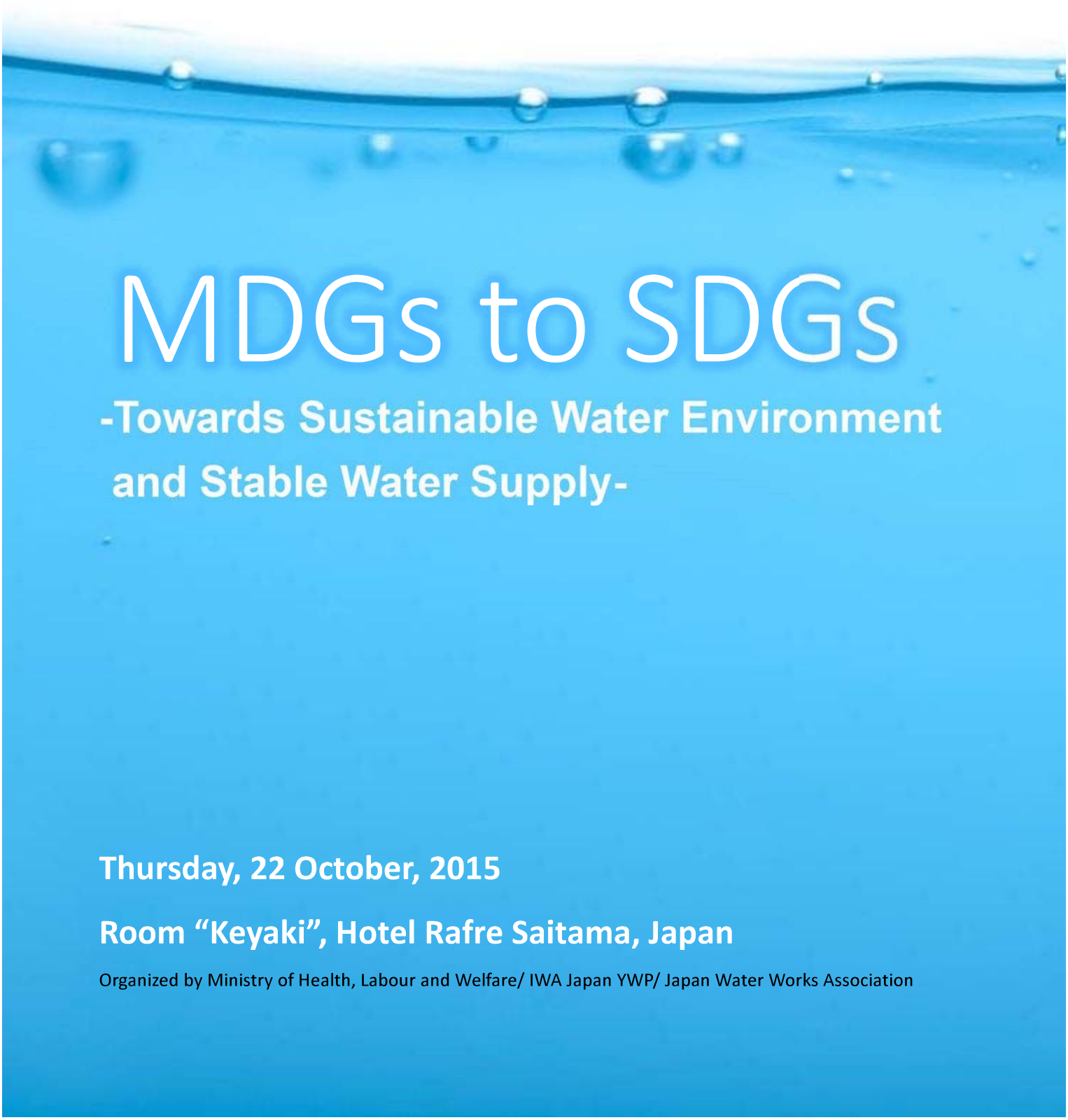
厚生労働省 Ministry of Health, Labour and Welfare

IWA International Water Association Japan YWP | Japan National Young Water Professionals

JAPAN WATER WORKS ASSOCIATION

International Forum on Water Supply



MDGs to SDGs

-Towards Sustainable Water Environment and Stable Water Supply-

Thursday, 22 October, 2015

Room "Keyaki", Hotel Rafre Saitama, Japan

Organized by Ministry of Health, Labour and Welfare/ IWA Japan YWP/ Japan Water Works Association

Program Overview

- Opening Address –		
14:00 - 14:10		**Masaru OZAKI** Executive Director Japan Water Works Association
		**Tetsuya TAKAZAWA** Director, Water Supply Planning Guidance Office Water Supply Division, Ministry of Health, Labour and Welfare
		**Naohiro KISHIDA** President, IWA Japan YWP Senior Researcher, Area of Water Management, Department of Environmental Health, National Institute of Public Health
- Initiatives toward SDGs-		
14:10-14:25	Koichi Matsubara	IWA Japan YWP
14:25-14:40	Mohmad Asari Bin Daud	MWA (Malaysia)
14:40-15:05	Khampheuy Vongsakhamphoui	LAOS
- Coffee Break (15 min) -		
15:20-15:35	Yang-Long Wu	CTWWA (Chinese Taiwan)
15:35-15:50	Rudy Kusmayadi	PERPAMSI (Indonesia)
15:50-16:05	Pairoj Sattayasansakul	TWWA (Thailand)
- Coffee Break (15 min) -		
16:20-16:35	Krishan Murarilal Mathur	IWWA (India)
16:35-16:50	Stuart Wilson	WSAA (Australia)
16:50-17:05	Steve Via	AWWA (USA)
17:05-17:20	Sushmita Mandal	IWA (International)
- Closing Remarks by Masaru Sakuma, JWWA -		

Japan YWP | Japan National Young Water Professionals

International Forum On Water Supply

(Japan Water Works Association Annual Conference)

October 22, 2015

Introduction of Japan-YWP (co-host)

Naohiro KISHIDA

Japan-YWP, Chair

National Institute of Public Health

What is YWP?

◆ IWA (International Water Association)

- Global network of water professionals
- **Young Water Professionals (YWP) program:**
  To assist students and young professionals in the water sector to become global water leaders in the future

➢ Activity of IWA-YWP

- Networking young water professionals
- Providing opportunities for research, discussion, and career development

➢ IWA-YWP Events

- IWA Asia-Pacific Young Water Professionals Conference
- IWA International Young Water Professionals Conference

IWA YWP HP http://www.iwa-network.org/young-water-professionals.php

Japan National Young Water Professionals

IWA-YWP program

Chair: Dr. Yamamura

East Asia & The Pacific chapter

Other regional chapters

- Australian chapter
- Malaysian chapter
- Korean chapter
- Japanese chapter (Japan-YWP)

JWWA
JSWE
Support

- established in 2010 for active contribution to academic research and practical action associated with water issues.

Kick-off symposium

Activity: Networking through media

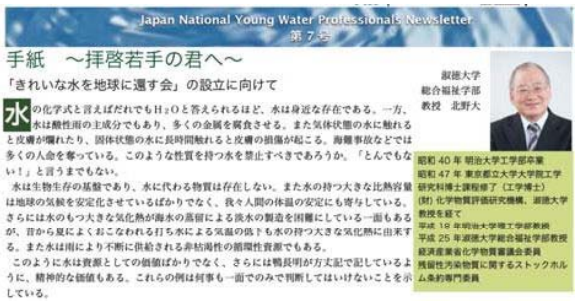
Website (http://www.japan - ywp.net/)

Mailing list

- Announcement of water-related events
- Knowledge sharing

Newsletter

- News of each member,
- Reports on conference/workshop
- Job introduction,
- Message from senior professionals
- Etc.



Activity: Seminar/Workshop

Providing valuable opportunities for face-to-face communication by organizing several domestic and international events

Year	Month	Events	Place
2014	Feb.	4th Japan-YWP Annual Seminar	*Tokyo*
	Jun.	3rd Japan-YWP International Symposium in WET 2014	*Tokyo*
	Aug.	Japan-YWP Seminar of Job Introductions in Water Sector	*Tokyo*
	Aug.	4th Japan-YWP Evening Seminar	*Tokyo*
	Oct.	Seminar on Asset Management	*Kyoto*
	Oct.	International Forum On Water Supply (Co-host)	*Nagoya*
2015	Jan.	5th Japan-YWP Annual Seminar	*Tokyo*
	Mar.	Joint seminar at JSWE annual conference	*Kanazawa*



One of the ways to communicate: Drinking party



Look forward to drinking party after the forum!

Today's program (14:00-17:30)

Special presentation by invited speakers

- Opening Address -			
14:00 - 14:10	Masaru Ozaki, JWWA		
	Tetsuya Takazawa, Ministry of Health Labor and Welfare		
	Naohiro Kishida, IWA Japan-YWP		
- Initiatives toward SDGs -			
14:10 - 14:25	IWA-Japan YWP	Koichi Matsubara	A Review of Water Supply and SDGs context: How to Elucidate the Gap between "Safe Drinking Water" and the Reality?
14:25 - 14:40	MWA	Mohmad Asari Bin Daud	Challenges in managing resources – Malaysian case
14:40 - 15:05	LAOS	Khampheuy Vongsakhamphoui	Expectation of Water Works Association in Lao PDR
- Coffee Break (15 min) -			
15:20 - 15:35	CTWWA	Yang-Long Wu	Towards Sustainable Water Environment and Stable Water Supply of Taipei Water System
15:35 - 15:50	PERPAMSI	Rudy Kusmayadi	Water Supply in Indonesia towards SDG
15:50 - 16:05	TWWA	Pairoj Sattayasansakul	Water Supply in Thailand from MDGs toward SDGs
- Coffee Break (15 min) -			
16:20 - 16:35	IWWA	D B Panse	
16:35 - 16:50	WSAA	Stuart Wilson	Towards a sustainable water environment and stable water supply
16:50 - 17:05	AWWA	Steve Via	Toward Meeting Goal Six
17:05 - 17:20	IWA	Sushmita Mandal	SDG 6: Exploring the role of associations and networks
- Closing Remarks by Masaru Sakuma, JWWA -			

Appendix

Japan-YWP: Steering committee

Chair: N. Kishida *(NIPH)*

Vice-chair: H. Nakazono *(JFE Engineering)*

University

H. Sakai *(Univ. of Tokyo)*

Y. Asada *(Kyoto Univ.)*

H. Yamamura *(Chuo Univ.)*

M. Oshiki *(NNCT)*

Research Inst./Org.

A. Yamamoto *(Osaka City-PHES)*

T. Onodera *(NIES)*

T. Kakimoto *(CESS)*

Private Sectors

T. Seki *(METAWATER)*

K. Matsubara *(Nissuicon)*

Shoichi Sano (Mizuho IR)

Government/Waterworks

N. Moritani *(Ministry of Env)*

T. Miyamomto *(Ichikawa city)*

F. Nishu *(JWWA)*

K. Yamashita *(JSWA)*

Advisors

Prof. Furumai *(Univ. of Tokyo)*

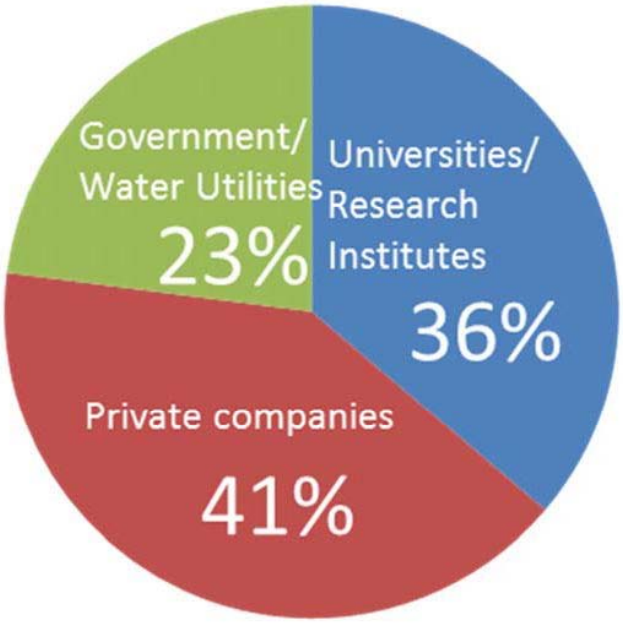
Mr. Matsui / Mr. Sakuma *(JWWA)*

Japan-YWP: Members

Total members: 309

Average age：33

(IWA: up to 35 years old)



From MDGs to SDGs:

Toward Safe and Sustainable Water Supply Systems

Presentation at "International Forum"
General Assembly & Conference 2015
(October 22, 2015)

Koichi Matsubara
Urban Engineering Department, The University of Tokyo
(Nihon Suido Consultants Co., Ltd.)

Agenda

1. Introduction
   - Review of MDGs Achievement, Issues remained
   - SDGs and Water(Goal 6)
2. Case Study
   - "Safety" Issue and
     A Trial Estimation of Access to Safe Water
3. Approach to Sustainability
   - Partnership Perspective and Yokohama Forum Statement
4. Conclusion and Discussion

Introduction

Review of Achievement by MDGs related to Water Supply

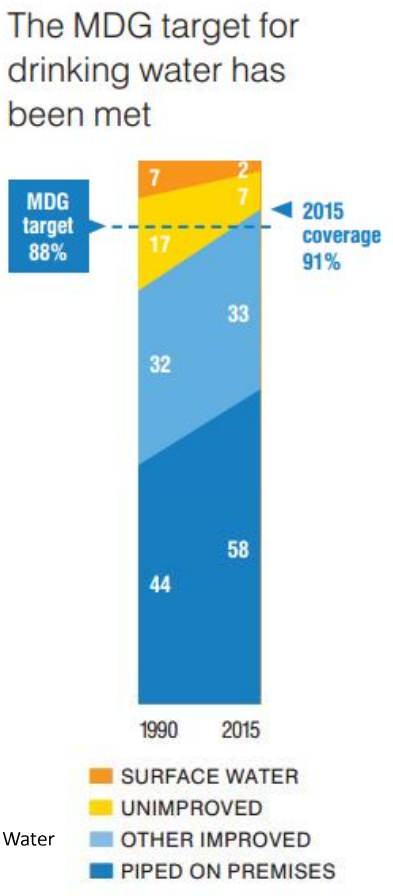
"91 per cent of the global population now uses an improved drinking water source"

Source (Notes and Photo): Progress on Sanitation and Drinking Water WHO/UNICEF (2015)

Achievement and Issues Remained [1)]

- **MDG Target 7c** has been met
  Halve, by 2015, the proportion of the population without sustainable access ***to safe drinking water*** *and basic sanitation*
- Issues remained
  - "663 million people still lack improved drinking water sources"
  - "Safe" sources is Not always safe
    Safe = Improved Drinking Water Sources
    (Incl. Private Wells, Community Taps)
  - Inequality (income level, Rural&Urban etc.)
  - Non-household setting (Schools, Healthcare Facilities)

*Source: Progress on Sanitation and Drinking Water WHO/UNICEF (2015)



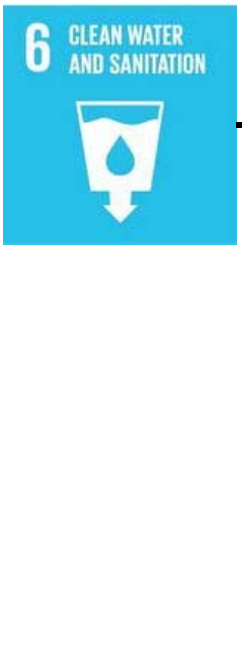
What is Sustainable Development Goals (SDGs)?

- 193 countries adopted declaration as the goals after MDGs
- specifying "supremely ambitious and transformational vision"
- 17 Goals with 169 associated targets which are integrated and indivisible.

Source: UN Sustainable Development Goals Website
http://www.un.org/sustainabledevelopment/sustainable-development-goals/

Interlinkage of Goals and Water

- Importance of Interlinkage with other Goals
  (Aside from Goal 6)



"Saving women and girls time by reducing hours spent fetching water, improving productivity" *1
⇒ Indicator: Percentage of households (disaggregated by sex of head of household) using safely managed drinking-water services

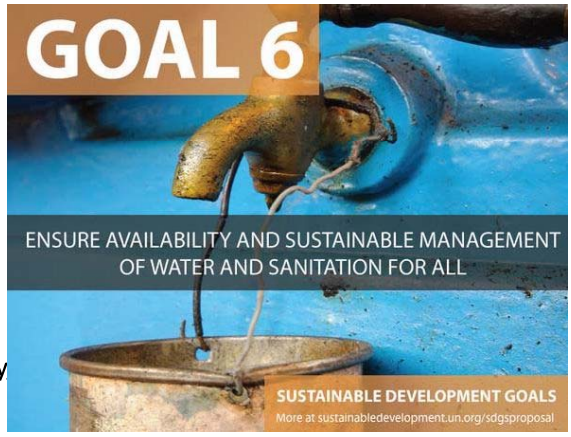
Living Environment for Poor dwellers in Slums

Equality for small subgroups (Poor, Disabilities, Ethnisity)

Source:*1 WaterAid (2013) Everyone Everywhere
*2 All Simbols are drawn from UN SDGs Websites http://www.un.org/sustainabledevelopment/sustainable-development-goals

Goal for "Water and Sanitation"

- **Goal 6. Ensure availability and sustainable management of water and sanitation for all**
- 6.1 by 2030, achieve universal and equitable access to safe and affordable drinking water for all
- 6.2 by 2030, achieve access to adequate and equitable sanitation and hygiene for all, and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations
- 6.3 by 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater, and increasing recycling and safe reuse by x% globally
- 6.4 by 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity, and substantially reduce the number of people suffering from water scarcity
- 6.5 by 2030 implement integrated water resources management at all levels, including through transboundary cooperation as appropriate
- 6.6 by 2020 protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes
- 6.a by 2030, expand international cooperation and capacity-building support to developing countries in water and sanitation related activities and programmes, including water harvesting, desalination, water efficiency wastewater treatment, recycling and reuse technologies
- 6.b support and strengthen the participation of local communities for improving water and sanitation management



Source: UN Sustainable Development Goals Website

Goal 6 and Key Concept in Terminology

6.1 by 2030, achieve *universal* and *equitable* access to *safe* and *affordable drinking water for all*

universal	including households, schools, health facilities, workplaces
equitable	progressive reduction and elimination of inequalities between population sub-groups
access	close to home
safe	free from pathogens and elevated levels of toxic chemicals at all times
affordable	Payment for services does not present a barrier to access
drinking water	drinking, cooking, food preparation and personal hygiene
for all	men, women, girls and boys of all ages including people living with disabilities

Source: Methodological note: **Proposed indicator framework for monitoring SDG targets on drinking-water, sanitation, hygiene and wastewater WHO/UNICEF (2015)**

Keywords in Goal 6 in Detail

- Universal and Equitable
  - Gap between Urban and Rural, Rich and Poor
  - Non-household Settings (Schools and Hospitals)
- Safe
  - Microbes (*E. coli*) and Important Chemicals (As, F)
  - Basic and Intermediate Services
- Emerging Issues
  - Water-use efficiency
  - Water Resources Management
  - Participation of local communities
  - Partnerships

…will be measured and monitored by individual indicators

Case Study

"Safety" Issue and
A Trial Estimation of Access to Safe Water

Water "Safety" Issues

- Improved water sources are not always safe
  - In a snapshot survey (RADWQ) for five countries, 7-16% of water supply did not complied with their water quality standards.[1)]
  - In an estimation, 1.2 billions are at sanitary risk[2)]
- Sources of problems and limitations
  - Private Well: Source Pollution, Maintenance
  - Water Supply Systems:
    Intermittent supply, Demand Surge (Pressure drops), Source Pollution, O&M neglect
  - (Indirectly) Lack of Good Management, Finance, Human Resources

Source: 1) Bain et al., 2012, doi:10.2471/BLT.11.094284, 2) Onda et al., 2012, doi: 10.3390/ijerph9030880

Trial Estimation of "Access to Safe Drinking Water"

- Methodology:
  - "Access to Safe Drinking Water"
    Improved Water Water Quality complied with National Standards and WHO Water Quality Guideline values (As, E.coli)
  - Research Question:
    Does Household Water Treatment (HWT) contributed to provide safe water?

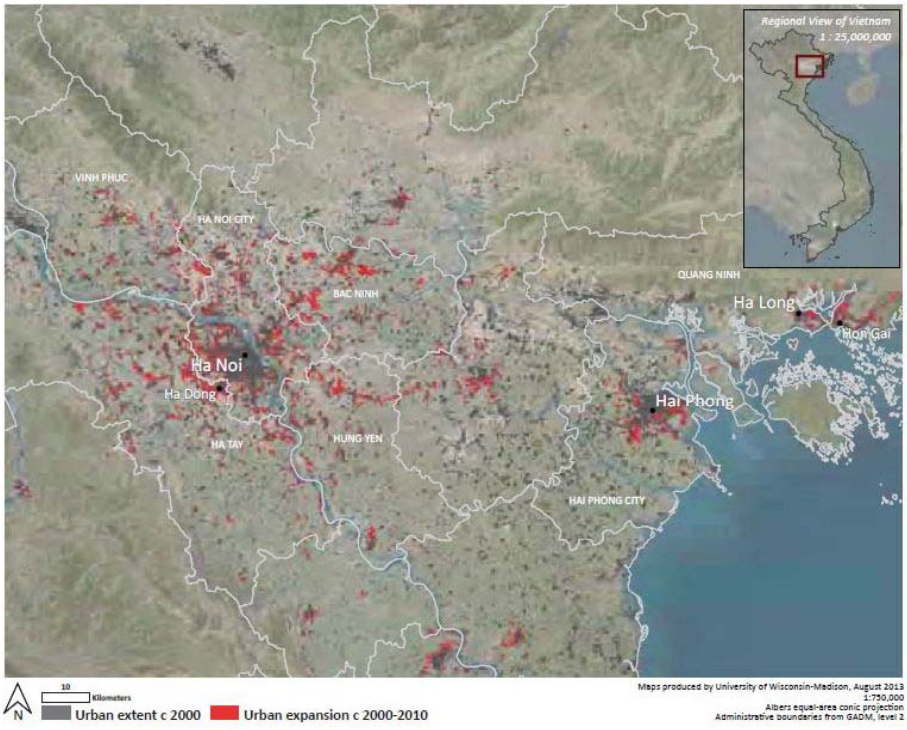
Sand filter (SF)

Reverse osmosis (RO)

Ceramic Filter (CF)

Source: Matsubara *et al.*, (2015) Submitting to Environmental Engineering Research, JSCE (in Japanese)

Case Study: Hanoi City

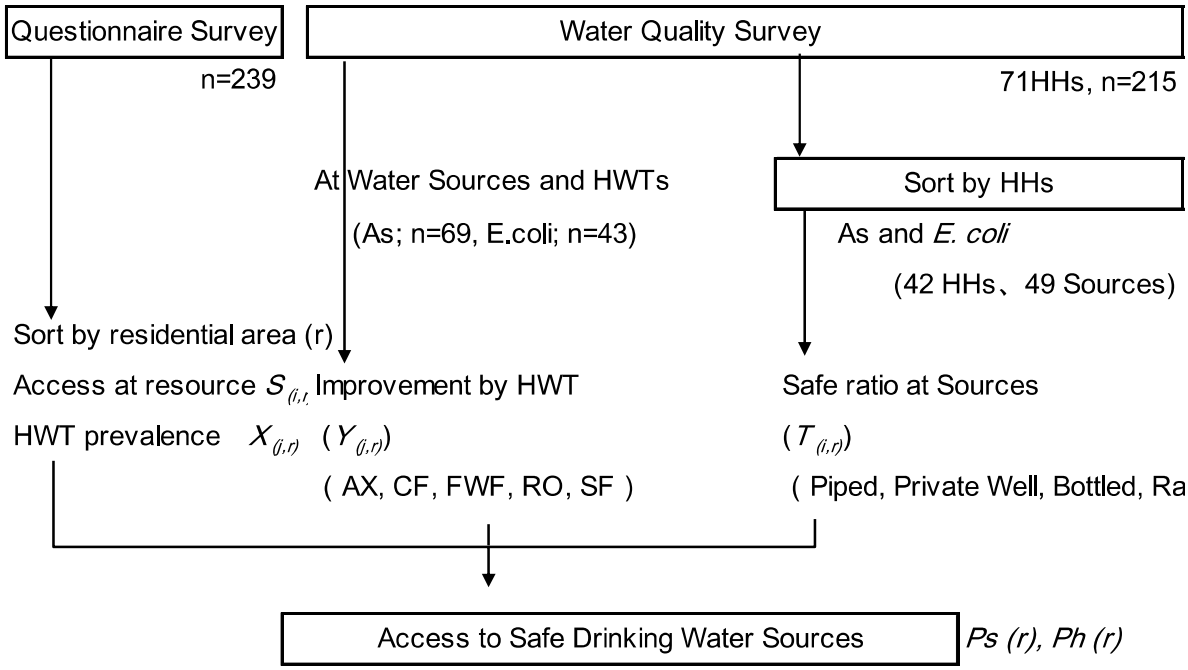


- Hanoi City
  - Pop. 6.5 Million
- Growing City Area and Populations
- **Arsenic Problem**
- Water Quality Survey
  - Hanoi, Vietnam
  - Sampling Period : from Nov. 2011 – Mar. 2013
- Questionnaire Survey
  - N=239 at Mar. 2012

World Bank Group (2015) East Asia's Changing Urban Landscape
Measuring a Decade of Spatial Growth

ISBN: 978-1-4648-0364-2

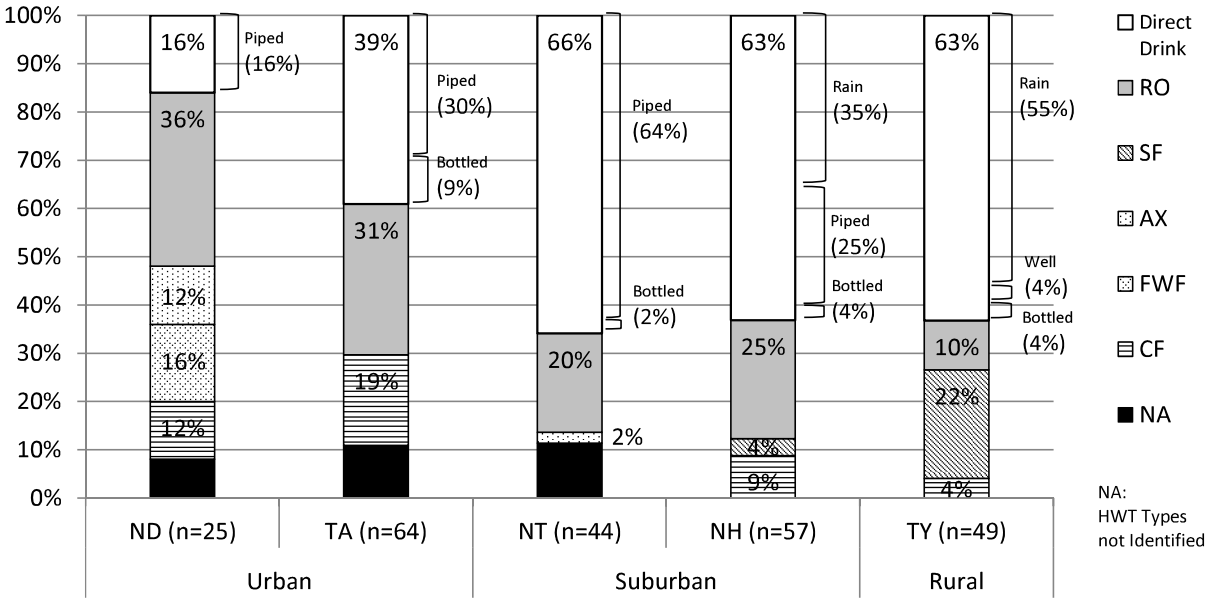
Methodology: Estimation from Survey Results



