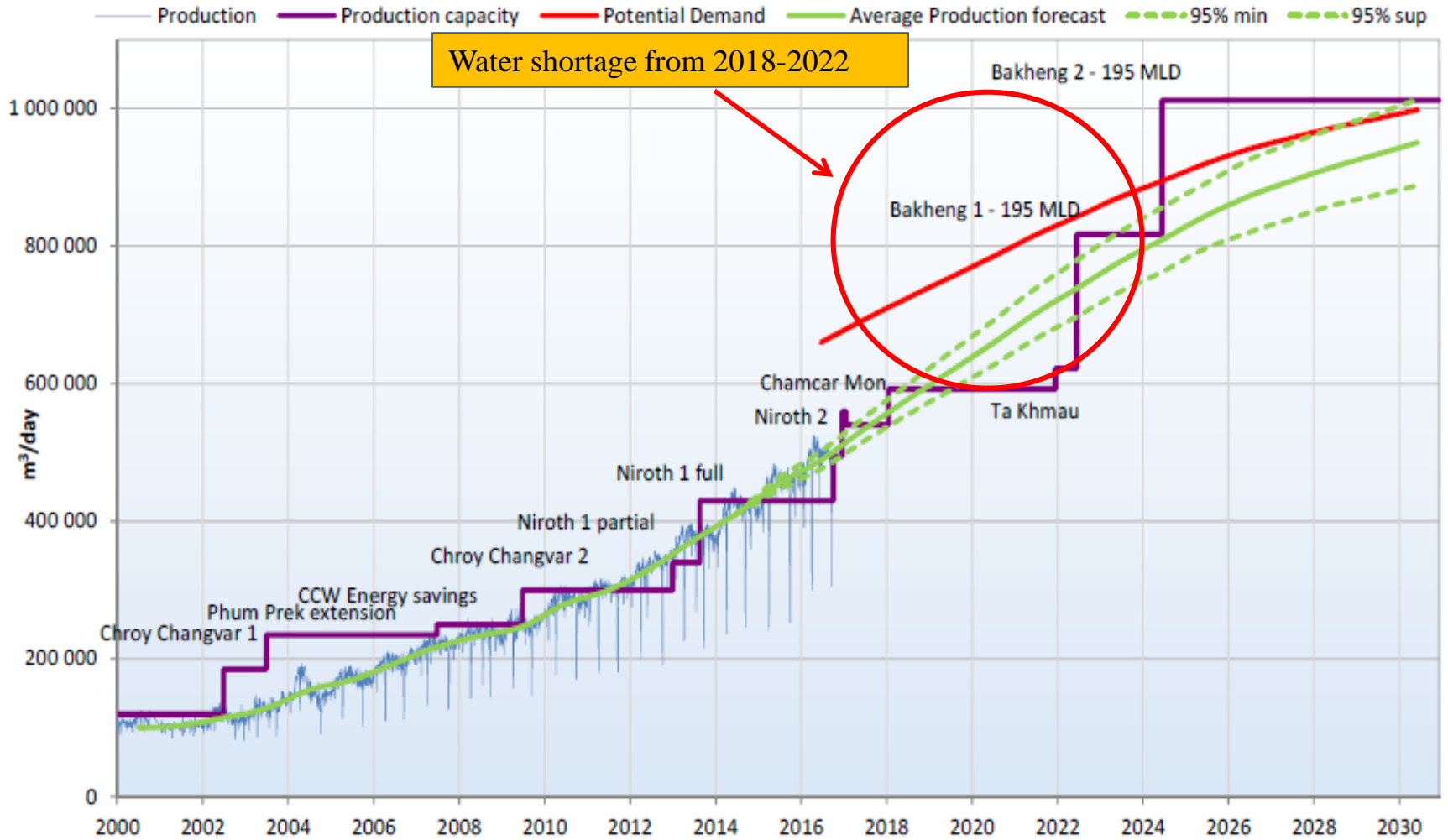


Figure 49: Evolution of water demand and production capacity – 2016-2030

Third Master Plan – Period 2016-2030 (Con't)

Budget for Water Production Facilities Construction In According with the Action Plan 2018-2025

No.	Description	Budget	Dollar	Situation
1	Chamcar Morn Water Production Facilities with Capacity of 52,000m ³ /day and Network Extension.	AFD & PPWSA	41,600,000	The production will start in October, 2019
2	Ta Khmau Water Production Facilities with capacity of 30,000m ³ /day.	JICA	-	The Grant will be sign in May, 2020. SPC Model
3	Bakheng Phase I Water Production Facilities with capacity of 195,000m ³ /day and Network Extension.	AFD , EIB & PPWSA	247,000,000	Under Processing
4	Bakheng Phase II Water Production Facilities with capacity of 195,000m ³ /day and Network Extension.	AFD , EIB & PPWSA	128,000,000	Gaining support from Royal Government of Cambodia and AFD in March, 2019

Third Master Plan – Period 2016-2030 (Con't)