Source: Matsubara *et al.*, (2015) Submitting to Environmental Engineering Research, JSCE (in Japanese)

Results: Estimation of Prevalence of HWT

- Prevalence of HWT（by Questionnaire n=239)
  - 5 regions in Urban, Suburban, and Rural Areas

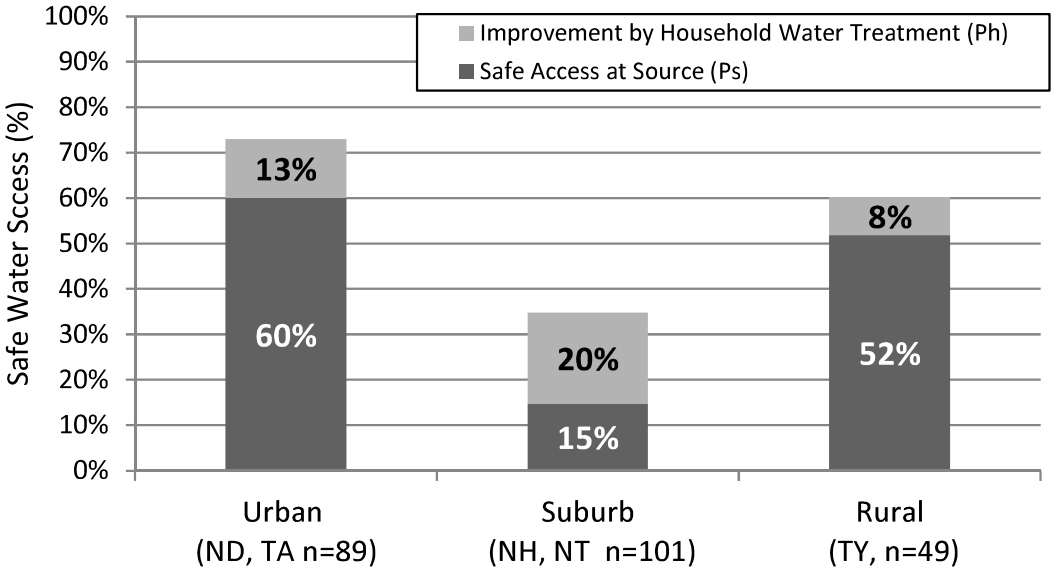


Types of Water Sources and Household Water Treatments

Source: Matsubara *et al.*, (2015) Submitting to Environmental Engineering Research, JSCE (in Japanese)

Results: Estimation of Safe Water Access by regions

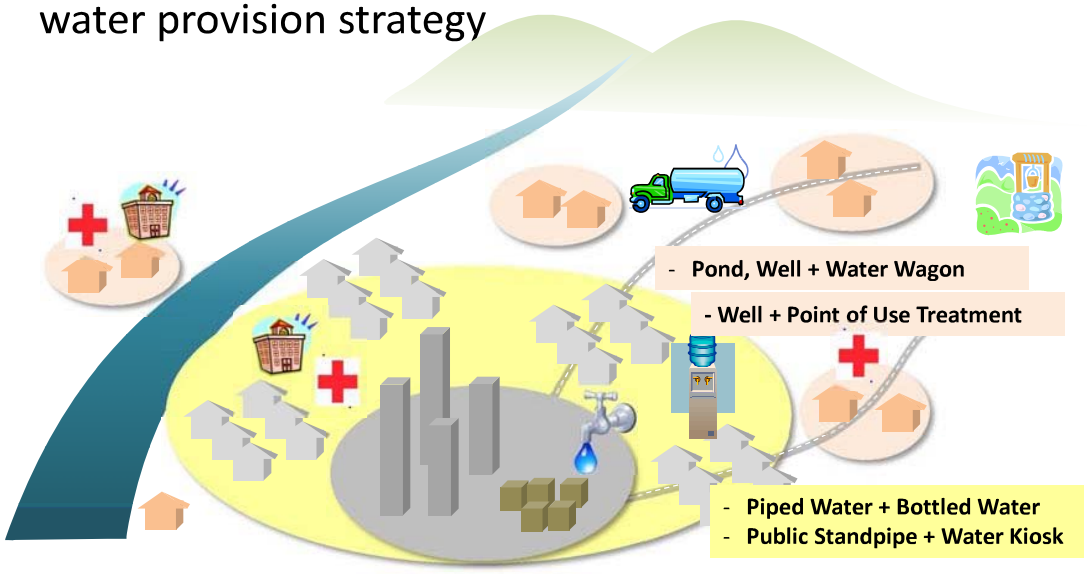
- Safe Access is only 15% to 52%
  - Lower access in Suburban: Small Scale Water Supply which do not complied for As (>10 µg/L) and *E. coli*
  - (Limitations) Restricted to only surveyed area



Source: Matsubara *et al.*, (2015) Submitting to Environmental Engineering Research, JSCE (in Japanese)

Implication and Recommendation

- In a trial estimation in Hanoi, Household Water Treatments (HWTs) are prevalent and gains access to "Safe" drinking water sources (by 8-20%)
- Results imply the need for incorporating HWTs into safe water provision strategy



Approach to Sustainability

Yokohama Forum Statement and Perspective of Partnerships

Partnerships

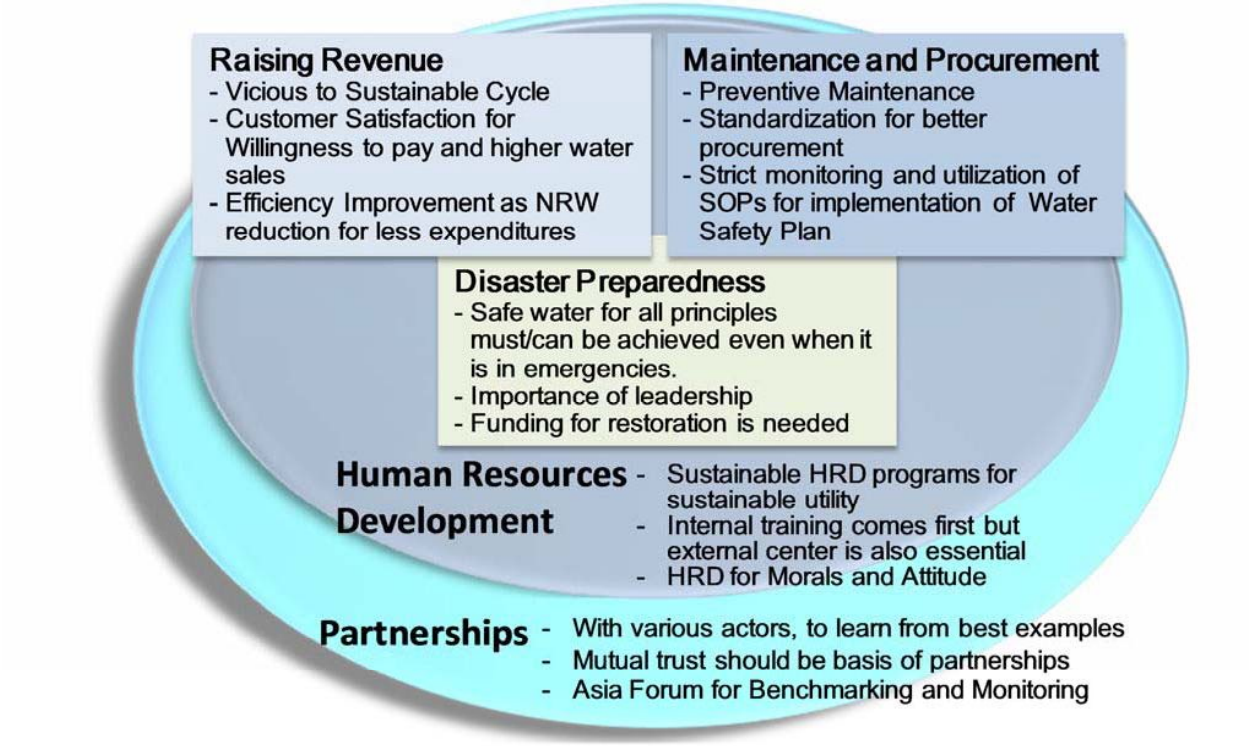
An Approach (1/3)

- From finance to diversified form of partnership
- New Types of Partnerships
  - Sharing Knowledge and Experiences by WOPs
  - Making synthetic agenda and solutions

Executive Forum for Enhancing Sustainability on Urban Water Service in Asian Region on sustainable management of water utilities (in Yokohama, July 2014)

Key Findings and Outcomes on "Executive Forum for Enhancing Sustainability"

An Approach (2/3)



Source: THE THIRD EXECUTIVE FORUM FOR ENHANCING SUSTAINABILITY ON URBAN WATER SERVICE IN ASIAN REGION - SUSTAINABLE MANAGEMENT OF WATER UTILITIES , JICA (2014)

Key Findings and Outcomes on "Executive Forum for Enhancing Sustainability"

An Approach (3/3)

Held by JICA and City of Yokohama, 2014

28 Utilitys/Government Bodies stated as *Yokohama Forum Statement*;

1. Customer Satisfaction has a key role at raising revenue
2. Efficiency can only be achieved under appropriate preventive maintenance practices
3. Disaster becomes increasingly serious to every single utility
4. Benchmarking is needed to facilitate partnerships

Partnerships as a "WATER FAMILY"

Source: THE THIRD EXECUTIVE FORUM FOR ENHANCING SUSTAINABILITY ON URBAN WATER SERVICE IN ASIAN REGION - SUSTAINABLE MANAGEMENT OF WATER UTILITIES JICA (2014)

Conclusion and Discussion

Last Slide

- Sustainability in a context of SDGs for water supply sector
  - should be *universal*, *equitable*, *safe*, *affordable* and *for all*
  - is not single goal but wider issues which should care for the interlinkage with other sectors
- Challenge of safety is not only of water utilities but also of costumers and cities
- Partnerships are essential for sustainability to tackle with the common and emerging issues on a solidarity as a “WATER FAMILY”

Acknowledgment

- “Yokohama Forum” was held by JICA and Yokohama City.
  The synthesis was maid as a result of many utilities and organizations commitments including Japan Waterworks Association.
- Data and Photos in Hanoi were taken by Dr. Do Thuan An
- Original Research by Matsubara et al., (2015) was fully advised by Prof. Takizawa (University of Tokyo) and Dr. Kuroda (NIES)
- Ms. Takahashi (WaterAid Japan) provided resources of SDGs

Challenges in managing water resources – Malaysian experience

Presentation by:

Ir Mohmad Asari Daud

Vice President
Malaysia Water Association (MWA)

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Water Associations Meeting & International Forum on Water Supply
October 22, 2015, Saitama City, Tokyo, Japan

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INTRODUCTION

Challenges in managing water resources – Malaysian experience

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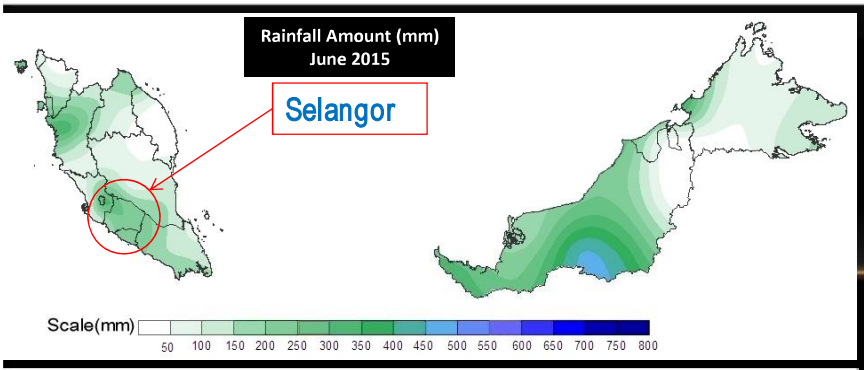
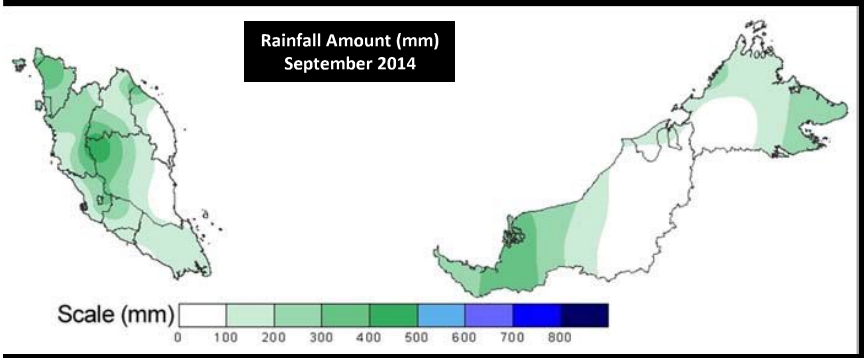
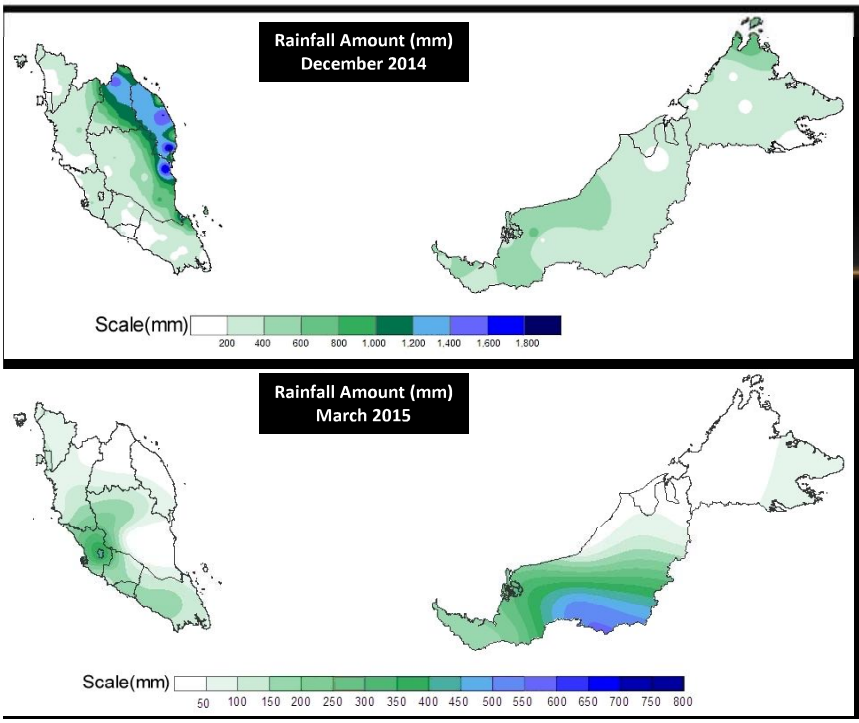
INTRODUCTION





Malaysia is blessed with heavy rainfall of annual **average** rainfall of 2500mm. However there were several occasions of long drought which affected the comfort of water consumers when rationing becomes the solution. Being the most developed state in Malaysia, Selangor water demand is high as estimated portion utilised for potable purposes is nearly **10%** of what it received from the annual rainfall

INTRODUCTION



November and December are normally wet months in most parts of Malaysia where as February and March are drier months in Malaysia. Last year's December witnessed severe rainfall where the monthly rainfall reached nearly 2000mm in several parts of eastern coast of Peninsula Malaysia. On the contrary, March was again dry in eastern coast of Peninsula and most parts of Sabah, vis a vis northern part of Borneo Island.

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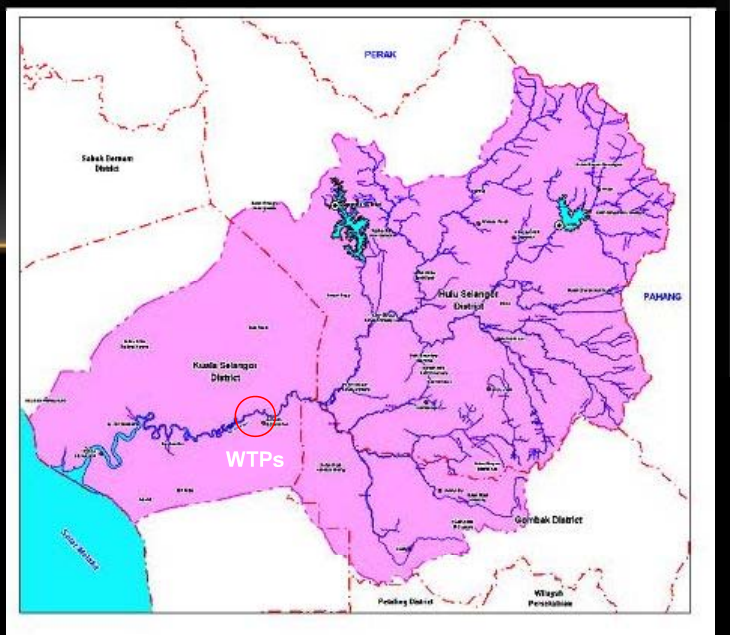
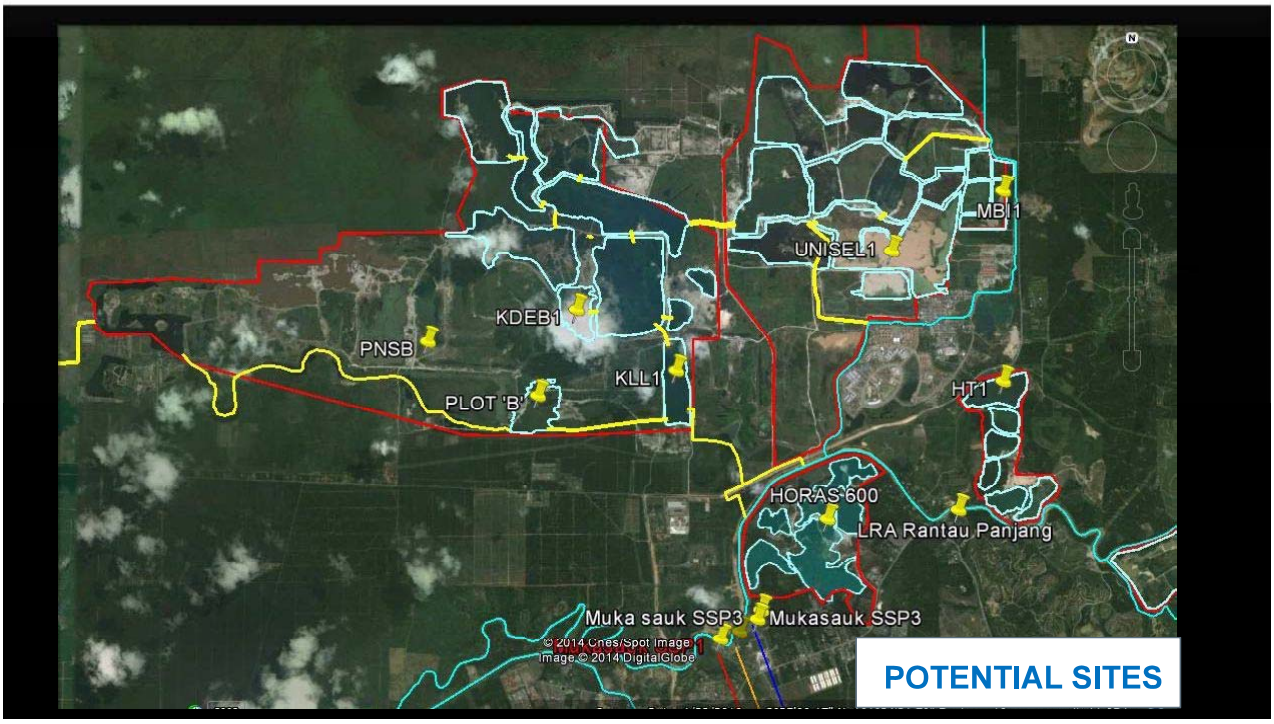
INTRODUCTION

- ✓In 2012, Selangor had revised its projection of demand:
  - Necessary to optimise production at two of its major water treatment plants (WTPs).
  - Plants had the capacity to treat water but restricted by the raw water availability in the river.
- ✓Initial investigations established the overflow at barrage near the WTPs was high and wasted.
  - Significant amount can be harvested and stored in storages or ponds, enough to cater for WTPs to produce the required capacity.
  - Auxillary storage was an option.



Administrative districts within the Selangor River Basin

INTRODUCTION



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ISSUES

ISSUES

Although rainfall in abundance in Malaysia, the ability to harvest rain is limited to dam in the upper reaches and river base flow

Elements of waste in utilisation was identified to cause the severity of the problems. Taking the cue from the famous Toyota executive, Taiichi Ohno (1912-1990), seven elements of wastes had been assessed and the following had been observed:

- **overproduction –** releasing more water from dam due to uncertainty in mid catchment precipitation
- **waiting time –** current source of water requires more than 20 hours to reach water treatment plants from the SSD and 14 hours for the STD

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ISSUES

- **unnecessary transport of materials –** moving materials (raw water) over long distance, approximately 55km and 30km for SSD and STD respectively as compared to between two to six kilometers for the major pond pumping facilities
- **over processing and incorrect processing –** over-release to avoid severe impact of inadequate supply. The saving is observed from the increase in dam level in 2015 after partial supply from HORAS and other temporary ponds
- **excess inventory –** larger storage needed to accommodate uncertainties in availability of rain in the catchment
- **defects –** system exposed to contamination along the river. It was observed that there are several incidents of water contamination along the long distance travelled by the water

APPROACH

Challenges in managing water resources – Malaysian experience

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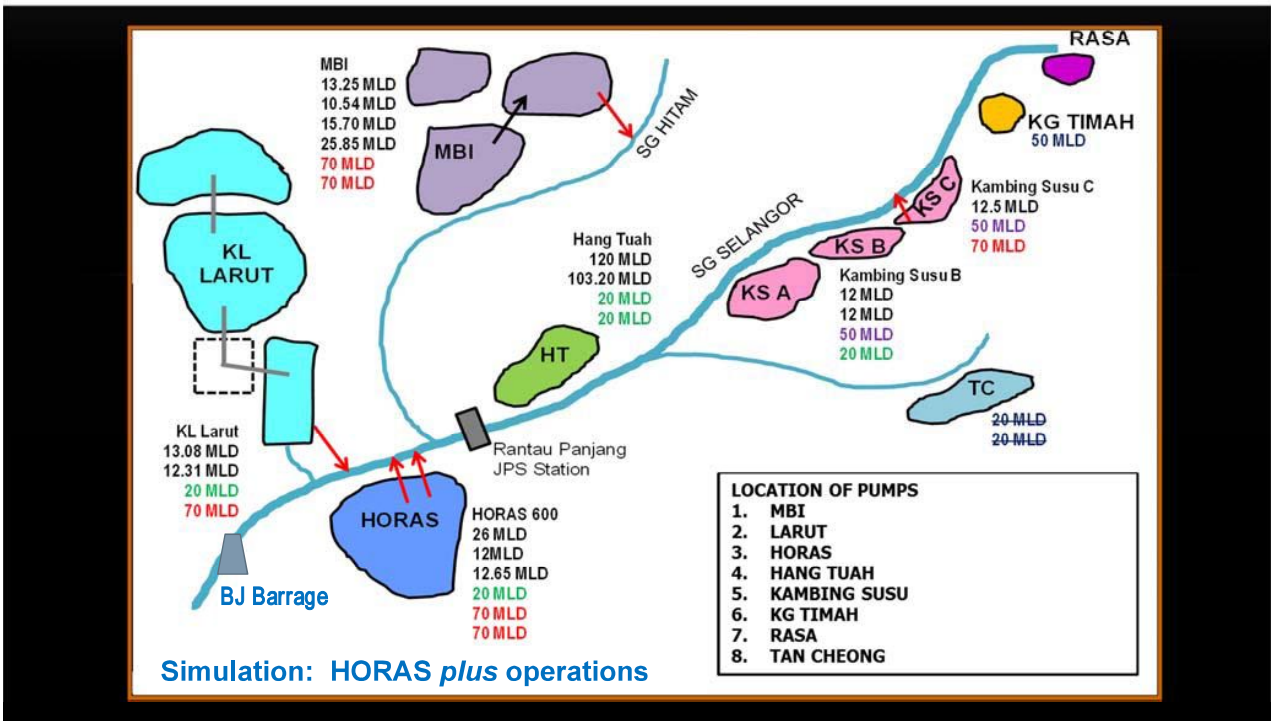
APPROACH



APPROACH

How the effectiveness is measured?

The effectiveness of reduction of wastage (***muda***) in the system is measured by the following parameters:

- Release from Sungai Selangor Dam (SSD)
- Release from Sungai Tinggi Dam (STD)
- Abstraction at the intake in Bestari Jaya (BJ)
- Pumping from HORAS and other ponds (Horas *plus*)

Results will be based on the assessment of the raw water balance comprising release from SSD and STD, baseflow estimates, abstraction, HORAS *plus* and environmental flow across the BJ barrage

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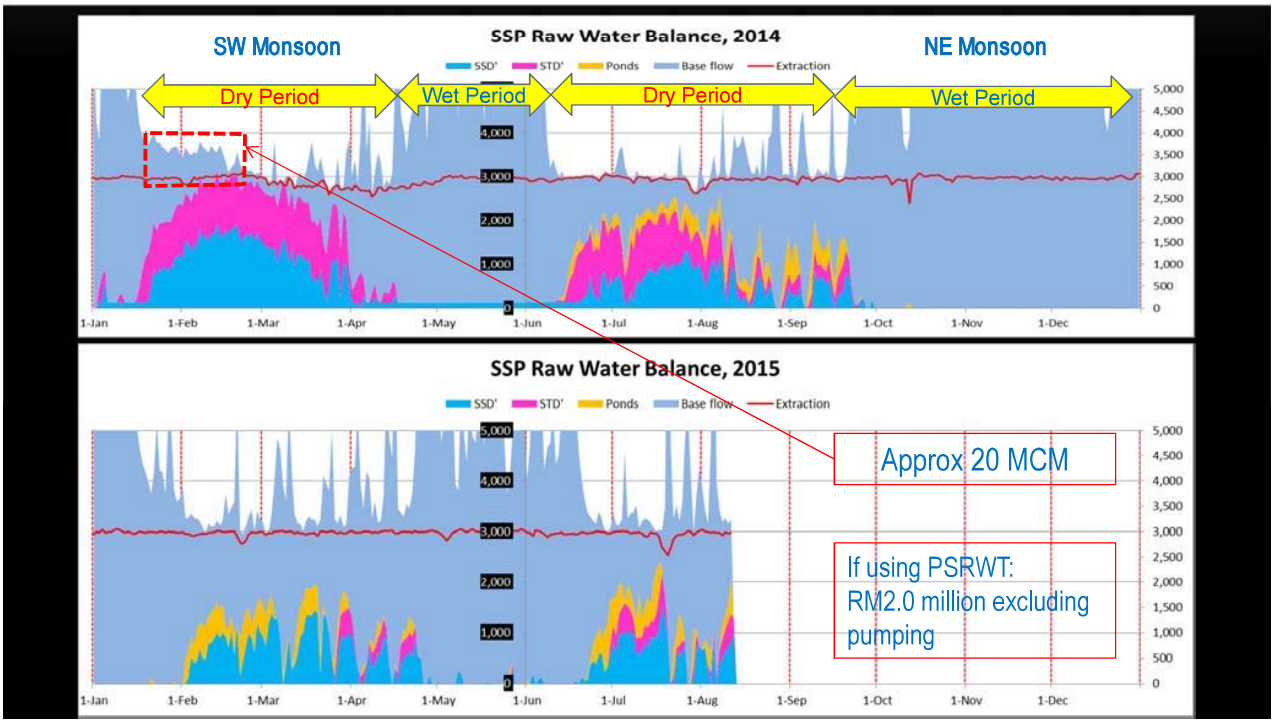
RESULTS

Challenges in managing water resources – Malaysian experience

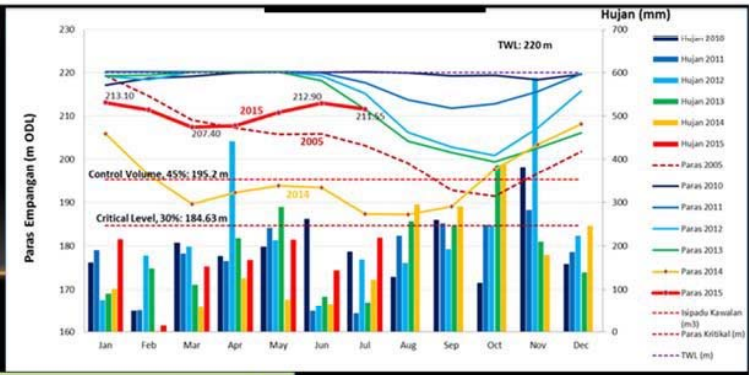
RESULTS



2015 JWWA ANNUAL CONFERENCE & EXHIBITION
Water Associations Meeting & International Forum on Water Supply
October 22, 2015, Saitama City, Tokyo, Japan

RESULTS

Sungai Selangor Dam Level 2010 - 2015



Sungai Selangor Dam Level projection 2015

MMD stated that the weather in Malaysia is characterised by two monsoon regimes:

- Southwest Monsoon from late May to September (dry monsoon)
- Northeast Monsoon from November to March (heavy rain to East Coast)
- The transition period in between the monsoons is known as the inter-monsoon period (flash flood)

DISCUSSION & RECOMMENDATIONS

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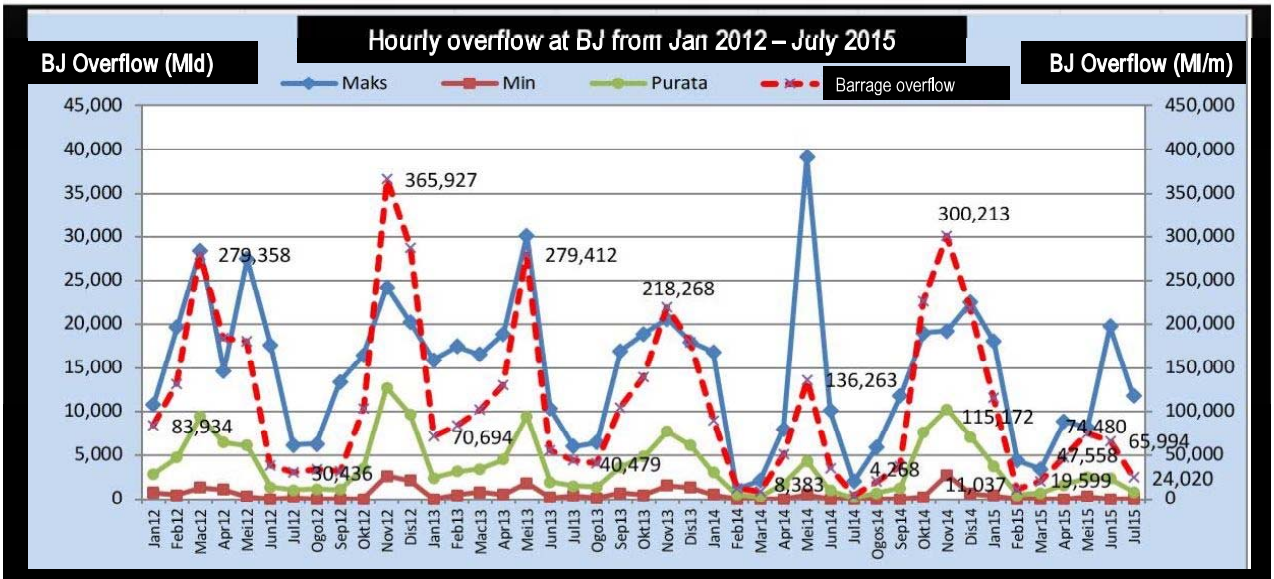
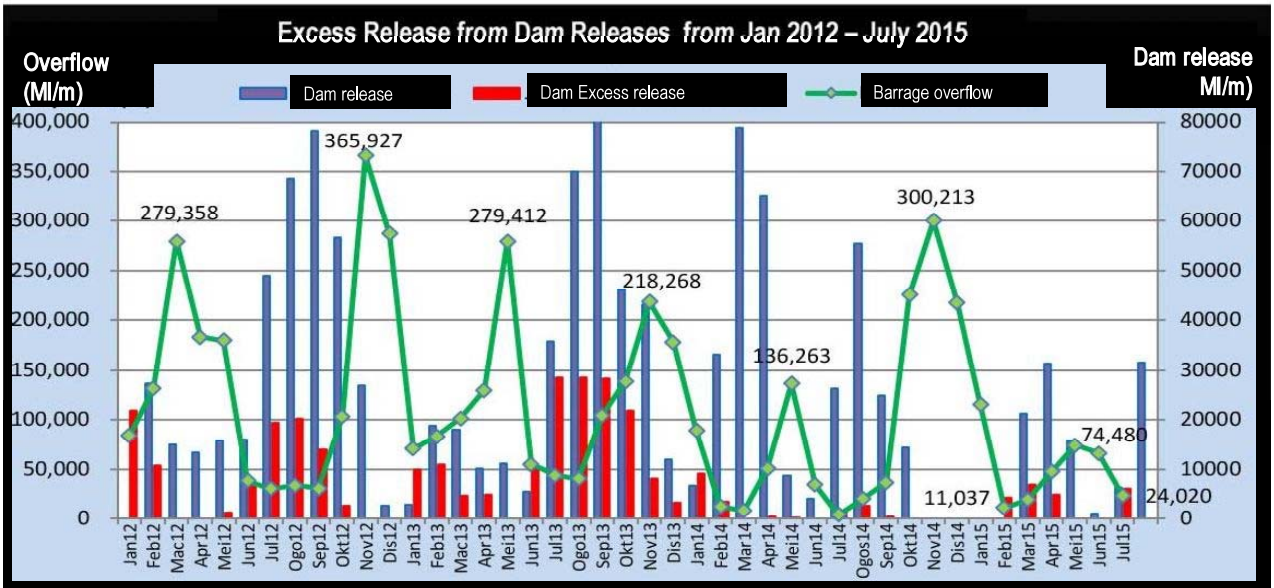
October 22, 2015, Saitama City, Tokyo, Japan

DISCUSSIONS & RECOMMENDATIONS



The overflow across BJ barrage reached as high as 40,000Mld. The monthly overflow amount at the BJ barrage varied but huge in quantity. It is evident that capturing and storing part of the excess quantity that overflow in HORAS can be sustainable if the storage can last 2 – 3 months.

DISCUSSIONS & RECOMMENDATIONS



During the period before pumping of HORAS *plus* was done, it was evident that there was wastage (excess release) from dam (red column). Construction of HORAS was supported by this results and will be able to control the wastage.

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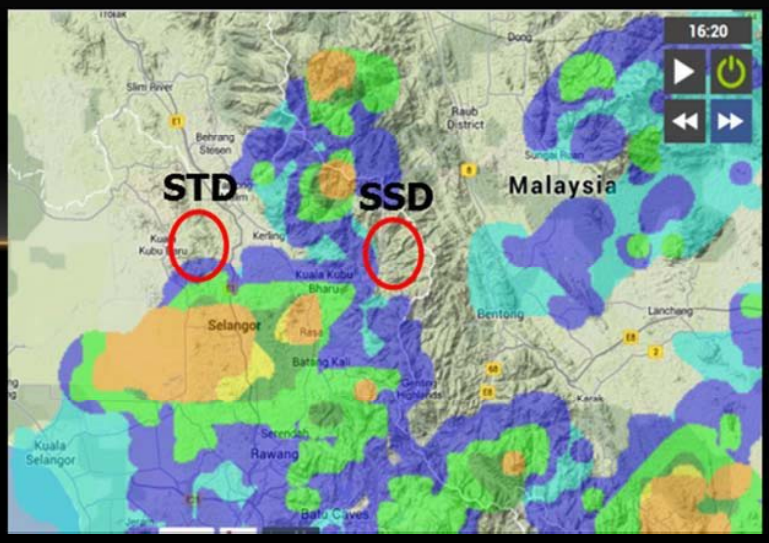
DISCUSSIONS & RECOMMENDATIONS

- The pattern of rainfall had changed and less rain fell in the catchment.
- About 85% of the rainfall images showed that rain did not fall in the dam catchment but it fell in other areas in the WTP catchment
- This phenomenon calls for review on harvesting rain. Middle catchment or midland storage has the quantity but may pose new challenges.



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Challenges in managing water resources – Malaysian experience

IMPLEMENTATION

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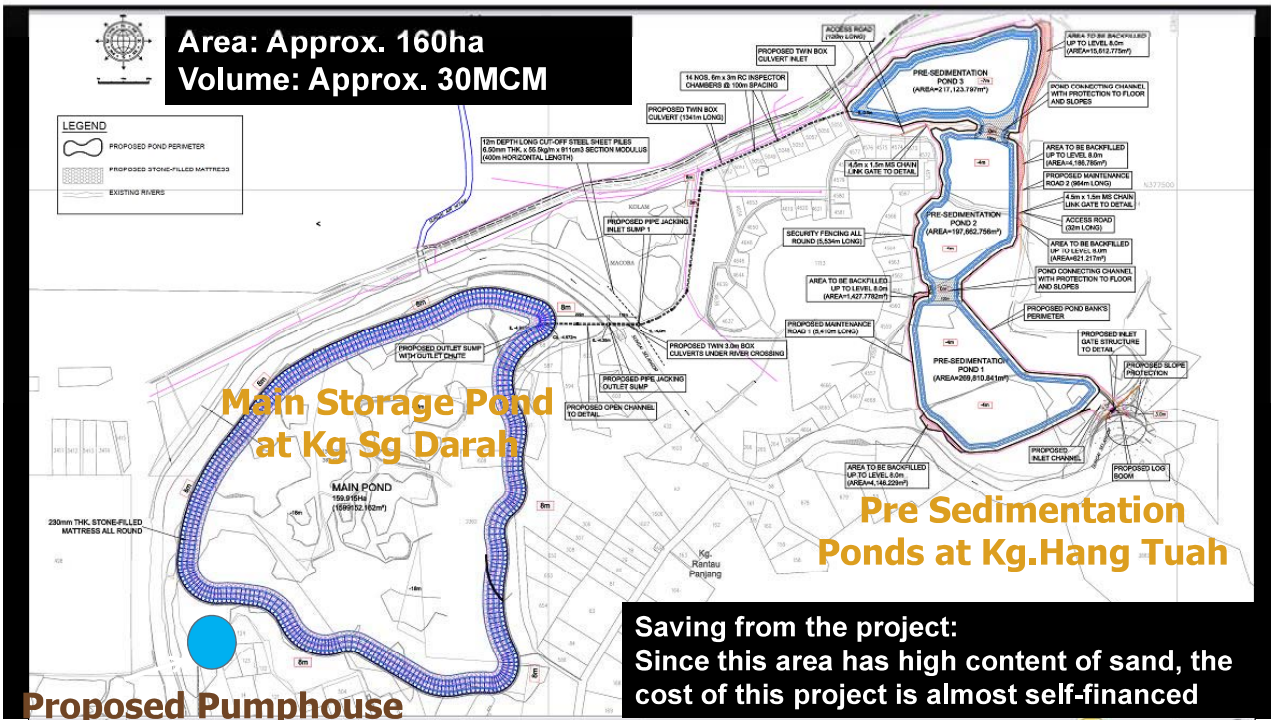
IMPLEMENTATION

- Harvesting rainfall at the upper reaches is faced with changes in this pattern where less rain was recorded falling in the dam catchment and dam replenishment becomes a challenge.
- It is imperative that rainfall need to be harvested at a bigger catchment and midland reservoir becomes imperative
- Hybrid Off-river augmentation system (HORAS) – a combination of surface and ground water abstraction was recommended. Bunded or Off-river Storage (ORS) also can serve the same purpose as well.
- Implementation of HORAS in sand rich area had reduced construction cost as the excavated material can be used for the construction of the storage area and the excess exported

IMPLEMENTATION



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CONCLUSION

CONCLUSION

- HORAS implementation is the first step to eliminate waste at the BJ barrage. It created tremendous wealth directly or indirectly.
- There are still more rooms for elimination of waste from the overflow
  - ✓ Increasing the size of the storage
  - ✓ Improving the management of release
  - ✓ Increasing river flow monitoring stations
- The dam replenishment is more challenging as the rainfall pattern has changed.
- Midland reservoir is an option to replace the conventional upper catchment reservoirs
- The current practice of river regulating dams did not take the advantage of quality water at the upper reaches as it flows into rivers and get contaminated

Welcome

to

IWA Aspire 2017

in

KUALA LUMPUR

THANK YOU

VIENYIANE CAPITAL WATER SUPPLY STATE ENTERPRISE

Expectation of Water Works Association in Lao PDR

International Water Forum: MDGs to SDGs - Sustainable water environment and Stable water supply

Presented by:

Khampheuy VONGSAKHAMPHOUI

General Manager Vientiane Capital WSSE

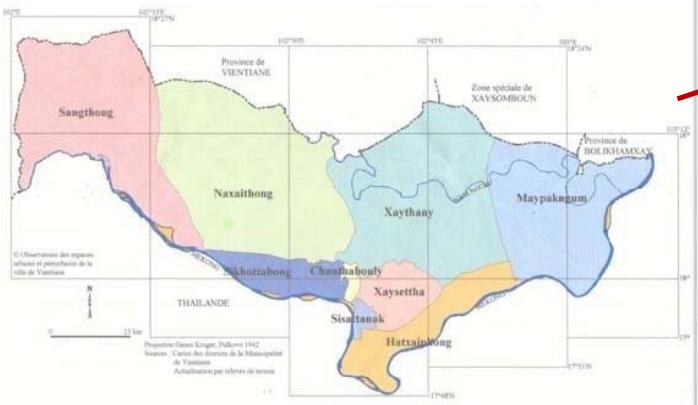
Contents

- *General Information of Water Supply in Vientiane Capital*
- *Challenges of Vientiane Capital WSSE*
- *Expectation of Water Works Association in Lao PDR in comparison with JWWA*

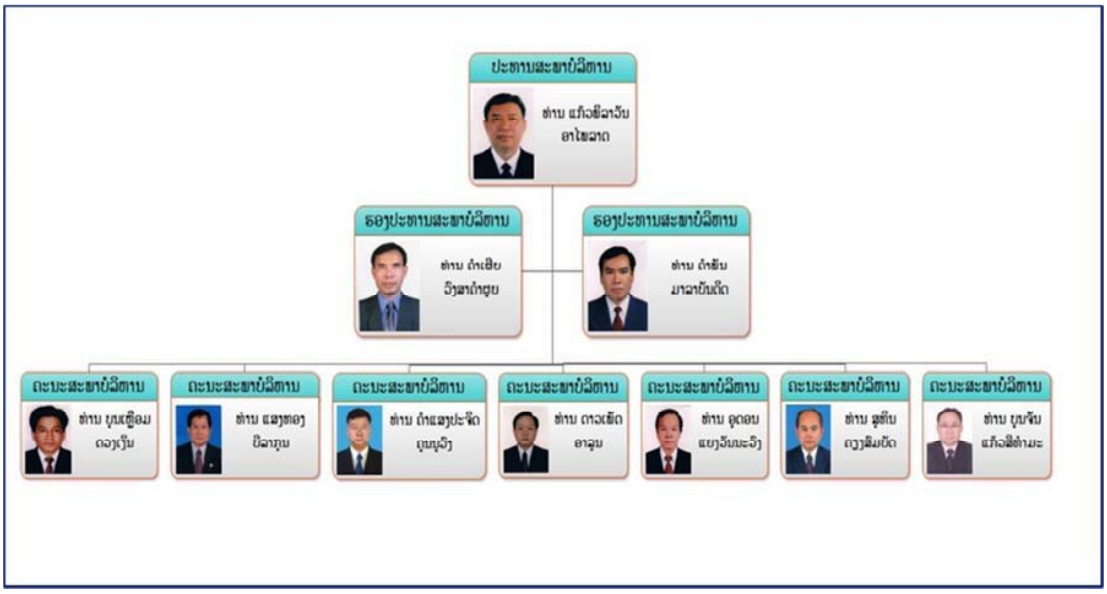
General information of Water Supply in Vientiane Capital

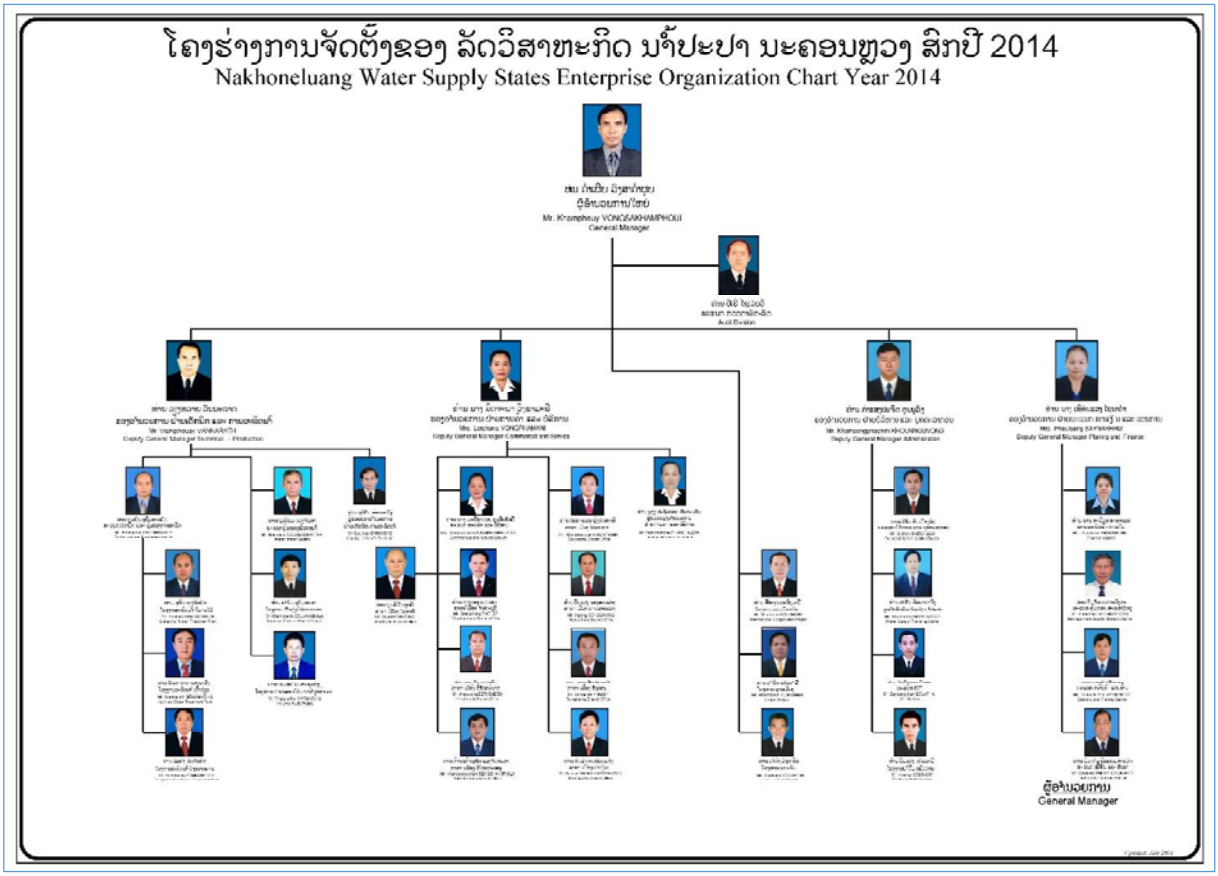
General Information

- Vientiane capital is the Capital of LAO PDR, is situated in central part of the country with a total area of 3,920 square kilometer is covering about 1.7% of the country area.
-Vientiane Capital composes of 9 districts and 483 villages with a 850,000 inhabitants with density of 217 people per square kilometer (year 2014)
- Water supply served around 80 % in service area



Board Organization Chart.





Personnel

1 General Manager, 4 Deputy General, a number of staff has totally 553 persons, Permanence staff 478 persons, temporariness staff 75 persons

Water resources

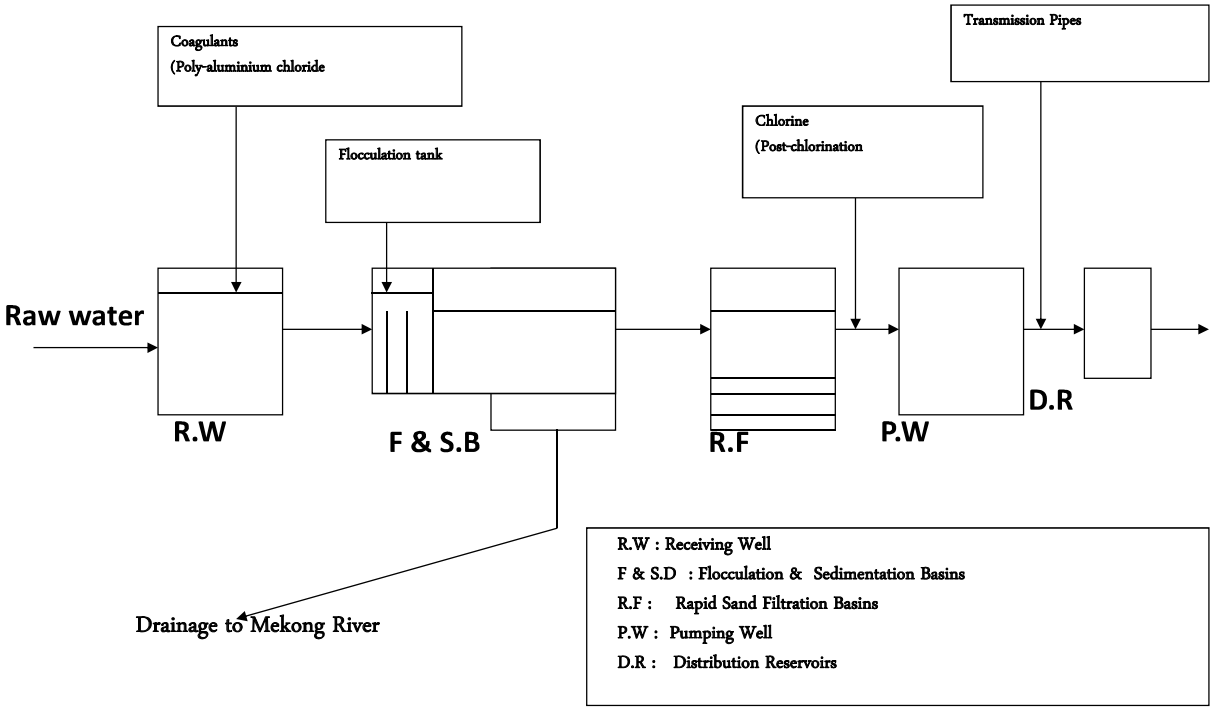
- **Mekong river are abundant through out the year to serve the Kaolieo and Chinaimo water treatment plants,** Rainy season, turbidity was going up to 1500-2000 NTU. (August 2015 over 5000 NTU) for dry season, turbidity was going down to 15-20 NTU.

- Nam ngum River is one of the largest tributaries of the Mekong River, to serve the Dongmakay and Dongbang water treatment plants, Rainy season, turbidity was going around 100-300 NTU and Dry season was going down to 10 -15 NTU.