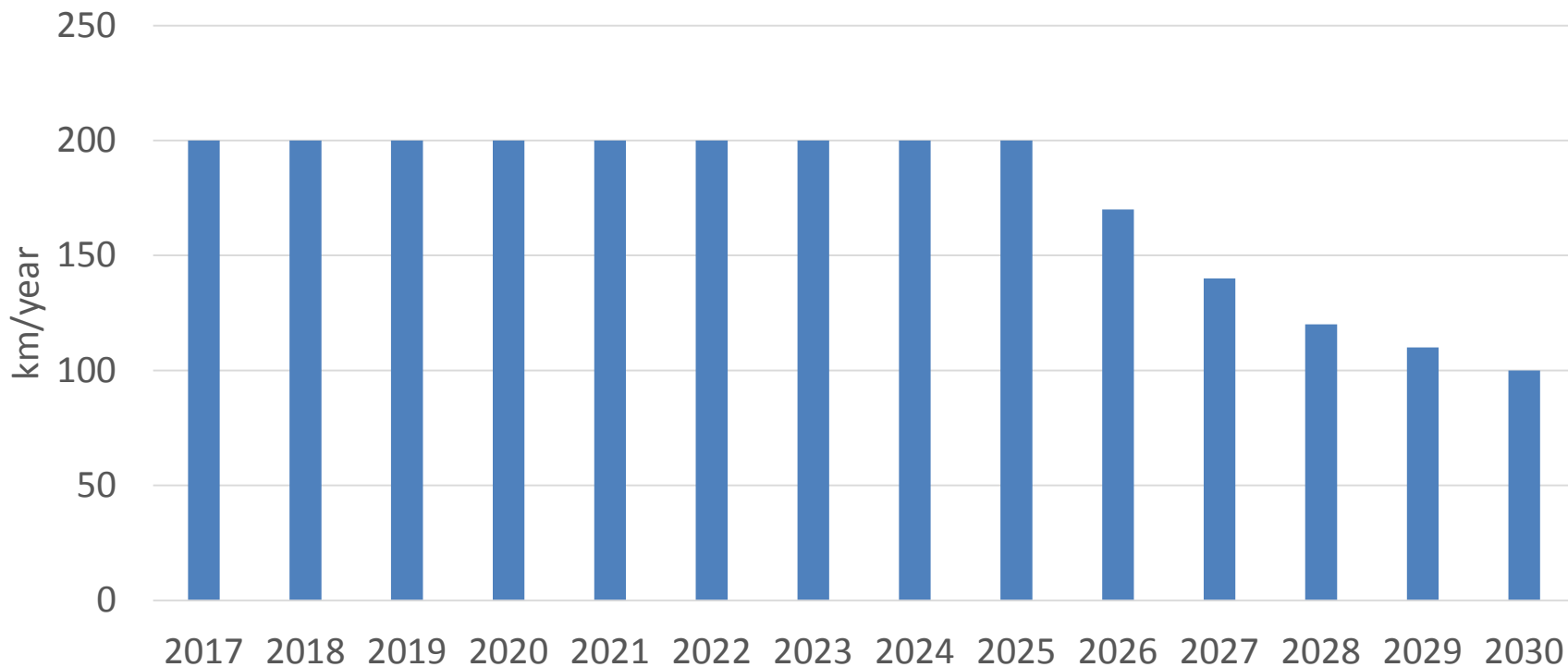
Budget for Water Production Facilities Construction In According with the Action Plan 2018-2025

No.	Description	Budget	Dollar	Situation
5	Improvement of Phum Prek Water Treatment Plant	Japanese ODA	-	Under Request

Third Master Plan – Period 2016-2030 (Con't)

The Proposed Program for Expansion of Distribution Network from 2017-2030

- In 2030, PPWSA will expand its Distribution network from DN90mm to DN350mm with length around 2,440Km.
- The distribution network will be expanded around 174km/year by PPWSA.



Third Master Plan – Period 2016-2030 (Con't)

The Proposed Program for Expansion of Transmission Main Network from 2017-2026

- PPWSA will expanded its Transmission Main Network from DN400mm to DN2000mm with length around 102Km.
- The transmission Main Network will be expanded around 12km/year by PPWSA.

DI Pipe Diameter(mm)	Length (m)
400	5,800
500	10,300
600	40,171
800	10,400
1000	2,600
1200	13,800
1400	6,700
1600	2,300
1800	1,700
2000	7,900
Total	101,671



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OPPORTUNITY FOR JAPANESE INVESTOR 2020-2030

OPPORTUNITY FOR JAPANESE INVESTOR 2020-2030

- ✓ Attending the tender for supply and delivery of water transmission pipeline with diameter from 400-2000 mm ductile iron pipe
- ✓ Attending the tender for SPC project for the expansion of water treatment plant Ta Khmoa and Phum Prek.
- ✓ Improvement of data monitoring system for the management of the water supply system
- ✓ Participation in the energy saving project (Solar System)
- ✓ Institutional and capacity building to support the project
- ✓ Participation to Japanese ODA project for the improvement of the provincial town water supply project



THANK YOU