WATER PRODUCTION 180 000 m3/day

1. Chinaimo WTP 80 000 m3/day
2. Kaoleo WTP 60 000 m3/day
3. Dongmakkhay WTP 20 000 m3/day
4. Dong Bang WTP 20 000 m3/day

Conventional Water Treatment System



Chinaimo WTP 80.000 m3/day

Water Quality

(a) Raw water

Turbidity :	88 PPM
Color:	5
pH :	8

(b) Tap water (treated water)

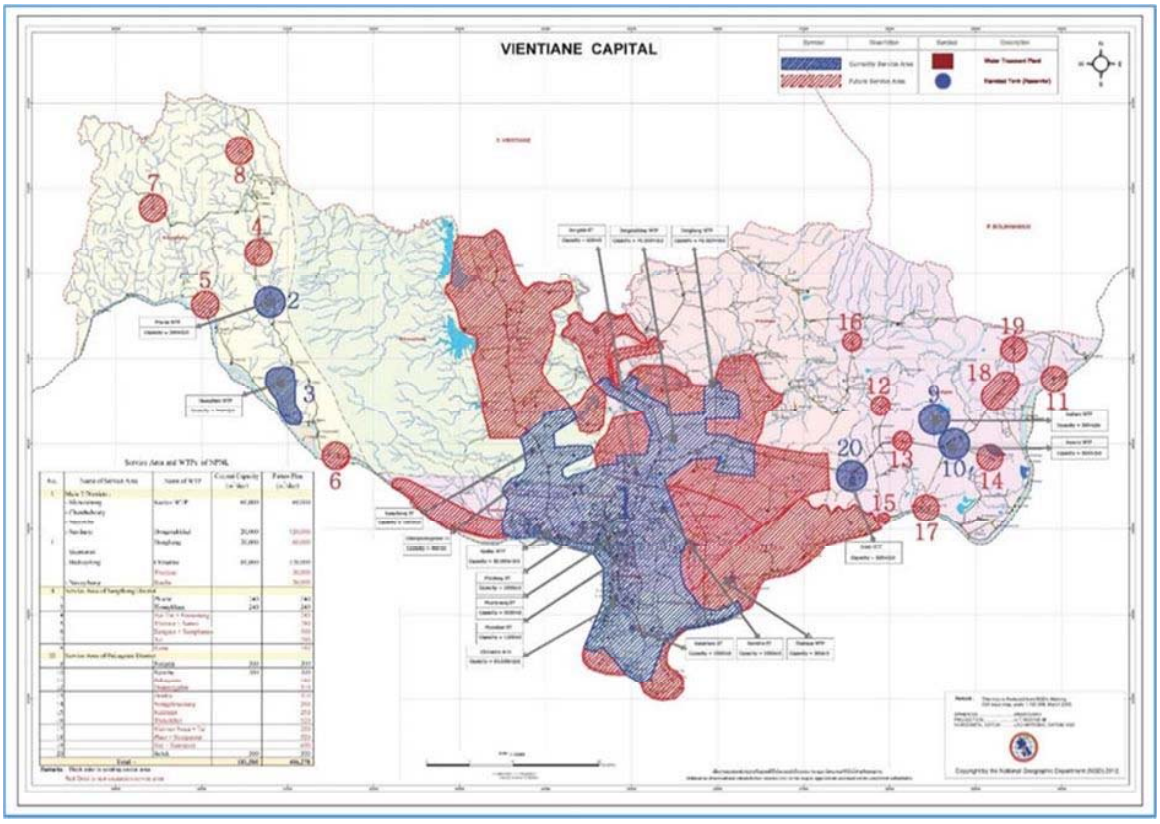
Turbidity:	0.8	PPM
Color :	0	
pH :	7.2	
Iron:	0	mg/l
Manganese:	0	mg/l
Hardness:	100	mg/l
Nitrate Nitrogen:	12	mg/l

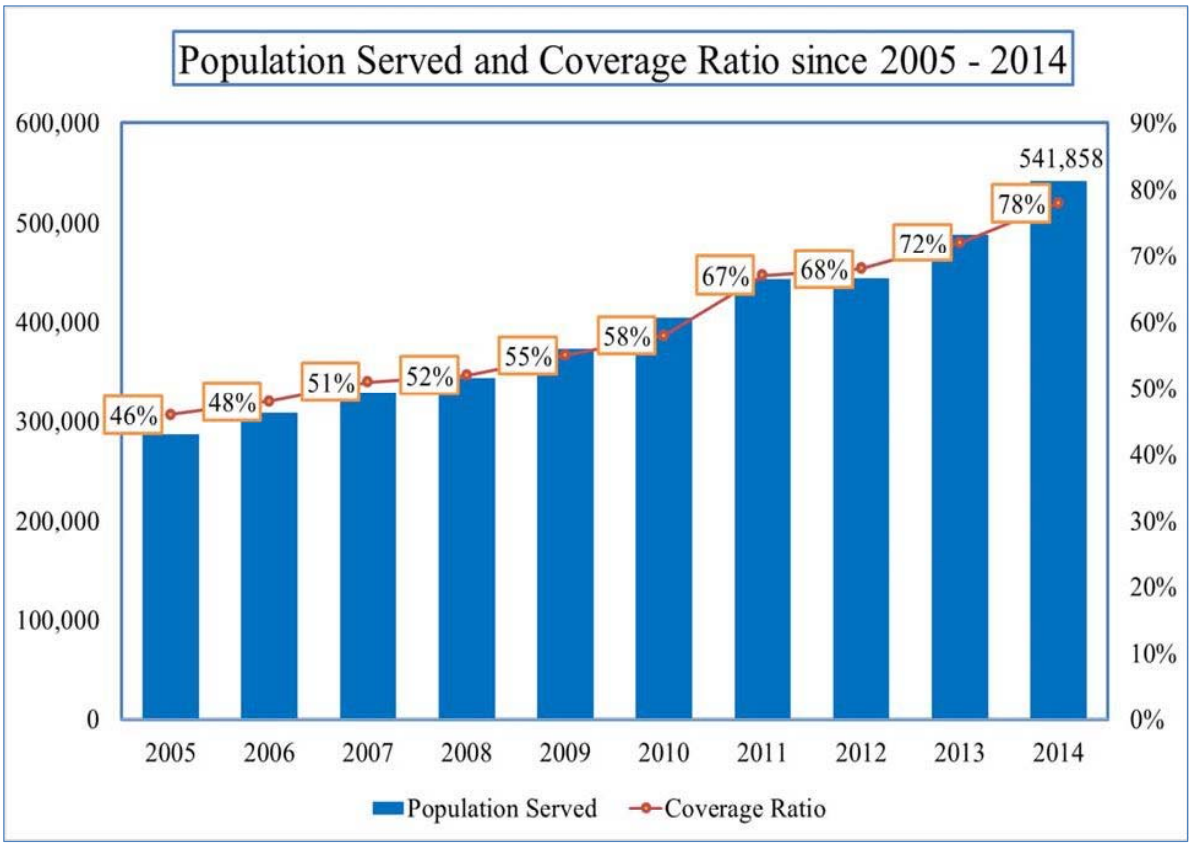
Priorities of Parameters

No	Parameters to be analyzed	Units	Allowable Concentration
1	pH		6.5-8.5
2	Turbidity	NTU	< 10
3	Taste and Odour		Acceptable
4	Conductivity	uS/cm	1000
5	Iron	mg/l	< 1
6	Manganese	mg/l	< 0.5
7	Arsenic	mg/l	< 0.05
8	Fluoride	mg/l	< 1.5
9	Nitrate	mg/l	50
10	Thermotolerant Coliform	No/100ml	0
11	Total Hardness	mg/l	< 300
12	Nitrite	mg/l	3
13	Residual Chlorine in chlorinated water supply	mg/l	< 0.2

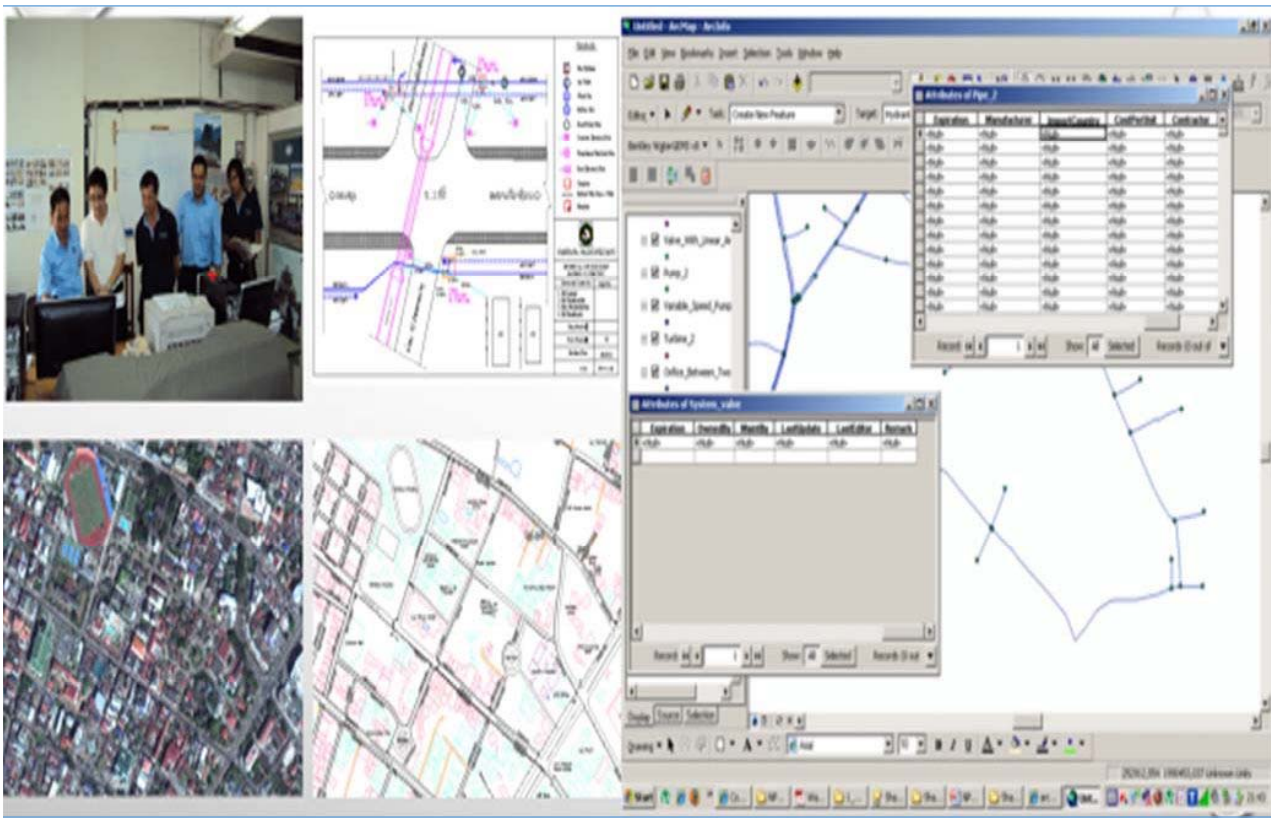
WATER NETWORK and SERVICE AREA

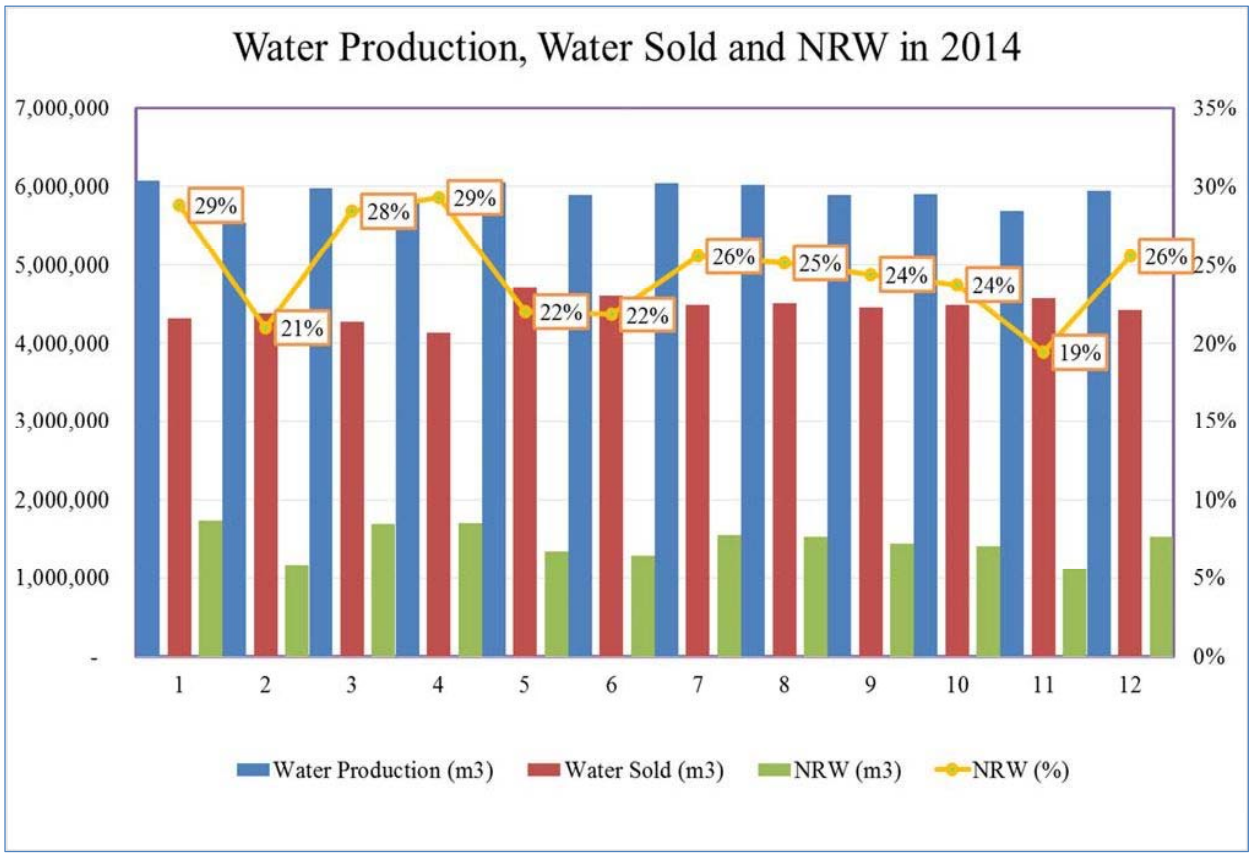
Service Area in Vientiane Capital





The Pipeline Network Management by using a new advanced technology Arc GIS version 10.1 it was the first technology network system in Lao PDR.





Commercial and Financial Management

WATER TARIFF

1. Domestic Used

- 1 to 10 m3 = 1300 kip/m3 (0,16 USD) September 2014
- 11 to 30 m3 = 1800 kip/m3 (0,23 USD)
- 31 to 50 m3 = 2300 kip/m3 (0,28 USD)
- > 50 m3 = 2800 kip/m3 (0,35 USD)

2. Government and International Organization

- One flat price = 2300 kip/m3 (0,28 USD)

3. Businesses, Commercials, Industries, Hotels and Restaurants

- One flat price = 2800 kip/m3 (0,35 USD)
- Remark: 2015 (3%), 2016 (3%), 2017 (4%) and 2018 (5%) increase from each year

Number of Water Meter in each Category

No.	Category	Unit	Year		Compare %	Remark
			2013	2014		
1	2	3	4	5	6=5/4	7
1	Category 1	No.	91,095	99,883	110%	
2	Category 2	No.	1,684	1,053	63%	
3	Category 3	No.	3,509	3,288	94%	
Total		**No.**	**97,507**	**104,224**	**107%**	

Financial
Income-Expenditure and Profit-Loss

- Income of the running business in 2014 was able to made income about 115 billion compared to the running business in the past year 2013 the revenue just 111.4 billion to the increasing rate compared the last year is 4%.
- Expenditures in the running business in 2014 was about 113.3 billion compared to 2013 was 116.1 billion the expenditures in 2014 can perform better than 2 % of last year.
- Profit - loss was that of 2014 in millions of more than approximately 2 % make doing business with profits of about 1.2 billion because the 2014 state enterprises water supply capital adjusted price rate consuming water piped new make more income description of income - expenditure is shown in the table below:

Present and Future Project

Expansion Water Production

- Dongmakkhay 100 000 m3/day (2015)
- BOT Hatsayphong 20 000 m3/day (2016)
- BOT Sendine 20 000 m3/day (2017)
- Expansion Dongbang 20 000 m3/day (2019)
- Expansion Chinaimo 40 000 m3/day (2021)

Expansion of Transmission and Distribution Pipeline

- Loan from NORINCO China around 70 millions USD for:
- Expansion of Distribution pipeline from Sendine BOT Project to Naxaithong District around 60 km
- Expansion of Distribution pipeline for Dongmakkhay WTP to Surrounding Area of Saithany and Saysettha District around 80 km
- And Change GRP 500 mm to 800 mm DIP Dongbang Project around 8 km

Challenges in Vientiane Capital WSSE

- Coverage 95% the service area in 2020 (now only 80%)
- The Capacity demand will be increased up to 400 000 m3/day in the 2020 (now only 180 000 m3/day)
- The old pipelines will be changed more than 60 km
- The staffs Lack of experience for advanced Technical management, Electrical of pump Production,
- Lack of fund to expansion pipe line and replacement old pipe and water meter.
- Storage management (have a lot categories of pipe in the past)

Expectation of Water Works Association in Lao PDR in comparison with JWWA

Activities of JWWA

1. Research on Water Supply Business Management
2. Research on Technology in Water Supply
3. Publication
4. Training
5. International Cooperation
6. Inspection
7. Authorization
8. Insurance

Prioritized activities of WWA in Lao PDR from VC WSSE's view

- Training system by LWWA
- International cooperation
- Inspection of spec & standard
- Support some fund


THANK YOU

JWWA General Assembly & Conference 2015
International Water Forum

Towards Sustainable Water Environment and Stable Water Supply of Taipei Water System

Yang-Long Wu
Secretary General

Chinese Taiwan Water Works Association

CTWWA

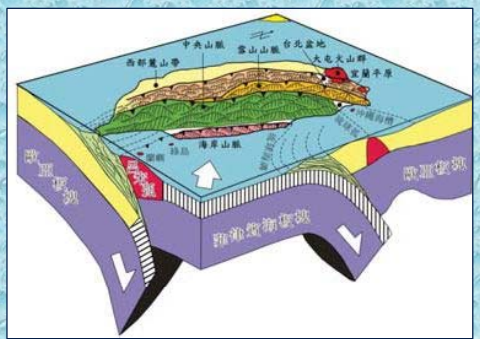
Towards Sustainable water Environment and Stable Water Supply of Taipei Water System

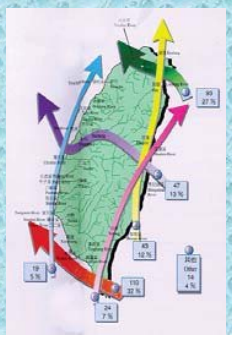
- Preface
- Sustainable Water Resource and Conservation
- Water Purification and Water Quality Management
- Stable and Safe Water Supply System
- Environmental Education and Taipei Water Marketing
- Conclusion

CTWWA

Preface

- Geographic Character of Taiwan
  - Taiwan is located on the pacific seismic belt and the routes of typhoon. The disaster of water is occurred frequently.
  - Due to the steep terrain and precipitation concentrates in rain-rich period. Only 19.5% of rainfall can be retained for use. Taiwan has 2.6 times of world average rainfall, the average disposable rainfall per capita is only 1/6 of the world average. Taiwan is the 18th of the most water shortage countries in the world.





Preface

- Profile of Taipei Water Supply System
  - The administration is Taipei Water Department (TWD)
  - Taipei water supply system is supplying about 2.4 millions CMD tap water to near 5 millions users in the Taipei metropolitan area.
  - The water mains are about 3650 Km and customer service pipes are about 2570 Km.
  - The tanks capacities is near 420 thousand tons and 58 boosting station around the supply area.

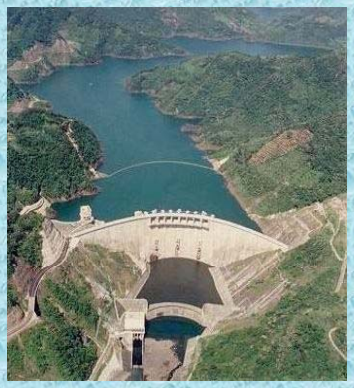
Sustainable Water Source and Conservation

- Taipei Water Source District
  - 97% water source of Taipei water supply system is come from Taipei water source district that is located in the southeastern of Taipei metropolis and coved 717 Km^2.
- Taipei Water Management Office
  - Taipei water management office is founded from 1984 and execute the management of sustainable water source, include management on land usage, forest management, water and soil conservation, water pollution prevention and cure, environmental maintenance and improvement, etc.

CTWWA

Sustainable Water Source and Conservation

- Taipei Feitsui Reservoir
  - Taipei Feitsui Reservoir is completed in 1987 and located in the Taipei water source district, the catchment area is 303 Km^2, the gross initial storage is 406 millions M^3, nowadays, the effective storage is 335.5 millions M^3.
  - Taipei water source is taking the water from nature flow in workaday and taking from Taipei Feitsui Reservoir as a water bank when natural flow is insufficiency.
  - Including Taipei Feitsui Reservoir operating Taipei water source is designed daily supply 3.45 millions M^3 to meet the water demand of Taipei metropolitan area on goal year 2030.



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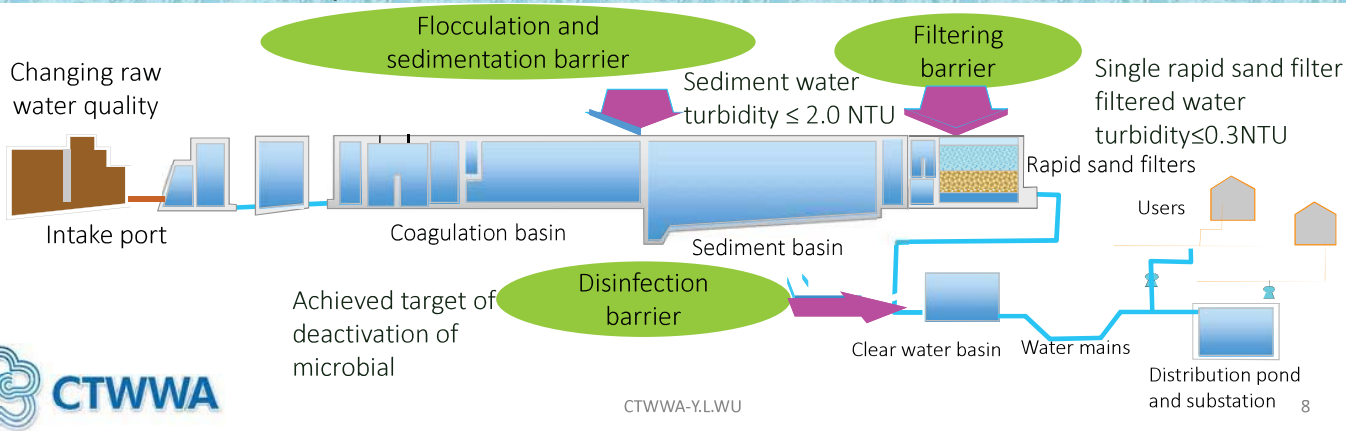
Water Purification and Water Quality Management

- Increasing Water Purification Capacity
  - Intensity of typhoon is along with heavy rainfall cause the high raw water turbidity that reduce the water purification capacity.
  - Building new water purification equipment and raising the exist equipment purification efficiency is necessary to meet the normal water demand.

CTWWA

Water Purification and Water Quality management

- Multiple barrier strategy in the purification process
  - In order to ensure safety of output water quality, each purification unit will still operate for the preset target that is stricter than the state "Drinking Water Quality standard"



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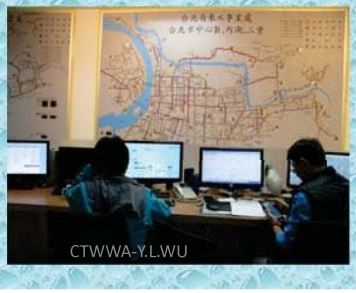
Water Purification and Water Quality Management

- Recycling of Silt out of purification
  - Every water purification plant of Taipei Water Department are working with zero pollution emission equipment and the operation manner is in “upper clear liquid recovery” designed without discharge of waste water. In the meantime, the silt cake produced is recycled as raw material for brick and cement industries

CTWWA

Water Purification and Water Quality management

- On-line Water Quality Monitoring
  - In order to promote the confidence of the public over tap water supplied, uploading water quality monitoring information on line to allow the public to check the water quality close to home any time and also showing the water quality information on the MRT stations.



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Water Purification and Water Quality Management

- Customer Water Quality Service
  - Establish the water quality management research and inspection techniques to meet with the needs and to be in line with the international standard and for issue of public concern, such as Cryptosporidium, DEPH, Microcystis ..etc
  - TWD provide free professional consulting for any questions asked and site survey services to help customers in solving water quality problems.

Stable and Safe Water Supply System

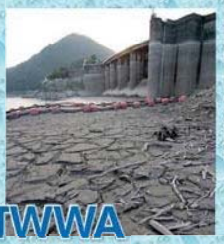
- 11 Water supply District and Dual Water Supply System
  - Taipei metropolitan area is separated into 11 water supply districts and each district has more 2 water supply resource with boosting station and water mains to meet the needs of service, maintenance and repair of hazard damage.

- The Challenges comes from Climate Change and Earthquake

Malfunction of Facilities
- Leakage of pipeline network
- Old facilities

Disasters
- Water pollution
- Rainfall uneven
- Drought
- Earthquake
- Typhoon

More Requirements
- Non-stop water supply
- Variation of water demand



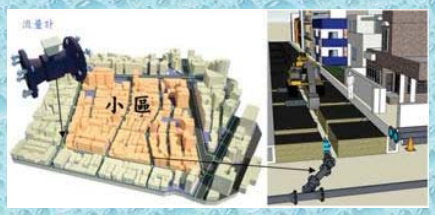

RISKS

CTWWA-YL-WU

Stable and Safe Water Supply System

- Building Supporting and Back-up Mechanisms Plan
  - Period : 2006~2021
  - Budget : US$700 millions
  - Outcomes and target
    - Established the second raw water trunk system that can be independent operation and comprised bilinear raw water extraction system.
    - Increased 1.4 millions water purification capacities and continue promoting the existed water purification plant to raise the backup ratio up to 56%.
    - Achieved double clean water transmission mains for more flexibility in water supply.
    - Enforced the structure of buildings and facilities to raise seismic resistance.
    - Building supporting mechanisms among water supply districts.

Stable and Safe Water Supply System



- Pipeline Network Improvement Plan
  - Period : 2006~2025
  - Budget : US$ 70 millions
  - Outcomes and target
    - The target of the plan is decreasing the leak rate lower than 10% in 2025.(16.72% in 2014).
    - Replacing the aged water main pipes with Ductile Iron Pipe (DIP) and service pipe with Stainless Steel Pipe (SSP). The annual pipe replacement rate is about 2.62%.
    - DMA is applied in leak control and improvement with the Supply Pipeline Network GIS.
    - Renewing Water Pump Units and increase Frequency Converter Devices to accurately adjust and control the optimal water pressure in real time.

CTWWA

Environmental Education and Taipei Water Marketing

- Environmental Education Center
  - Established in 2011 and more than 26000 man-times to attend the water environment education activities (including thematic course and outdoor learning) every year.

Taipei Water Park 臺北自來水園區 TWD
環境教育中心 Environmental Education Center EEC

CTWWA

Environmental Education and Taipei Water Marketing

- Water Conservation Initiatives
  - The household conservation activities are carrying out through communities, households, schools and societies from 2007. The daily family water consumption is decreased from 263 lpcd in 2007 to 219 lpcd in 2014.

Environmental Education and Taipei Water Marketing

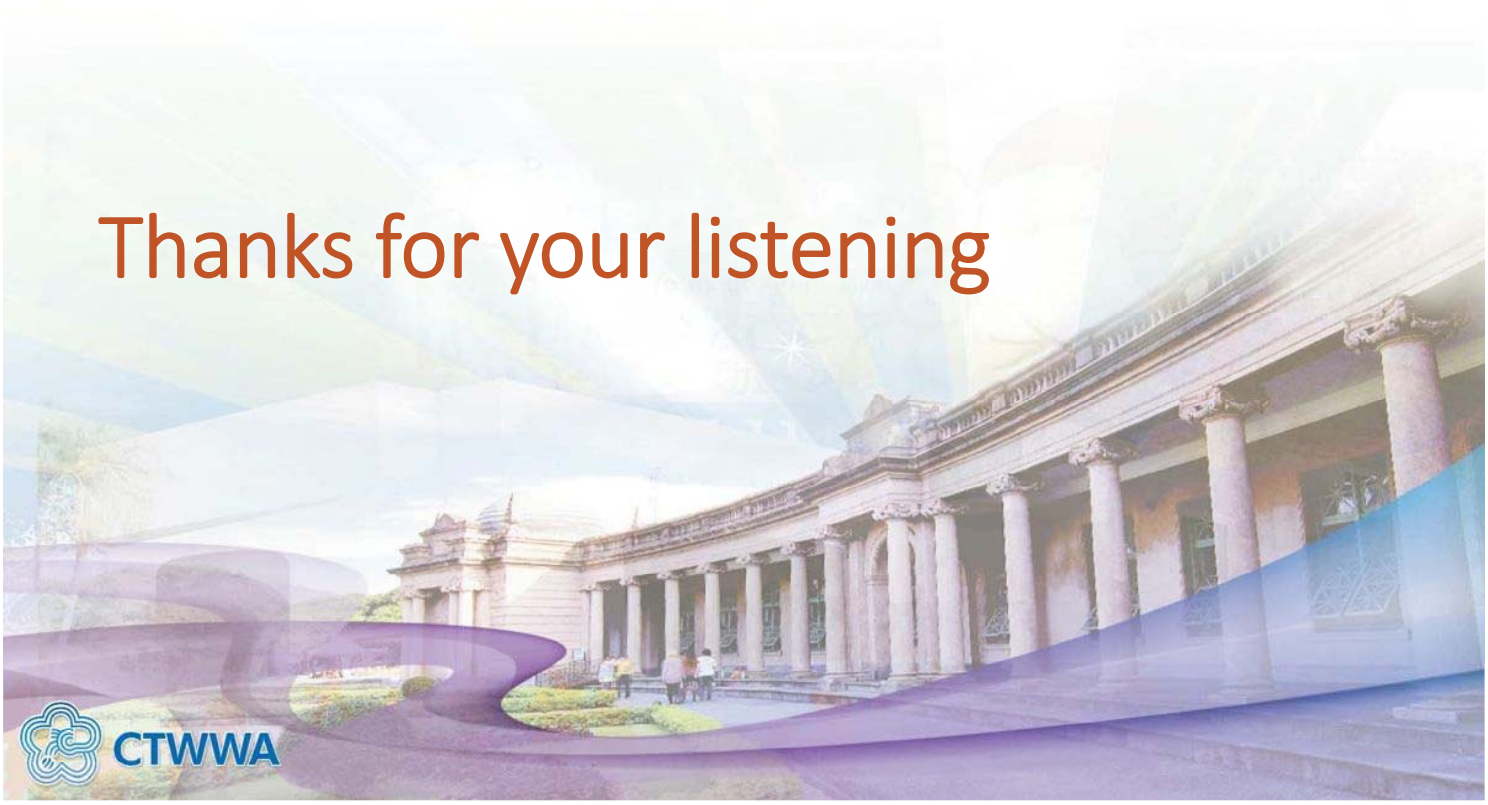
- Taipei Wonderful Water Marketing
  - Let people knowing Taipei water is wonderful but not easy to keep, using water in economizing than treasuring the water by marketing planning.
  - TWD launched Taipei Wonderful Water Services which consists of health check of water consumption equipment and water quality inspection services to assist consumers in improving and assuring water viability of consumption equipment and establishing autonomous maintenance and management system.

Conclusion

- Due to the climate changes and earthquake the conditions of water supply will be serious year by year.
- A sustainable water environment need the public and government endeavor together.
- Establishing stable and safe water supply system will spent much money and time and hard work to taking the water quantity and water quality meet the demand nowadays and future.
- Education and Marketing is useful for expostulating people using water in economizing and treasuring.

CTWWA

Thanks for your listening



CTWWA

Water Supply in Indonesia towards SDG

Presented by
Rudie Kusmayadi, Chair of PERPAMSI
in International Forum at JWWA General Assembly
and Conference 2015
Saitama, Japan

PERPAMSI
Indonesia Water Supply Association

Location of Indonesia

Current Portrait

- Access to Safe Water↑ (67,7%)
- Healthy PDAM ↑ (50%)
- Idle Capacity↓ (45.452 liter/detik)
- Non Revenue Water (NRW)↓ (33%)

- Access to Safe Sanitation↑ (59,71%)
- TPA *controlled/sanitary landfill* ↑ *(*15 TPA)
- Safe treated Sludge↑ (4%)
- Open Defecation ↓ (13%)
- Littering (Solid Waste) ↓ (21%)
- Leaking Septic Tank↓(>90%)

Availability
Sustainability
Affordability

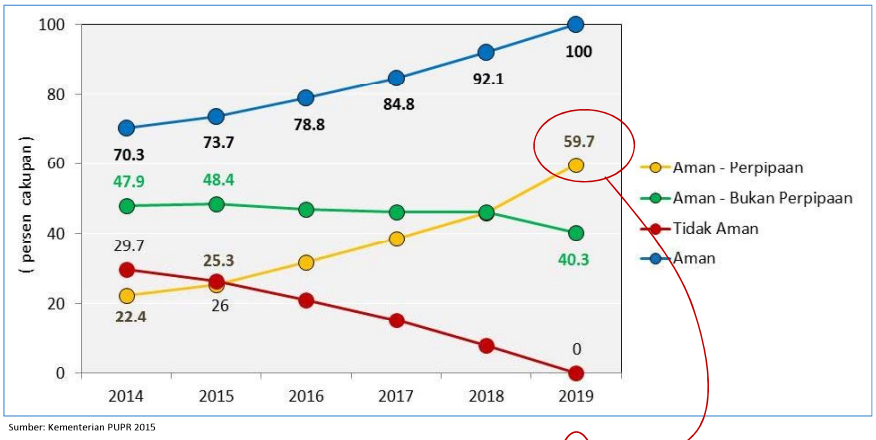
NATIONAL TARGETS RELATED IMPROVEMENT TO WATER SECURITY

Management and conservation of the rivers, dams, and other water reservoir facilities

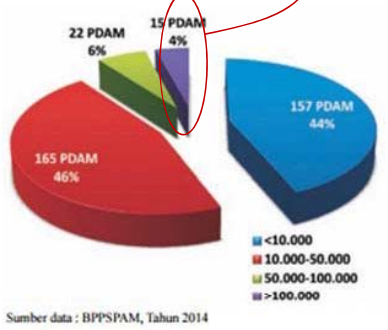
GOAL	INDICATOR	TARGET				
		2015	2016	2017	2018	2019
 **Water sources and reservoirs to be developed, built and improved** 	Preparation to build dams and other water reservoir facilities	100 %	100 %	100 %	100 %	100 %
	Area of land acquisition	1.994	5.726	11.076	11.888	5.887
	Number of reservoirs and facilities	27 dams: 6 completed and 21 on going (11 new)	29 dams: 2 completed and 27 on going (8 new)	37 dams: 6 completed and 31 on going (10 new)	41 dams: 6 completed and 35 on going (10 new)	45 dams: 14 completed and 31 on going (10 new)
	Number of reservoirs and other facilities to be built	299	124	233	216	216

100% Access to Safe Water Supply

(by Water Supply Utilities)



Sumber: Kementerian PUPR 2015

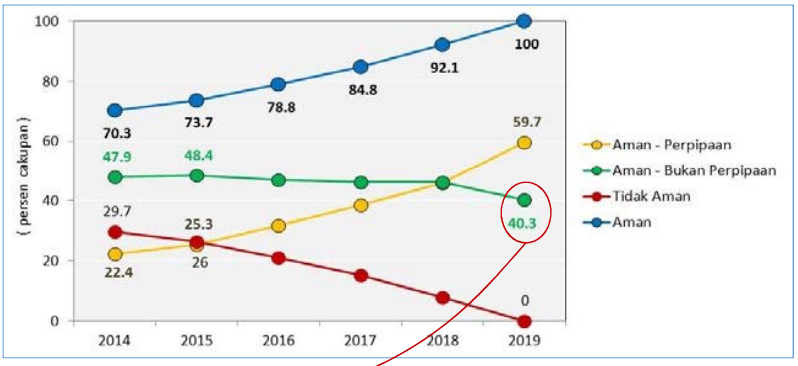


Sumber data : BPPSPAM, Tahun 2014

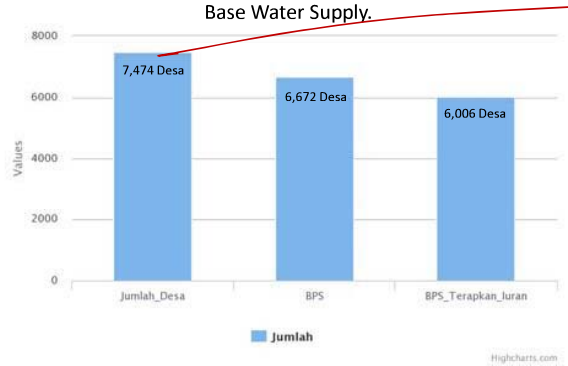
Out of 383 PDAMs **only 15** PDAMs have customer more than 100.000.
Enormous efforts are needed

PDAMs together with Local Governments must step out of its "comfort and safe zone"

100% Access to Safe Water Supply (Community Base)



Number of villages and Facility Management Agency by Community Base Water Supply.

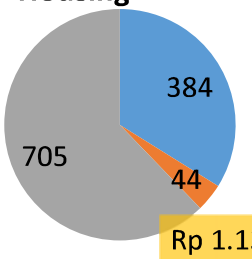


Out of 72.944 villages, only 7.474 villages have been intervened and supported to establish community based organization to manage local water supply services.
Enormous efforts are needed

Local governments **must start** to manage its water and sanitation community based program

Budget Share

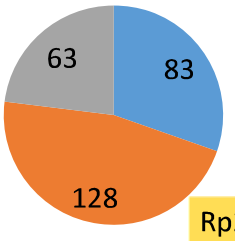
Housing



Rp 1.132 Trillion

Government budget | Local Government | Private & Utilities

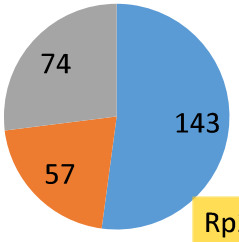
Water



Rp275 Trillion

Government budget | Local Government | Private & Utilities

Sanitation



Rp274 Trillion

Government budget | Local Government | Private & Utilities

8x
Total investment of 2010-2014

3x
Total investment of 2010-2014

4x
Total investment of 2010-2014

POLICY & STRATEGY
(NATIONAL MEDIUM TERM DEVELOPMENT PLAN 2015-2019)

Improved access for low income households on adequate and sustainable housing

- Improving the role of government and local governments in facilitating the development process
- Improving sector management and the coordination among stakeholders
- Improveving the role of StateOwned Enterprise (BUMN)
- Improving the efficacy and efficiency of land management
- Application of safe and affordable housing material, supported with applied technology
- Development and implementation of incremental house

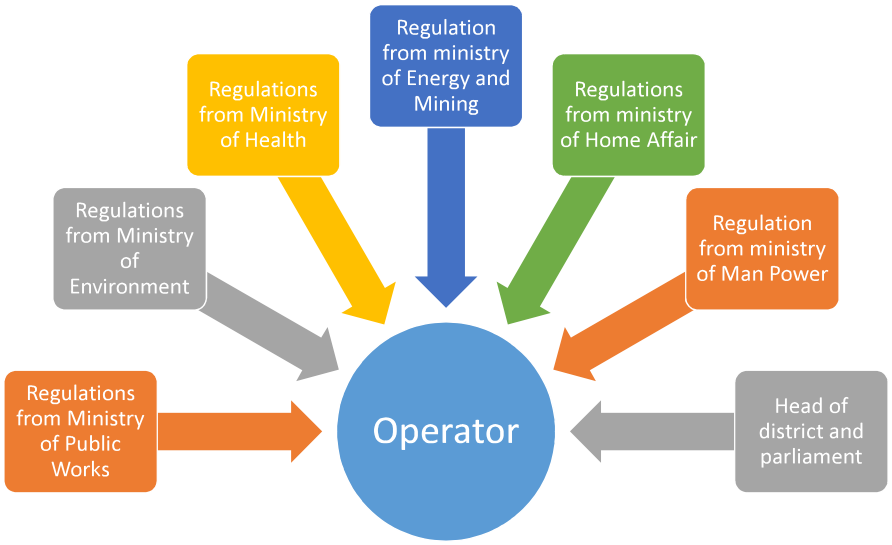
Water and sanitation universal access by 2019

- Optimization of Domestic Water balance
- Provision of productive Infrastructure
- Water and sanitation synergy
- Improving the efficacy and efficiency development financing

CITY WITHOUT SLUMS

WATER AND SANITATION UNIVERSAL ACCESS

Challenges



- Operators have to subscribe to many (conflicting) regulations
- Local governments are regarded as the regulator
- On regulatory body at the national level

Way forward related to water operators

1. Formulation of national policy on the role of regulator, operator and control in water and sanitation services
2. Establishment of regulatory body at the national level
3. Possibility to merge PDAMs (minimum number of customers?)
4. Acceleration of procurement process to keep up with the pace of development in the field

THANK YOU

WATER SUPPLY IN THAILAND

From MDGs Toward SDGs

Mr.Pairoj SATTAYASANSAKUL

Director,Thai Waterworks Association

- 76 Provinces
- 65,104,000 Populations
- 31 Millions live in Urban area
  - 100% Served*
- 34 Millions live in Rural
  - 87% Served*

* UN Asia Water Watch, 2015

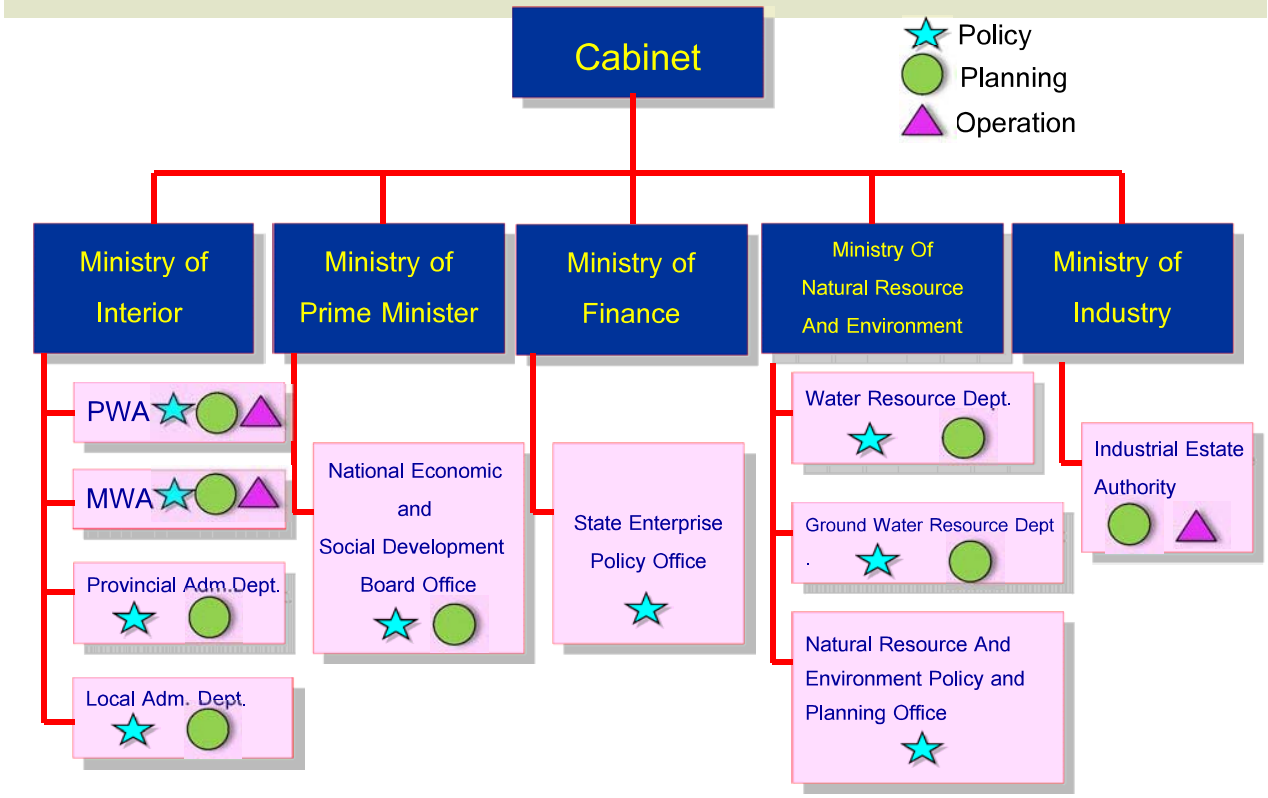
Thailand Water Situation

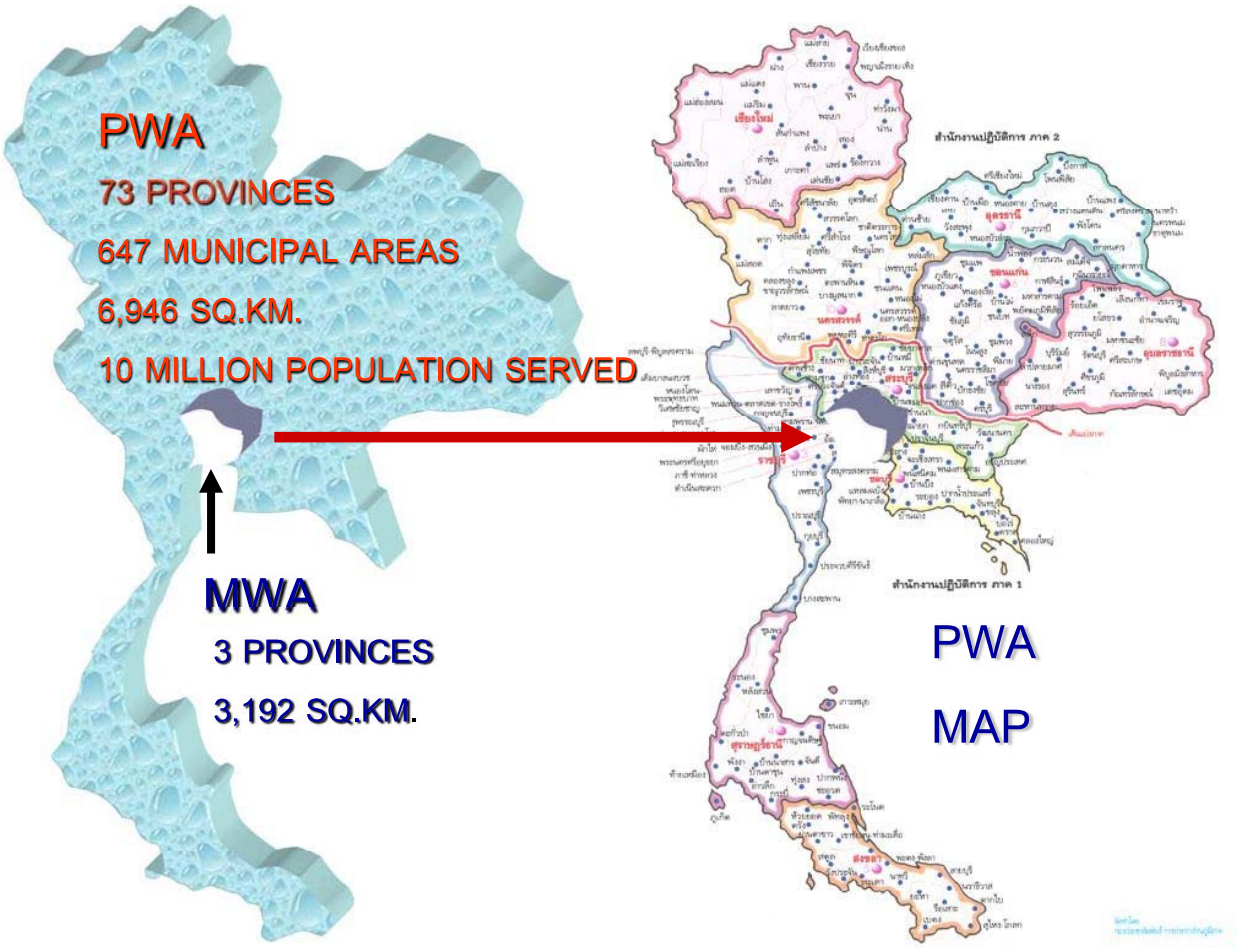
- Area 513,120 km^2
- Water Basin 25 basins
- Average annual rainfall 1,573 mm,
- Water from rainfall 733,000 MCY
- Surface water (Runoff) 213,000 MCY
- Reservior capacity 76,000 MCM
- Av. water/population 3,287 m3/person
- UN standard serious water shortage <1,000 m3/person

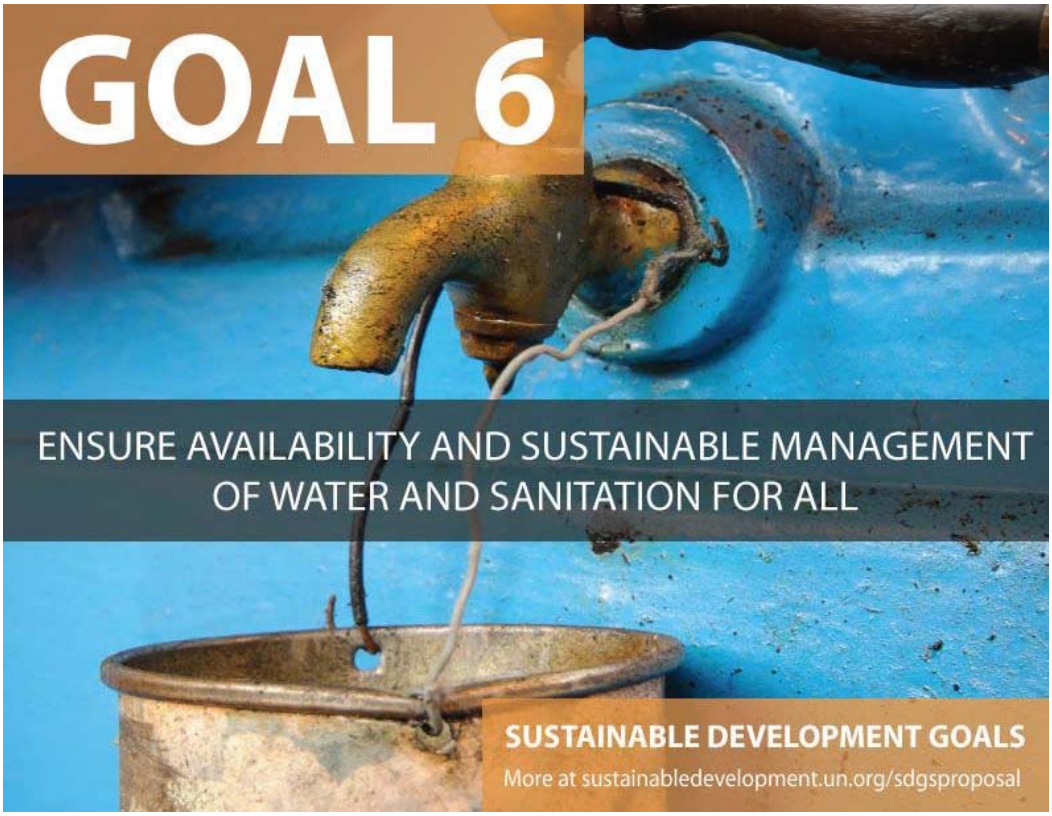
MCY - Million Cu.M. per year

MCM - Million Cu.M.

MAJOR AGENCIES CONCERNED - WATER SUPPLY IN THAILAND




PWA
73 PROVINCES
647 MUNICIPAL AREAS
6,946 SQ.KM.
10 MILLION POPULATION SERVED
MWA
3 PROVINCES
3,192 SQ.KM.
PWA
MAP


GOAL 6
ENSURE AVAILABILITY AND SUSTAINABLE MANAGEMENT OF WATER AND SANITATION FOR ALL
SUSTAINABLE DEVELOPMENT GOALS
More at sustainabledevelopment.un.org/sdgsproposal

การประปานครหลวง
METROPOLITAN WATERWORKS AUTHORITY

MWA

STATISTICS & PROJECTS

Metropolitan Waterworks Authority (MWA)

- Bangkok, Nonthaburi and Samutprakarn
- Totally 3,192 square kilometers
- 18 Branch offices
- Served 2.1 million meters (12 Million People)

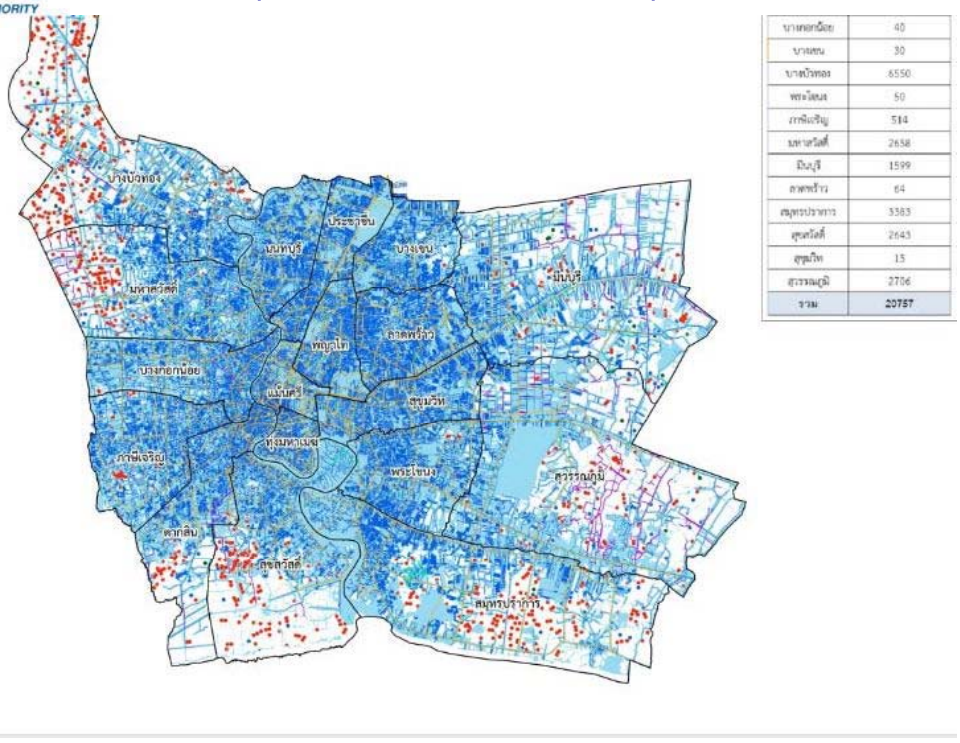
MWA OPERATION HIGHLIGHT YR 2014

•WATER PRODUCTION (MCY)	1,797.8
•WATER SALES (MCY)	1,377.2
•SERVICE AREA (Sq.km.)	2,250
•NO.OF CONNECTION (Million)	2.17
•AVERAGE WATER CHARGE (Baht/cu.m.)	12.00
•NO.OF STAFFS	5,347

การประปานครหลวง
METROPOLITAN WATERWORKS AUTHORITY

MWA One for All

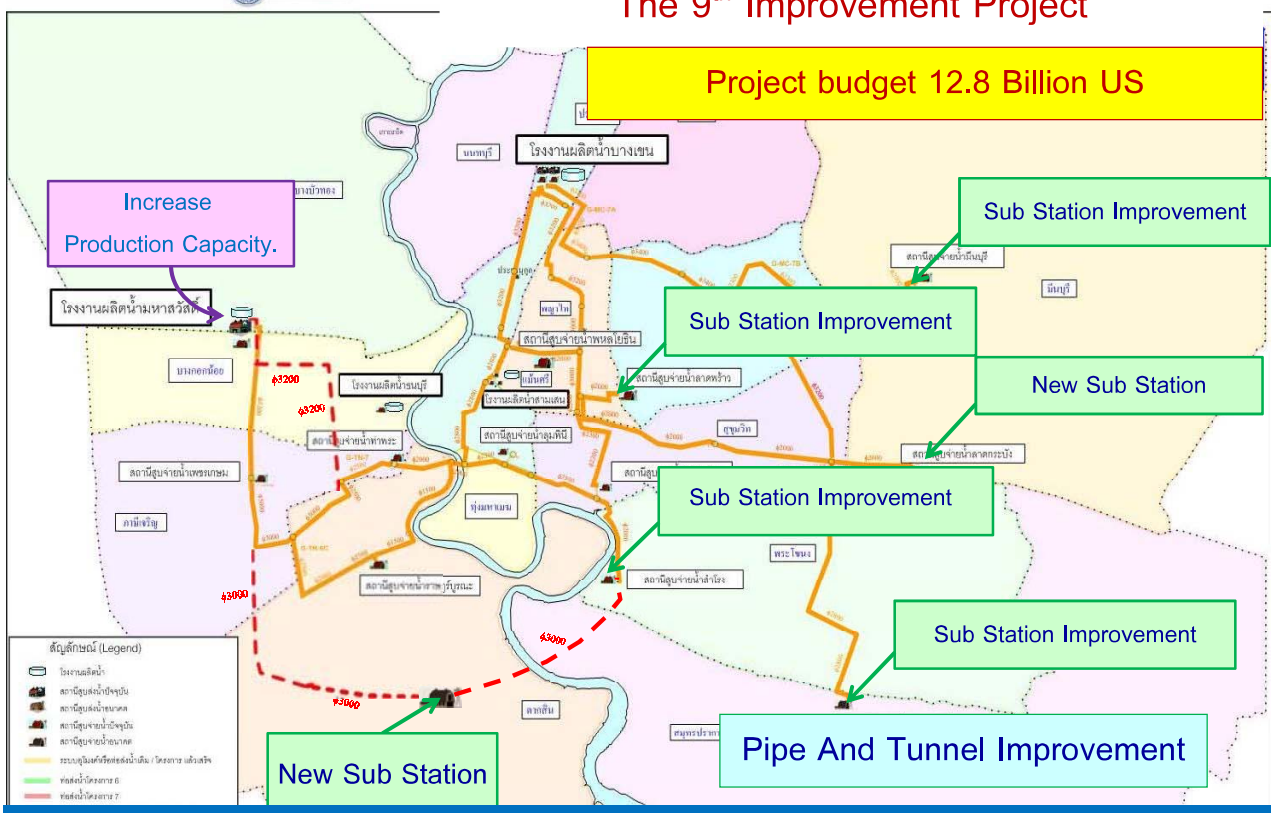
MWA will provide service to all in responsible area in 2018



บางกอกน้อย	40
บางซื่อ	30
บางบัวทอง	6550
พระโขนง	50
ภาษีเจริญ	514
มหาสวัสดิ์	2658
มีนบุรี	1599
ลาดพร้าว	64
สมุทรปราการ	3383
สุขสวัสดิ์	2643
สุขุมวิท	15
สุวรรณภูมิ	2706
รวม	20757

The 9th Improvement Project

Project budget 12.8 Billion US



To Improve reliability of MWA For Everyone

การประปานครหลวง
METROPOLITAN WATERWORKS AUTHORITY

Seeking Cooperation from Municipalities

To provide MWA water services to everyone.

MWA project “MWA ONE for All”

Was awarded Mexico Water Prize 2015

PWA

STATISTICS & PROJECTS

Provincial Waterworks Authority (PWA)

- 5 regional , 10 areas , 234 Waterworks
- 73 Provinces
- served 3.7 Million Connections
- All Provincial City

PWA STATISTICS YR 2014

•NO. OF WATERWORKS	234
•NO. OF CONNECTIONS(MILL.)	3.7
MILL. PERSONS SERVED	~11.50
•NO. OF STAFF	6,458
•WATER PRODUCED (MCY)	704
•WATER SOLD (MCY)	474
•TARIFF RATE (BAHT/CU.M.)	10
•REVENUE (M.BAHT)	4,740

•

PWA DROUGHT TACKLE PLAN

TO MAINTAIN SERVICES

PWA DROUGHT TACKLE PLAN

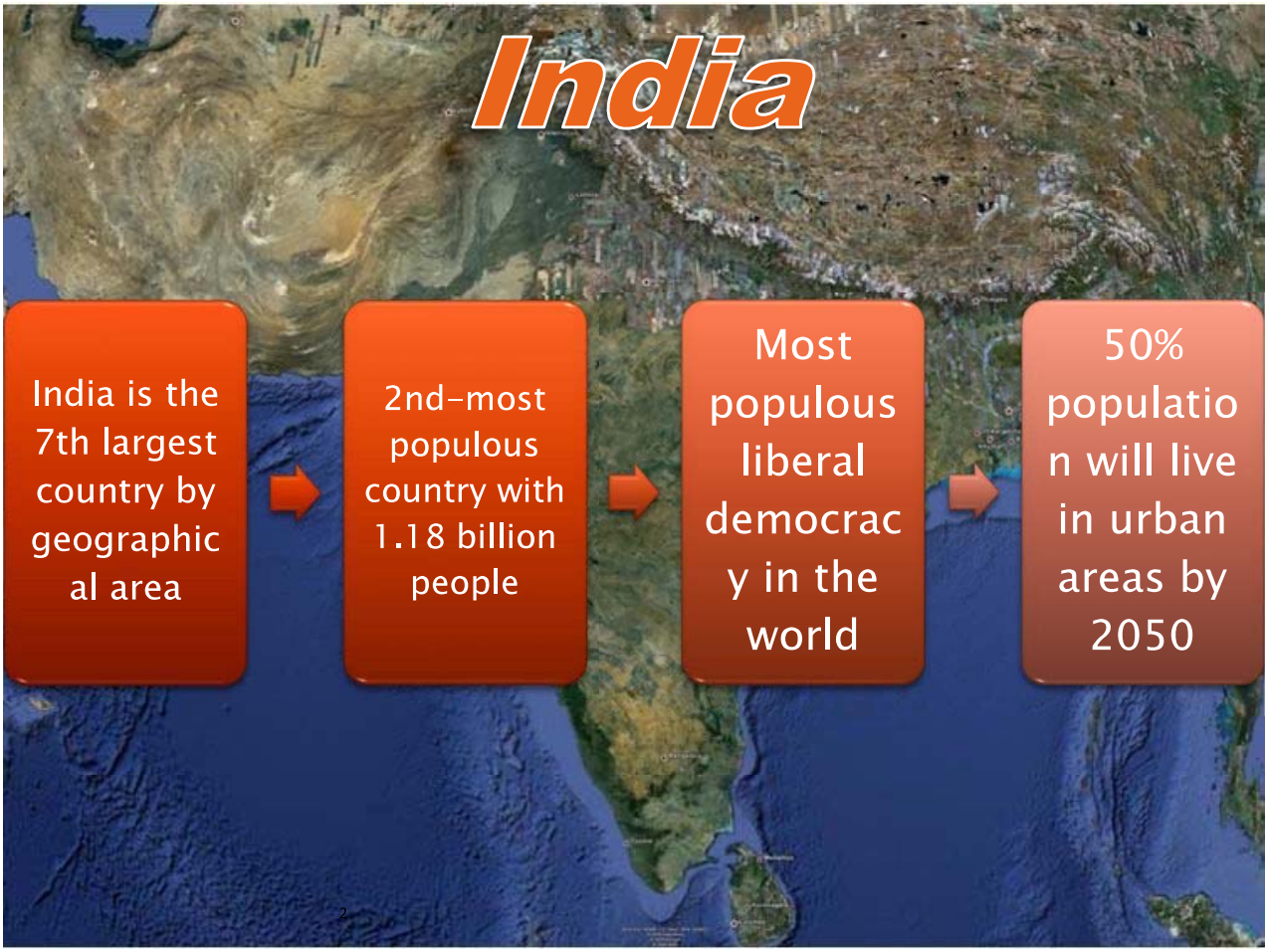
- Synchronize Data and Cooperate with RID
- Maintain services for all branches
- In case of Emergency only 13 PM to 7 AM period is allowable to reduce pressure.
- Fully Prepared Water Trucks for Emergency Shortage

Special Area and Private Sector

- Private Sector
- Industry Area,IEAT
- Company Limited
- Surface Water & Ground Water

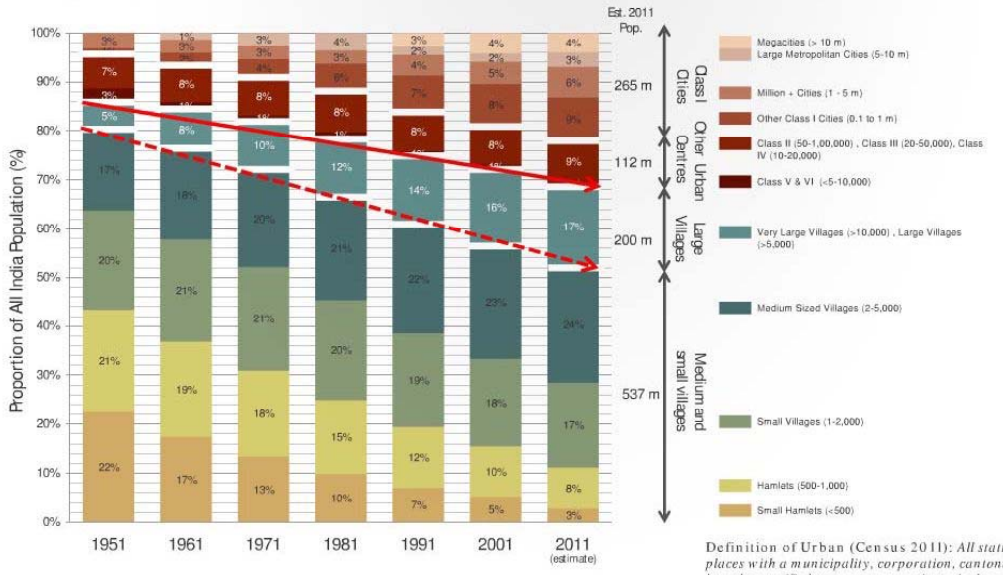

Thank you


SUSTAINABLE WATER DEVELOPMENT OF INDIA
K M L Mathur
Director, International.
D. B. Panse
Council member
IWWA
22nd October,2015.


India
India is the 7th largest country by geographical area
2nd-most populous country with 1.18 billion people
Most populous liberal democracy in the world
50% population will live in urban areas by 2050
2

Urbanization

Depending on the definition of urban, more settlements shift from the rural into the urban category.



All India: Number of Settlements (1971-2011)

	1991	2001	2011
Urban	3,351	5,161	7,935
Rural	6,34,321	6,38,588	6,40,867

Definition of Urban (Census 2011): *All statutory places with a municipality, corporation, cantonment board or notified town area committee. A place satisfying the following three criteria simultaneously: a minimum population of 5,000; at least 75 per cent of male working population engaged in non-agricultural pursuits; and a density of population of at least 400 per sq. km.*
Source: Census, 2011

*The break-up of smaller cities + for 2011 is an estimate

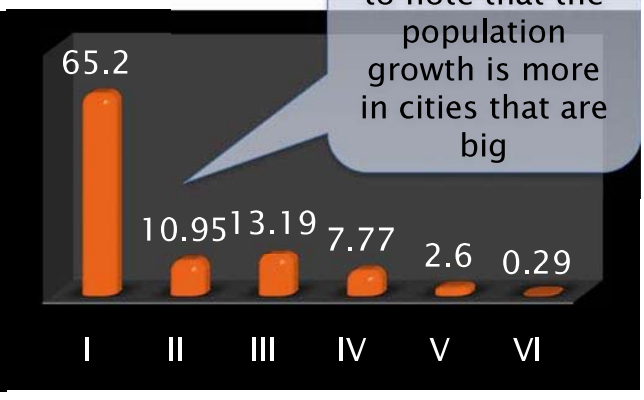
Source: IIHS Analysis based on Census 1951 to 2011

Source: http://2.bp.blogspot.com/-NToesic_IM0/T4B3[illegible]AAAAAAAAGA8/S24COZDYjXo/s1600/Urbanization+10.png

Urban Morphology

Total Towns = 3,696

Number of Towns



Share of Urban Population (%)

It is interesting to note that the population growth is more in cities that are big

Class	Population
I	**1,00,000 & above**
II	50,000 to 99,999
III	20,000 to 49,999
IV	10,000 to 19,999
V	5,000 to 9,999
VI	less than 5,000

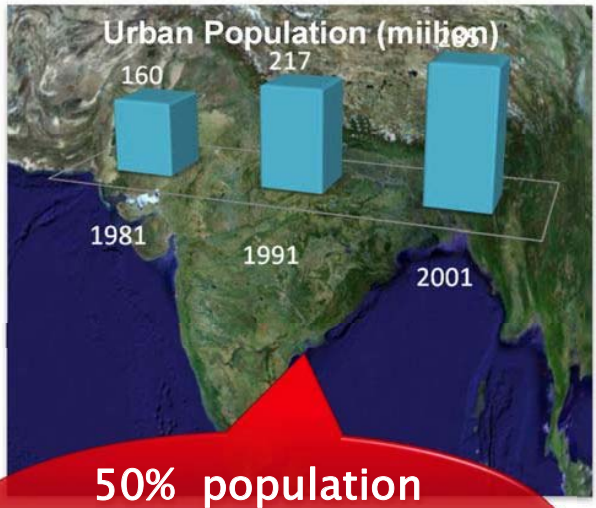
As per 1991 census, 2/3 of the country's urban population lived in Class-I cities with > 1,00,000 population

The Background

Urban Scenario

21st Century- Set to become India's urban century

City	Year
140 million will move to cities	2020
700 million will urbanize(more that US population today)	2020
No. of cities (Population. > 1 million) will double(68cities)	2020

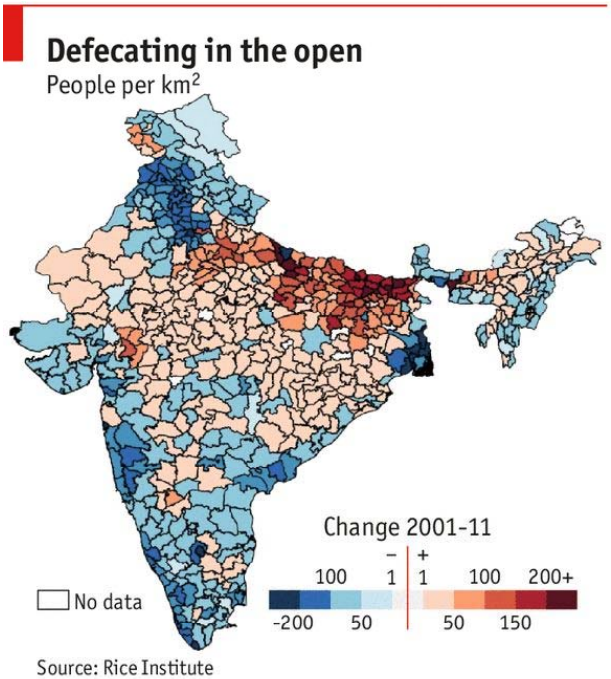


50% population will live in urban areas by 2050.

Source: Mint, The Wall Street Journal, Mumbai, Dt 7th August 2007

Urbanization

- Lack of drainage, especially in slum areas in cities
- Lack of access to sanitation due to physical absence of toilets and also ill-maintained services
- Open Defecation present even in urban areas



Source: http://www.economist.com/news/asia/21607837-fixing-dreadful-sanitation-india-requires-not-just-building-lavatories-also-changing

History of Water in India

- Prime importance on water since ancient times
  - Ancient civilizations developed near rivers
  - Rivers considered as deities in Indian culture
- Evidences of water and wastewater management practices since 3000BC in Indus Valley Civilizations
  - Drainage channels with covers for maintenance
  - Retention structures for sludge collection
  - Rain water harvesting measures in the form of reservoirs

Source: http://www.shunya.net/Pictures/WesternIndia/Gujarat/Dholavira/Dholavira03.jpg

Source: http://www.sewerhistory.org/images/w/wam/loth_wam10.jpg

History of Water in India

- Community approach also evident in many areas for conservation of water
  - Structures like Paar, Johads, Kund, Ahar and Bhandaras from Himalayas to arid deserts of Rajasthan
- Water supply infrastructure
  - Example: Katraj Lake near Pune which still functional after 250 years

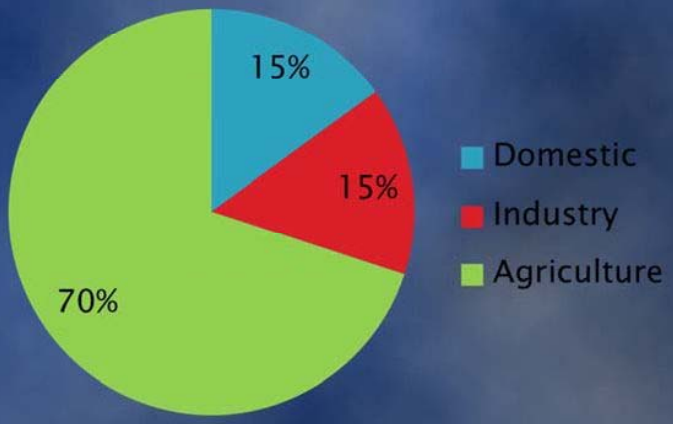
Source: http://socks-studio.com/2014/03/13/inhabiting-infrastructures-indian-stepwells/

Source: http://www.thebetterindia.com/17159/jethu-singh-reviving-traditional-methods-rain-water-harvesting/

Top fifteen river basins in India: Average water flow and utilizable water				
River basins	Average annual water flow (in Km3/year)	Utilizable flow (in Km3/year)	% of total average annual water flow in India	% of total utilizable wa flow in Ind
Ganga–Brahmaputra–Meghna Basin	1202	274	61.6	40
West flowing rivers south of Tapi	201	36	10.3	5.2
Godavari	111	76	5.7	11
Indus	73	46	3.8	6.7
Krishna	70	58	3.6	8.4
Mahanadi	67	50	3.4	7.2
Narmada	46	35	2.3	5.0
Brahmni–Baitarani	28	18	1.5	2.7
East-flowing rivers between Mahanadi and Godavari	17	Un-assessed	0.9	Un-assesse
West-flowing rivers of Kachchh and Saurashtra including Luni	15	15	0.8	2.2
Tapi	15	15	0.8	2.1
Subarnarekha	12	6.8	0.6	1.0
Mahi	11	3.1	0.6	0.4
East-flowing rivers between Pennar and Cauvery	10	17	0.5	2.4
Rivers draining into Bangladesh	8.6	NA	0.4	NA
Total	**1887**	**649.42**	**96.62**	**94.12**
Total average annual water flow in all river basins (in Km3/year):				**1953**
Total utilizable water flow in all river basins (in Km3/year):				**690**

Water Statistics

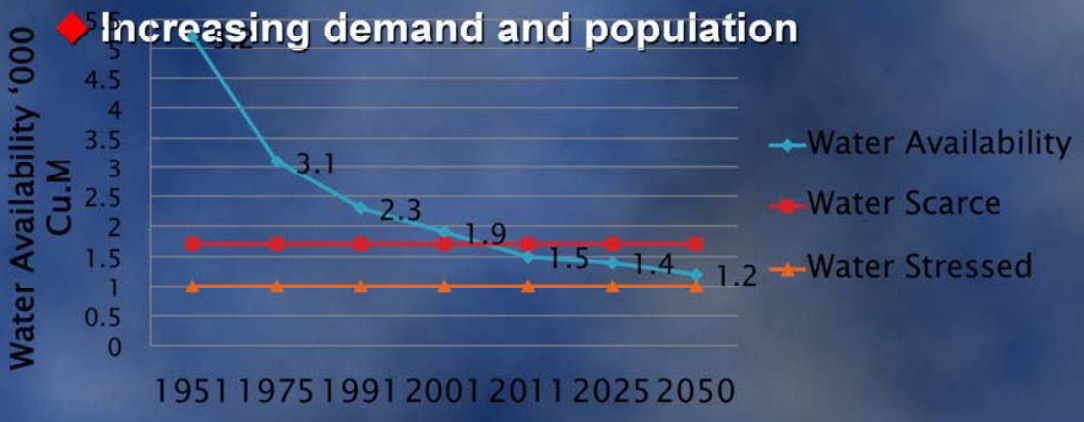
- 16% of world population and 4% of water resources Usage of water in India



CRISIL, 2012

Water Statistics

- Per capita water availability in India has dropped and is expected to further reduce in the future
- Increasing demand and population



Sources:
- CWC, Water Data Book 2005
- http://www.india-wris.nrsc.gov.in/wrpinfo/index.php?title=India%27s_Water_Wealth

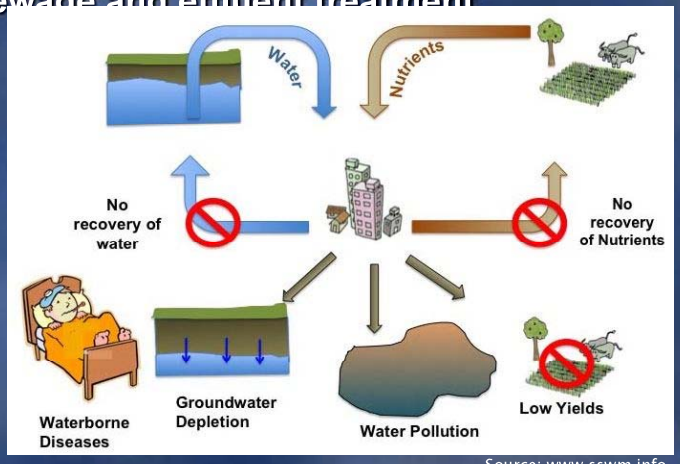
Key Issues

- India is fast urbanizing with about 31% urban population by 2011, likely to reach 50% in next 20 yrs
- Access to Water Supply and Sanitation Infrastructure in urban areas is increasing …
  - More than 90% of India's urban pop has access to improved source
- However, there is still a large gap on sanitation access.
  - Only about 60% of India's urban pop has access to improved sanitation facilities

Source: World Bank's Open Data Initiative – data.worldbank.org

Current Water Issues

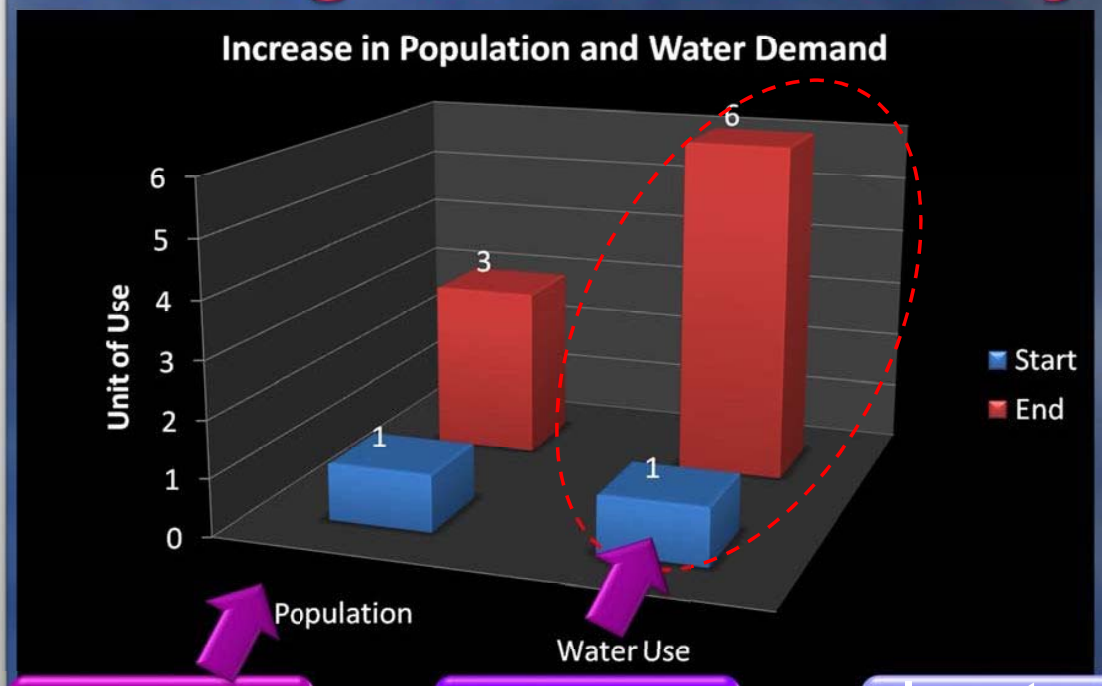
- Over exploitation of ground water resources
- End of the Pipe solutions
- Lack of sewage and effluent treatment



Source: www.sswm.info

The Use of Water Today

During the 20th century



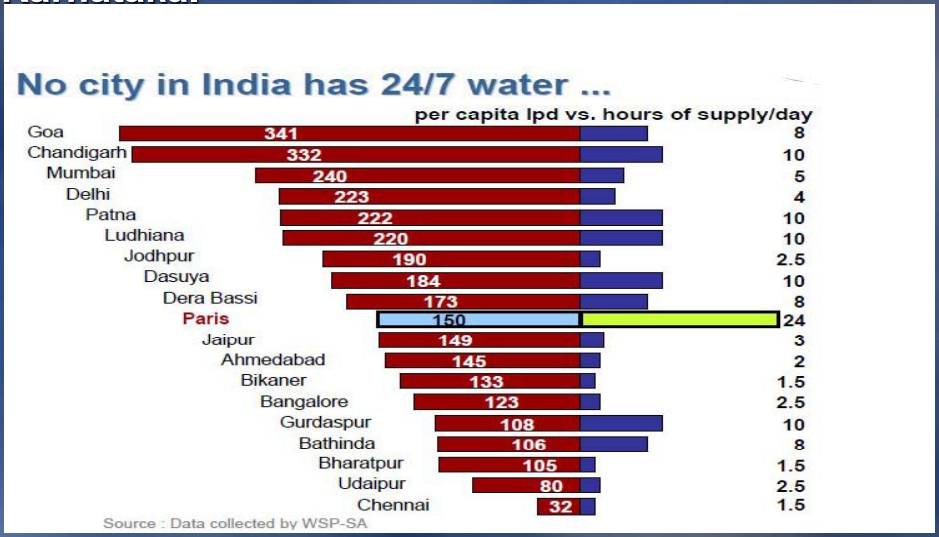
100 Years Ago → Now → Impacts on people and the environment

Current Water Issues

- Inefficient operation and maintenance of wastewater treatment facilities by Municipal Bodies and SMEs at many places
- Water use productivity in India is very low (UNESCO, WWAP)
- Many SMEs can't afford ETPs. CETPs employed in few cases
- Distribution losses due to lack of maintenance and repair
- Service Level benchmark for NRW is fixed at 20%
- "In a study by Andey and Kelkar (2007), in four cities across India, to evaluate the influence of intermittent and continuous water service on NRW, it was showed that NRW increased from 19.5% to 35.8% under IWS, whereas it increased from 31 to 47.8% under continuous supply system" (Jayaramu and Kumar

Key Issues ..3

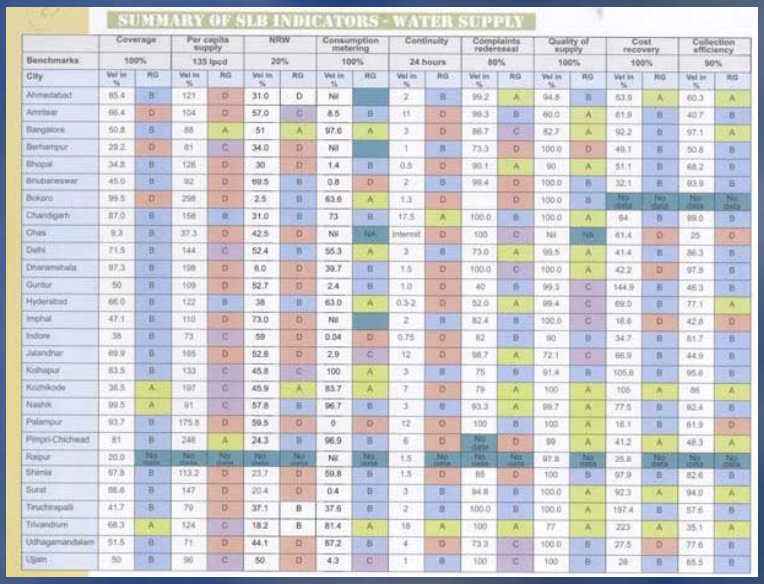
- No city in India has 24/7 water service as of now…
  - It is just catching up, after successful demonstration of feasibility, through a Bank supported project in Karnataka.



Key Issues ..4

- Non-Revenue water of more than 50% is not a surprise, and

Cost recovery for water service can sometimes go down to just 16%


SUMMARY OF SLB INDICATORS - WATER SUPPLY

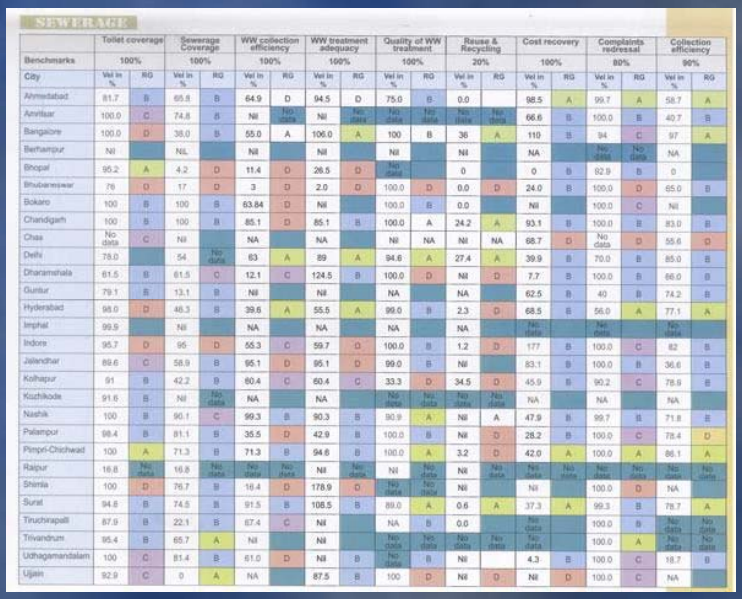
Benchmarks	Coverage 100%		Per capita supply 135 lpcd		NRW 20%		Consumption metering 100%		Continuity 24 hours		Complaints redressal 80%		Quality of supply 100%		Cost recovery 100%		Collection efficiency 90%	
City	Val in %	RG	Val in %	RG	Val in %	RG	Val in %	RG	Val in %	RG	Val in %	RG	Val in %	RG	Val in %	RG	Val in %	RG
Ahmedabad	85.4	B	121	D	31.0	D	Nil		2	B	99.2	A	94.8	B	53.9	A	60.3	A
Amritsar	66.4	D	104	D	57.0	C	8.5	B	11	D	99.3	B	60.0	A	61.9	B	40.7	B
Bangalore	50.8	B	88	A	51	A	97.6	A	3	D	86.7	C	82.7	A	92.2	B	97.1	A
Berhampur	29.2	D	81	C	34.0	D	Nil		1	B	73.3	D	100.0	D	49.1	B	50.8	B
Bhopal	34.8	B	126	D	30	D	1.4	B	0.5	D	90.1	A	90	A	51.1	B	68.2	B
Bhubaneswar	45.0	B	92	D	69.5	B	0.8	D	2	B	99.4	D	100.0	B	32.1	B	93.9	B
Bokaro	99.5	D	298	D	2.5	B	63.6	A	1.3	D		D	100.0	B	No data	No data	No data	No data
Chandigarh	87.0	B	158	B	31.0	B	73	B	17.5	A	100.0	B	100.0	A	64	B	89.0	B
Chas	9.3	B	37.3	D	42.5	D	Nil	NA	Intermit	D	100	C	Nil	NA	61.4	D	25	D
Delhi	71.5	B	144	C	52.4	B	55.3	A	3	B	73.0	A	99.5	A	41.4	B	86.3	B
Dharamshala	97.3	B	198	D	6.0	D	39.7	B	1.5	D	100.0	C	100.0	A	42.2	D	97.8	B
Guntur	50	B	109	D	52.7	D	2.4	B	1.0	D	40	B	99.3	C	144.9	B	46.3	B
Hyderabad	66.0	B	122	B	38	B	63.0	A	0.3-2	D	52.0	A	99.4	C	69.0	B	77.1	A
Imphal	47.1	B	110	D	73.0	D	Nil		2	B	82.4	B	100.0	C	16.6	D	42.8	D
Indore	38	B	73	C	59	D	0.04	D	0.75	D	82	B	90	B	34.7	B	61.7	B
Jalandhar	69.9	B	165	D	52.8	D	2.9	C	12	D	98.7	A	72.1	C	66.9	B	44.9	B
Kolhapur	83.5	B	133	C	45.8	C	100	A	3	B	75	B	91.4	B	105.8	B	95.6	B
Kozhikode	38.5	A	197	C	45.9	A	83.7	A	7	D	79	A	100	A	105	A	86	A
Nashik	99.5	A	91	C	57.8	B	96.7	B	3	B	93.3	A	99.7	A	77.5	B	92.4	B
Palampur	93.7	B	175.8	D	59.5	D	0	D	12	D	100	B	100	A	16.1	B	61.9	D
Pimpri-Chichwad	81	B	248	A	24.3	B	96.9	B	6	D	No data	D	99	A	41.2	A	48.3	A
Raipur	20.0	No data	No data	No data	No data	No data	Nil	No data	1.5	No data	No data	No data	97.8	No data	35.8	No data	No data	No data
Shimla	97.8	B	113.2	D	23.7	D	59.8	B	1.5	D	85	D	100	B	97.9	B	82.6	B
Surat	86.6	B	147	D	20.4	D	0.4	B	3	B	94.8	B	100.0	A	92.3	A	94.0	A
Tiruchirapalli	41.7	B	79	D	37.1	B	37.6	B	2	B	100.0	B	100.0	A	197.4	B	57.6	B
Trivandrum	68.3	A	124	C	18.2	B	81.4	A	18	A	100	A	77	A	223	A	35.1	A
Udhagamandalam	51.5	B	71	D	44.1	D	87.2	B	4	D	73.3	C	100.0	B	27.5	D	77.6	B
Ujjain	50	B	96	C	50	D	4.3	C	1	B	100	C	100	B	28	B	65.5	B

Source: Data being collected for Service level

Key Issues ..5

- Many cities do not even have sewage treatment facilities, and

cost recovery for sewerage operations can even go down to just 4%



SEWERAGE

Benchmarks	Toilet coverage 100%		Sewerage Coverage 100%		WW collection efficiency 100%		WW treatment adequacy 100%		Quality of WW treatment 100%		Reuse & Recycling 20%		Cost recovery 100%		Complaints redressal 80%		Collection efficiency 90%	
City	Val in %	RG	Val in %	RG	Val in %	RG	Val in %	RG	Val in %	RG	Val in %	RG	Val in %	RG	Val in %	RG	Val in %	RG
Ahmedabad	81.7	B	65.8	B	64.9	D	94.5	D	75.0	B	0.0		98.5	A	99.7	A	58.7	A
Amritsar	100.0	C	74.8	B	Nil	No data	Nil	No data	No data	No data	No data	No data	66.6	B	100.0	B	40.7	B
Bangalore	100.0	D	38.0	B	55.0	A	106.0	A	100	B	36	A	110	B	94	C	97	A
Berhampur	Nil		NIL		Nil		Nil		Nil		Nil		NA		No data	No data	NA	
Bhopal	95.2	A	4.2	D	11.4	D	26.5	D	No data		0		0	B	92.9	B	0	
Bhubaneswar	76	D	17	D	3	D	2.0	D	100.0	D	0.0	D	24.0	B	100.0	D	65.0	B
Bokaro	100	B	100	B	63.84	D	Nil		100.0	B	0.0		Nil		100.0	C	Nil	
Chandigarh	100	B	100	B	85.1	D	85.1	B	100.0	A	24.2	A	93.1	B	100.0	B	83.0	B
Chas	No data	C	Nil		NA		NA		Nil	NA	Nil	NA	68.7	D	No data	D	55.6	D
Delhi	78.0		54	No data	63	A	89	A	94.6	A	27.4	A	39.9	B	70.0	B	85.0	B
Dharamshala	61.5	B	61.5	C	12.1	C	124.5	B	100.0	D	Nil	D	7.7	B	100.0	B	66.0	B
Guntur	79.1	B	13.1	B	Nil		Nil		NA		NA		62.5	B	40	B	74.2	B
Hyderabad	98.0	D	46.3	B	39.6	A	55.5	A	99.0	B	2.3	D	68.5	B	56.0	A	77.1	A
Imphal	99.9		Nil		NA		NA		NA		NA		No data		No data		No data	
Indore	95.7	D	95	D	55.3	C	59.7	D	100.0	B	1.2	D	177	B	100.0	C	82	B
Jalandhar	89.6	C	58.9	B	95.1	D	95.1	D	99.0	B	Nil		83.1	B	100.0	B	36.6	B
Kolhapur	91	B	42.2	B	80.4	C	60.4	C	33.3	D	34.5	D	45.9	B	90.2	C	78.9	B
Kozhikode	91.6	B	Nil	No data	NA		NA		No data	No data	No data	No data	NA		NA		NA	
Nashik	100	B	90.1	C	99.3	B	90.3	B	90.9	A	Nil	A	47.9	B	99.7	B	71.8	B
Palampur	98.4	B	81.1	B	35.5	D	42.9	B	100.0	B	Nil	D	28.2	B	100.0	C	78.4	D
Pimpri-Chichwad	100	A	71.3	B	71.3	B	94.6	B	100.0	A	3.2	D	42.0	A	100.0	A	86.1	A
Raipur	16.8	No data	16.8	No data	No data	No data	Nil	No data	Nil	No data	Nil	No data	No data	No data	No data	No data	No data	No data
Shimla	100	D	76.7	B	16.4	D	178.9	C	No data	No data	Nil		Nil		100.0	D	NA	
Surat	94.8	B	74.5	B	91.5	B	108.5	B	89.0	A	0.6	A	37.3	A	99.3	B	78.7	A
Tiruchirapalli	87.9	B	22.1	B	67.4	C	Nil		NA	B	0.0		No data		100.0	B	No data	No data
Trivandrum	95.4	B	65.7	A	Nil		Nil		No data	No data	No data	No data	No data		100.0	A	No data	No data
Udhagamandalam	100	C	81.4	B	61.0	D	Nil	B	No data	B	Nil		4.3	B	100.0	C	18.7	B
Ujjain	92.9	C	0	A	NA		87.5	B	100	D	Nil	D	Nil	D	100.0	C	NA	

Source: Data being collected for Service level

Water Sector in India

The Background

90% of Urban population

63 % Population

Range: 57 – 160 LPCD, Target: 140 LPCD

Slum: 27 LPCD
Infant Mortality =38

Access to water supply | Piped water | Provided water | Health Risk

Source: CMG, ASCI, Hydrabad

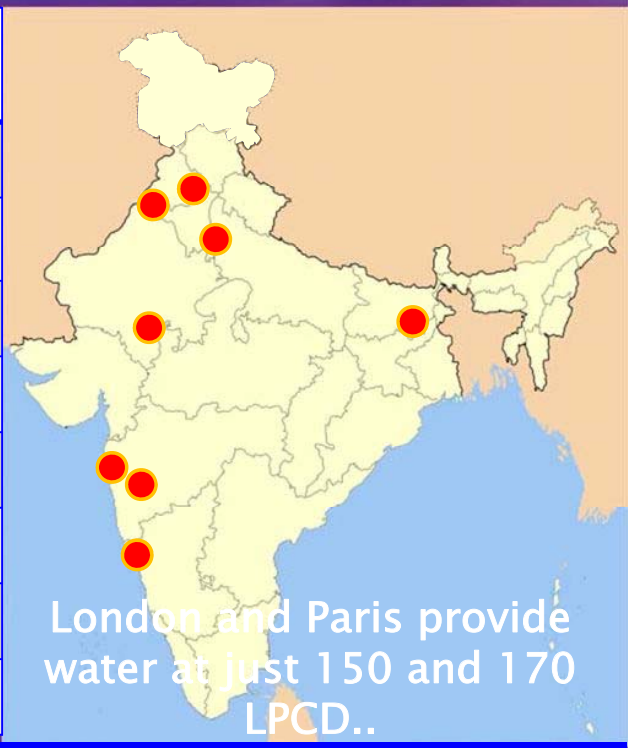
What are Challenges of Water Sector?

Challenges

Utility Life	House Connections	NRW	Cover-age	Stand Posts	Supply Hours	Sustain-ability
> 25 Years	25-40 %	30-55 %	70 %	High No.	2-6 hours	O&M cost > Revenue

India- No City has 24/7 Water

Goa	341	8
Chandigarh	332	10
Mumbai	240	5
Delhi	223	4
Patna	222	10
Ludhiyana	220	10
Jodhpur	190	2.5
Badlapur	171	3



London and Paris provide water at just 150 and 170 LPCD..

Source: World Bank, October 2005

Government Initiatives

- Fiscal incentives by central and state governments
  - Tax deductions
  - Custom duty exemption
  - Depreciation allowance at higher rate

Equitable Distribution

- National Water Policy recognizes the need for equitable distribution
- It also recommends judicious use of water including recycle and reuse
- Focus on subsidizing basic services for urban poor with schemes like JNNURM
- Issues like high NRW, lack of metering

Laws and Legislations

- Environment Protection Act (1986)
- Water recognized as a basic need and a part of right to life
- Water Act (1974)
  - Prevention, Control and Abatement of Pollution
  - Ensure safe supply of water to people
  - Responsibility on State and ULBs to enact and enforce
- Rules and regulations at local level, written and unwritten
- Most control of water utilization with states rather than centre
- Pollution Control Boards at State and Central level
- National Water Policy, National Sanitation Policy, Municipality Act etc. all recognise the need of access, treatment and regulation of water sources

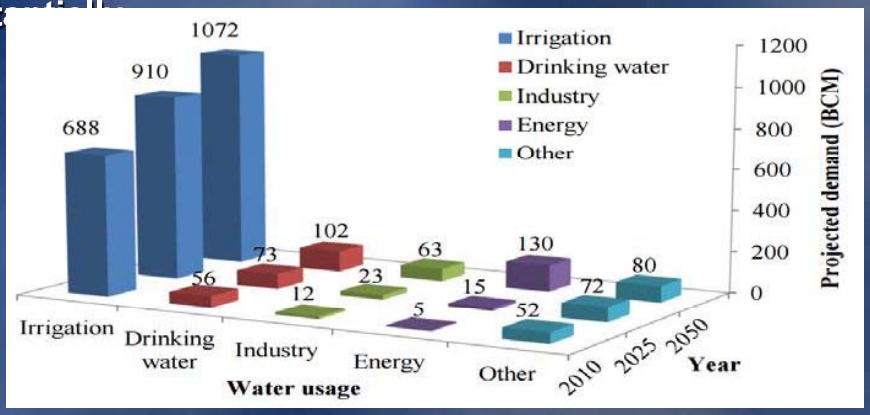
Wastewater Treatment in India

- Only 30% of domestic wastewater and 60% of industrial wastewater is treated
- Only 13% of wastewater is recycled (India Water Portal)
- Mostly conventional methods are used which consume energy and resources
- Inadequate O&M, improper design, lack of technical manpower and unavailability of electricity results in improper functioning of plants
- Decentralized and unconventional methods are limited

Future of Water in India

- Domestic and Industry will account for 85% of increased demand by 2050 (IWMI, 2007)
- Demand for water in Energy sector will also increase substantially

Sector wise projected water demand

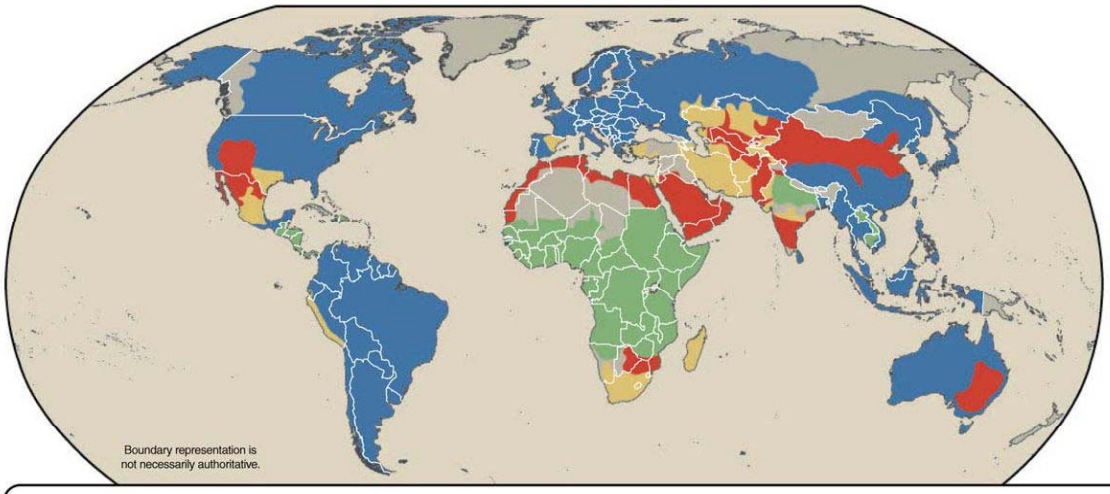


Source: India Country Report, UN Water, AIS

Future of Water in India

- Risk of being a water scarce country owing to increasing demand and population
- Contamination of water resources and climate change can further aggravate the problem
- 55% of all water is sourced from groundwater sources which are fast depleting

Projected Global Water Scarcity, 2025



Physical water scarcity: More than 75% of river flows are allocated to agriculture, industries, or domestic purposes. This definition of scarcity — relating water availability to water demand — implies that dry areas are not necessarily water-scarce.

Approaching physical water scarcity: More than 60% of river flows are allocated. These basins will experience physical water scarcity in the near future.

Economic water scarcity: Water resources are abundant relative to water use, with less than 25% of water from rivers withdrawn for human purposes, but malnutrition exists.

Little or no water scarcity: Abundant water resources relative to use. Less than 25% of water from rivers is withdrawn for human purposes.

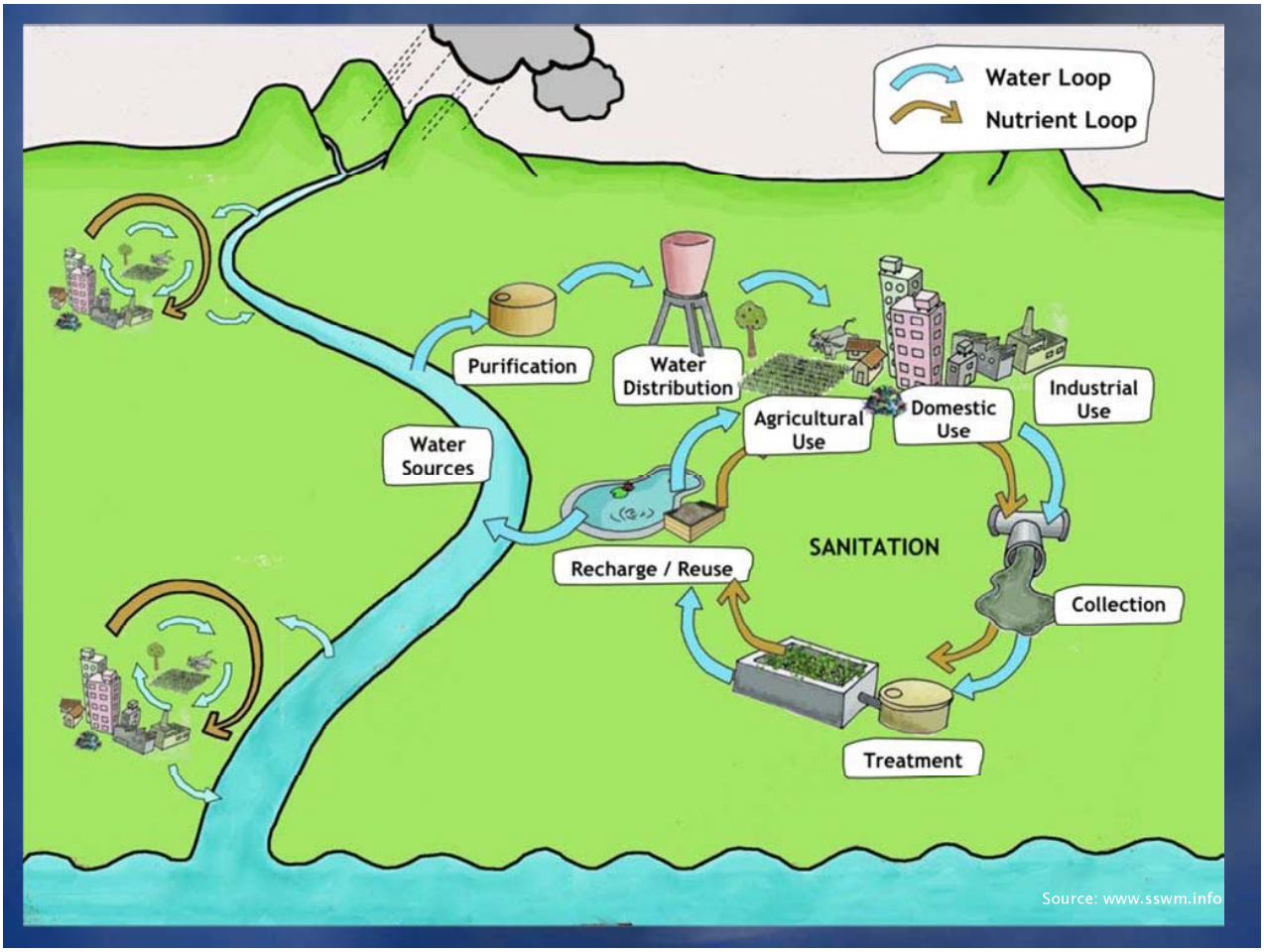
Not estimated

Source: International Water Management Institute.

Image Source: https://www.google.co.in/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0CAYQjB1qFQoTCLn3w7Pjk8cCFQ0Fjgod-y8GYg&url=http%3A%2F%2Fwww.global-warming-forecasts.com%2F2025-climate-change-global-warming-2025.php&ei=I_fCVfnPFI2KuAT735iQBg&bvm=bv.99556055,d.c2E&psig=AFQjCNHfFSwiqn2ozVprF7Vxns2KnkFC_Q&ust=1438927122104115

Securing India's Water Future

- Data Management and Dissemination for local adaptation and behavioral change
- Integrated watershed management to mitigate climate change
- Sustainable development
  - Adoption of unconventional and decentralized options along with centralized solutions
  - Maintaining environmental flow requirements
  - Encouraging water recycle and reuse



Securing India's Water Future

- More financing for water management with the help of private sector
- Incentive for treatment and reuse coupled with punishment for defaulters with strict implementation
- Efficient water use by using low flow equipments, increasing water productivity
- Technical skill development for better management of water resources
- Encouraging research and development in the water sector including research on traditional methods

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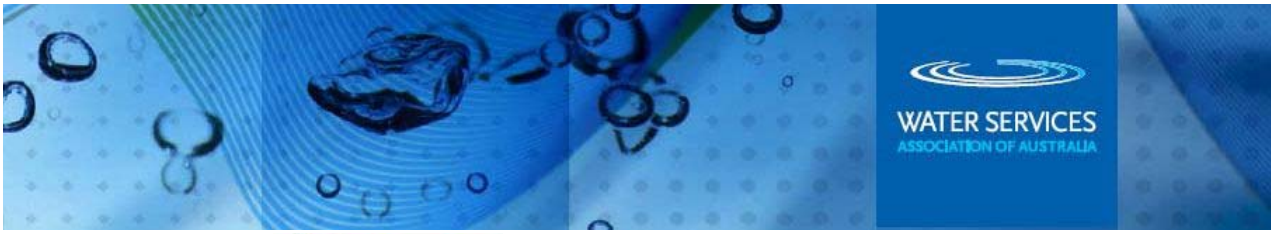
- Jayaramu and Kumar (2014), A Study on Non-Revenue Water in Intermittent and Continuous Water Service in Hubli City, India , Civil and Environmental Research, Vol 6, No.10, 2014

THANKS

Towards a sustainable water environment and stable water supply

Stuart Wilson
Deputy Executive Director
JWWA International water forum
Saitama October 2015

WATER SERVICES ASSOCIATION OF AUSTRALIA



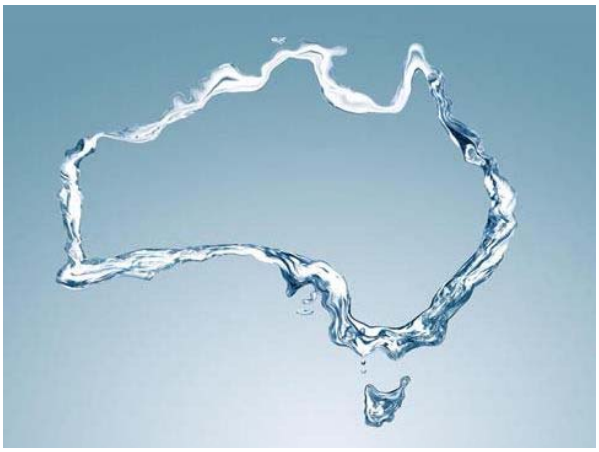
WATER SERVICES ASSOCIATION OF AUSTRALIA

Sydney Water
Water Corporation
City West Water
seqwater
Yarra Valley Water
icon water
City of Townsville
NSW Government Sydney Catchment Authority
Wellington Water
Government of South Australia
SA Water
Gippsland Water
Gosford City Council
Central Highlands Water
Unitywater
Melbourne Water
Coliban Water
Western Water
South East Water
PowerWater
Queensland Urban Utilities
water Care services limited
City of Gold Coast
Hunter Water
Goulburn Valley Water
Gladstone Area Water Board
Barwon Water
TasWater
Shoalhaven Water
A Group of Shoalhaven City Council
Toowoomba Regional Council
SunWater
Making Water Work
Logan City Council
Redland Water

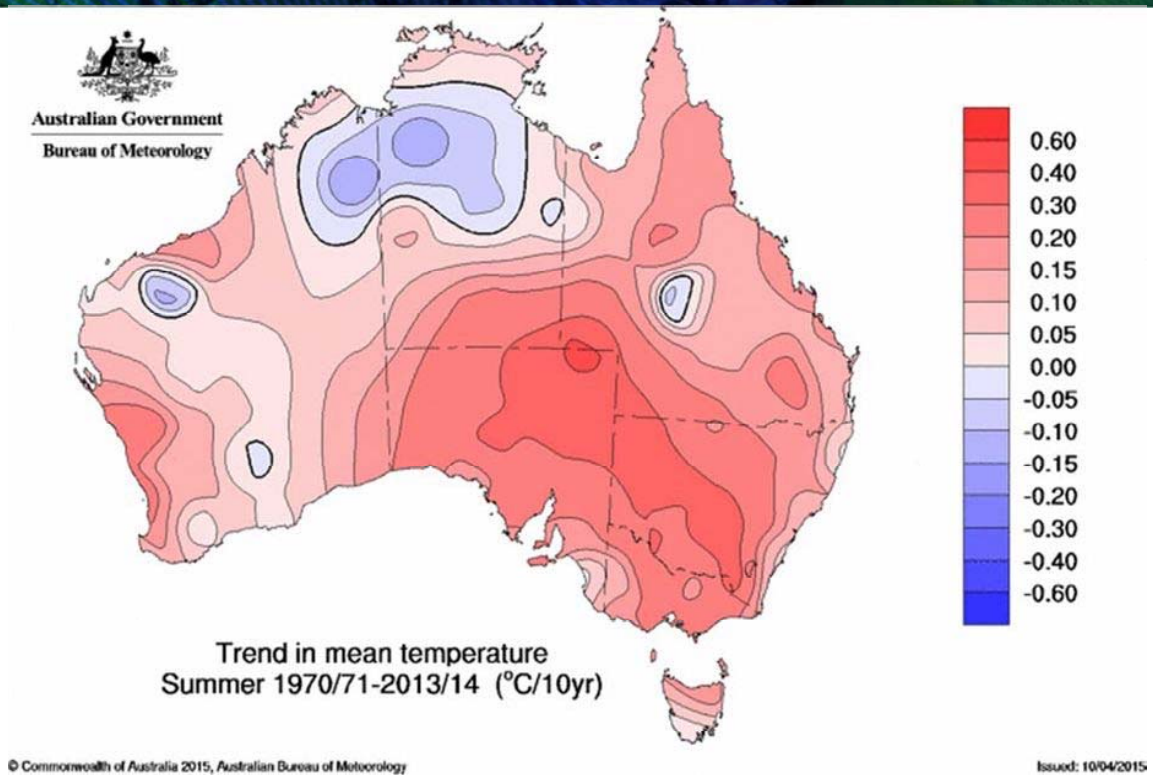
A sustainable water supply in Australia

I will discuss four areas:

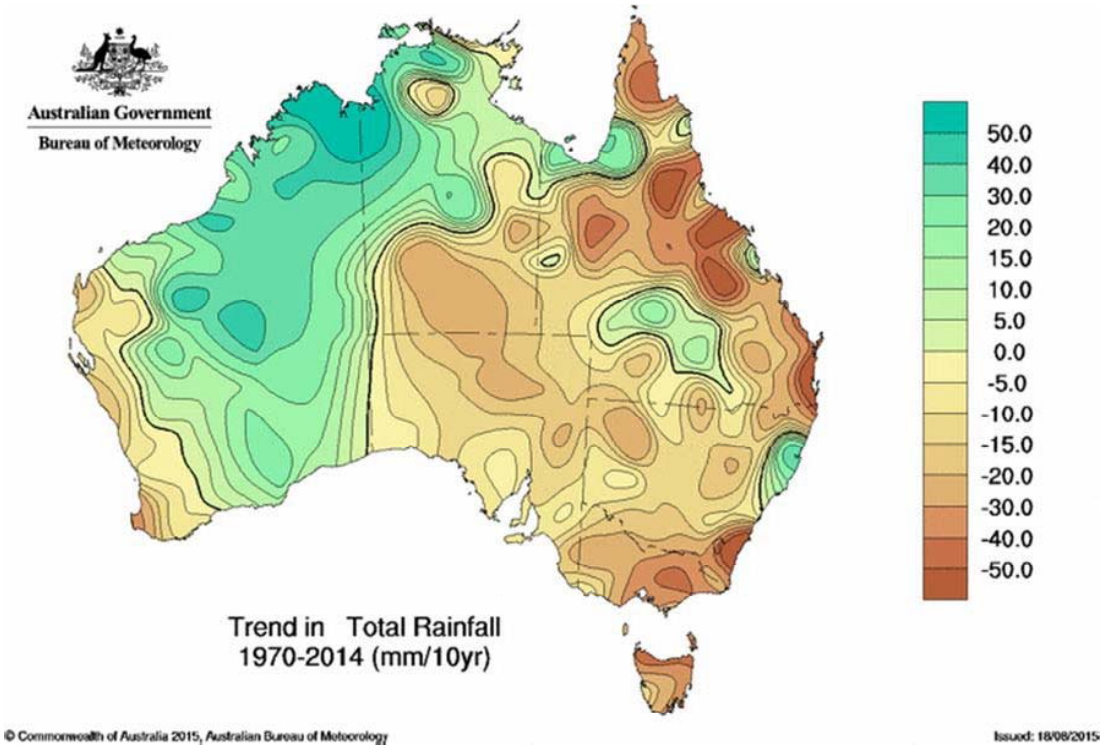
1. Australian climate change
2. Planning the water supply
3. The role of water efficiency
4. Technology



Temperature increase



Rainfall decrease (mostly)



Record floods

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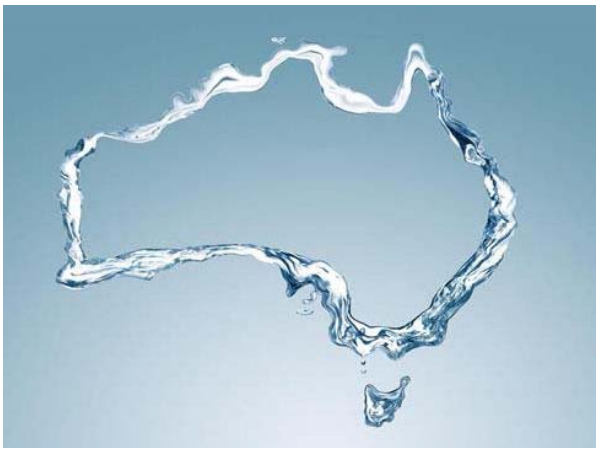


Water supply planning

Identify future water supply needs

↓

Examine the full suite of supply and demand replacement options

↓

Community engagement to identify the communities preferences and willingness to pay for different measures

↓

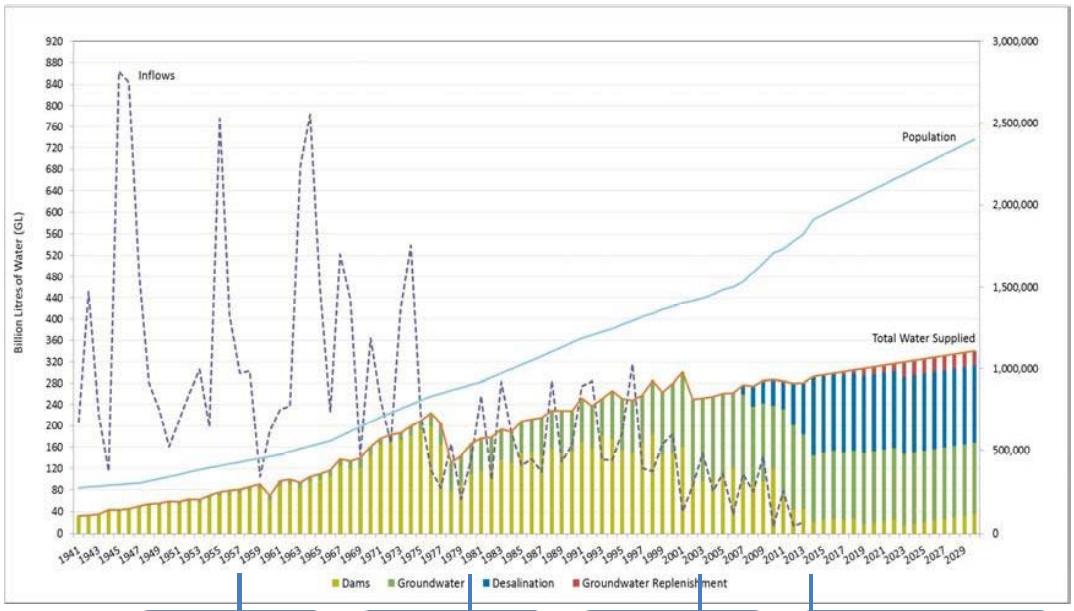
Identifying the least cost portfolio of options meet water security targets

NSW water supply equation

Dams +
Recycling +
Desalination +
Water Efficiency =

Water 4 life

Perth Metropolitan Water Supply



1958
92% Dams
8% G/water

1980
65% Dams
35% G/water

2004
38% Dams
62%
G/water

2014
7% Dams 50%
Desal
42% G/water
1% GWR

Source: WA Water corporation

Diverse supply

Area	Dams	Groundwater	Desalination	Recycled water
Sydney	93%	0	0	7%
Melbourne	96%	0	0	4%
Southeast QLD	89%	3.5%	0.5%	7%
Perth	17%	42.5%	38%	2.5%
Adelaide	55%	0	41.5%*	3.5%

Source: National Performance Report 2013/14
**During the period Adelaide Desalination Plant was operating as part of its proving period*

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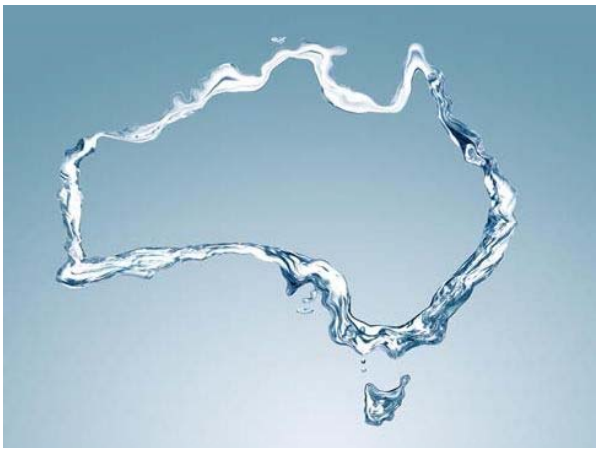
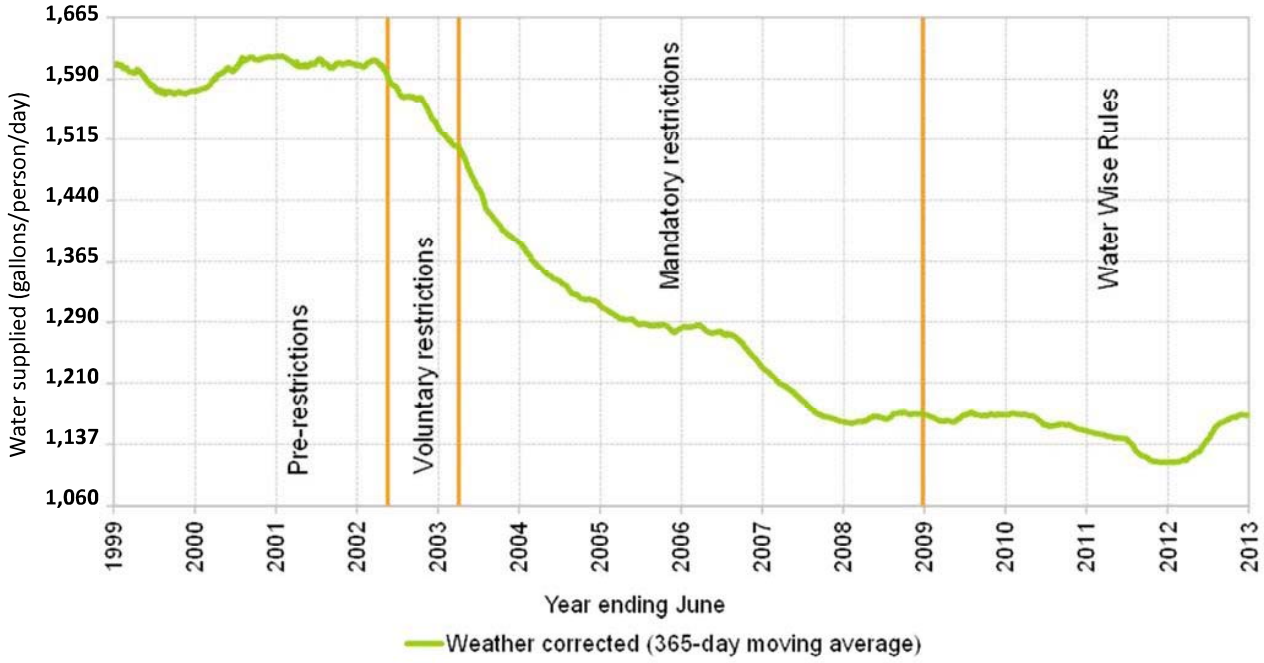
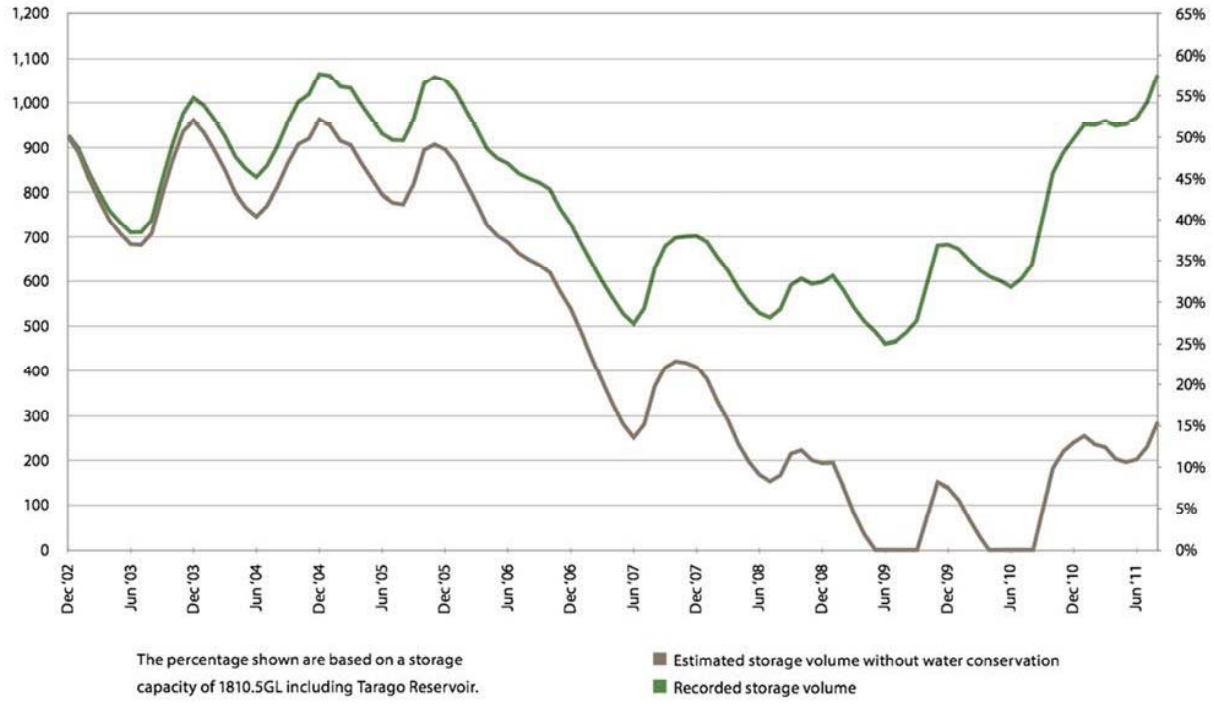


A major shift in water use (Sydney)



Impact of water conservation (Melbourne)

Savings through water conservation in Melbourne 2002-2011



Water Efficiency Labelling and Standards scheme (WELS)

Choosing more efficient products helps Australia save water

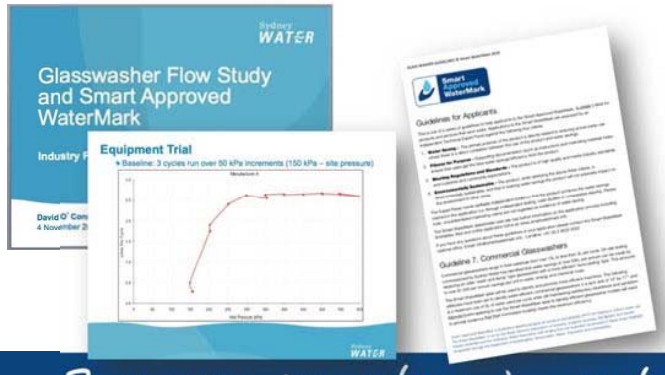
WATER SERVICES ASSOCIATION OF AUSTRALIA

working with utilities
Smart WaterMark

Smart Approved WaterMark

smartwatermark.info

- 3-year investment
- 17 Utilities across all states
- Expansion into non-residential



Supporting innovation in water conservation

Water efficiency programs

- **Leak detection**
- **Every Drop Counts Business Program** (focus on large users)
- **Rebates** (washing machines, rainwater tanks - transformed the washing machine market nationally)
- **Exchange programs** (showerheads and toilets)
- **Water Fix** (low cost service to install efficient fittings in homes)
- **Education campaigns** (TV ads, schools, raising awareness, changing behaviour)
- **WELS** (Water Efficiency Labelling and Standards scheme)
- **SAWM** (Smart Approved WaterMark)
- **BASIX** (Building Sustainability Index)

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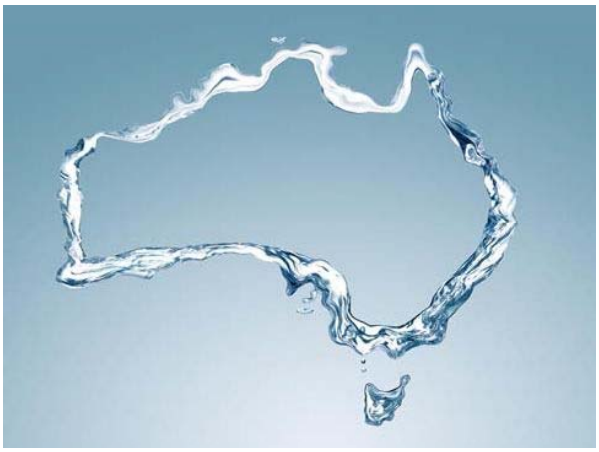
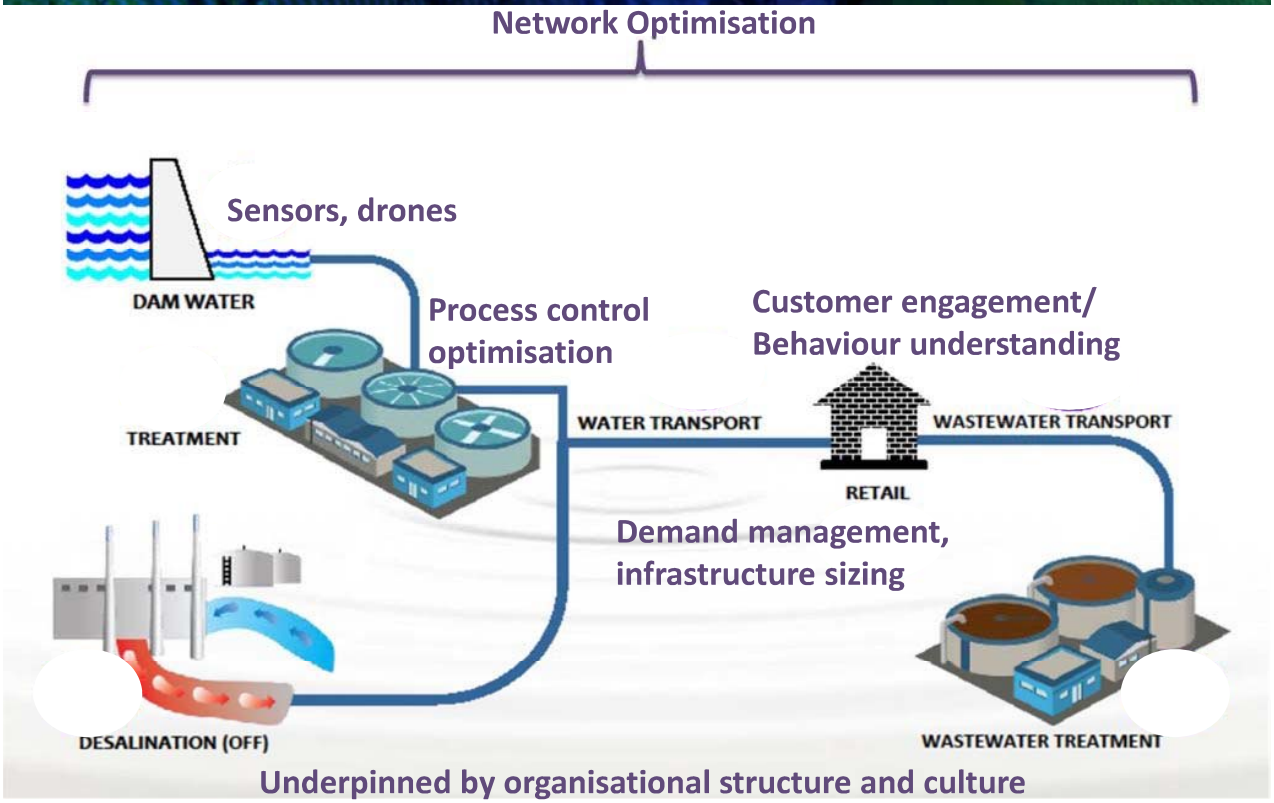


Technology is the enabler



How to find us

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Water Services Association of Australia

Web
www.wsaa.asn.au

American Water Works Association

The Authoritative Resource on Safe Water®

Toward Meeting Goal Six

Presented at

Japan Water Works Association

International Water Forum – MDGs to SDGs Toward Sustainable Water Environment and Stable Water Supply

Brillante Musashino, Saitama, Japan

October 22, 2015

Sustainable Development Goal Six

1. Universal and equitable access
2. Adequate and equitable sanitation
3. Less water pollution
4. Limit water scarcity
5. Implement integrated water resources management
6. Protect and restore water-related ecosystems
7. Expand international cooperation and capacity-building
8. Strengthen role of local communities

Universal and Equitable Access

Value of Water COALITION

- Developing a better understanding to local barriers to customer assistance programs
- Advancing financial tools to reduce the financing costs and implementation costs of infrastructure investments
- Educating the water sector about how to effectively manage utility services.

Adequate and Equitable Sanitation

- **Alliance Mission**

  Bringing communities and engineering leaders together to advance local infrastructure solutions

- **Alliance Vision**

  Our vision is a country where all communities have the infrastructure they need to thrive regardless of their financial resources.

  www.communityengineeringcorps.org

Community ENGINEERING CORPS®
www.communityengineeringcorps.org

American Water Works Association
Dedicated to the World's Most Important Resource™

ENGINEERS WITHOUT BORDERS USA

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

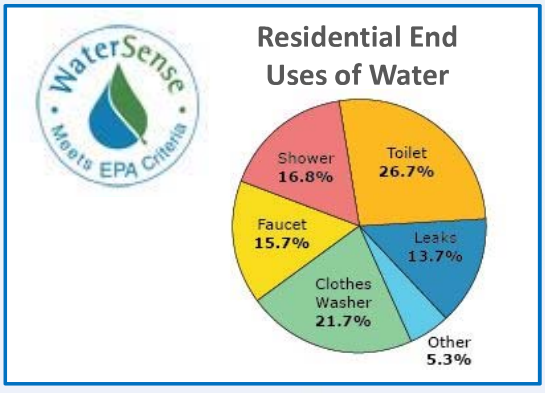
Less Water Pollution

- **Source Water Collaborative**
  - Update/improve source water assessments and protection plans
  - Take priority actions to protect
  - Coordinate, plan, and communicate in advance with key "upstream" partners

  www.sourcewatercollaborative.org
- **Responding to nutrient pollution**

Responding to Water Scarcity

- Advancing water loss control
- Promoting end-use conservation



Advancing Water Loss Control Reporting

Integrated Water Resources Management

- Developing resources to help water utilities make sound water resource decisions

Protect and Restore Water-related Ecosystems

- **Recognizing Sustainable Practices in Project Development**
  - Collaboration with Institute for Sustainable Infrastructure
  - Envision rating system

www.sustainableinfrastructure.org

Institute for Sustainable Infrastructure

Integrate Into Public Sector Procurement

Qualifications

"We are seeking proposals from interested and qualified consulting engineering firms that are familiar with the Envision Process."

Pinellas County Department of Environment and Infrastructure, Florida

Request for Proposal

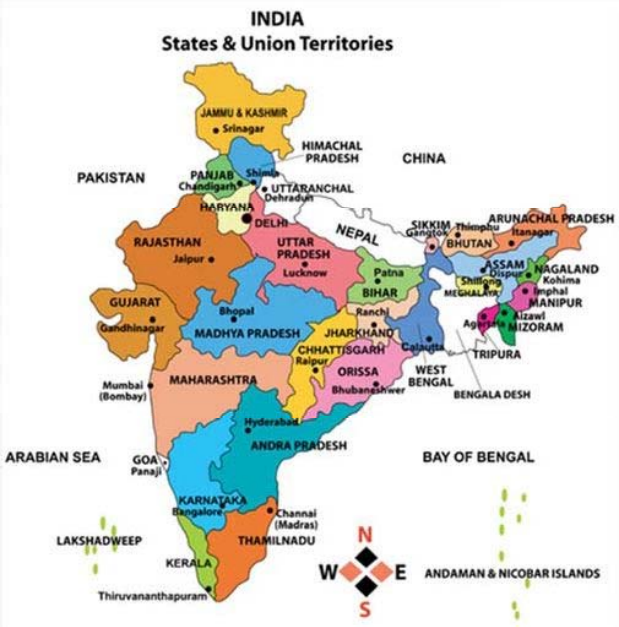
"Apply the Envision evaluation and rating tools available from the Institute for Sustainable Infrastructure to evaluate the sustainability of each alternative."

Massachusetts Water Resources Authority

International Cooperation and Capacity-Building

- **Purpose:**

  Serve as a resource for helping Indian water professionals
  - improve water and wastewater supply and distribution,
  - build a community to support educational needs, and
  - advance a sustainable future.



AWWAIndia

Strengthen Role of Local Communities

- Technical, financial, and managerial training for small public water systems to comply with regulations
- Ongoing update of Effective Utility Management Guide

watereum
Effective Utility Management

Thank you for the opportunity to make this presentation. Questions?

Contact information:

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The International Water Association

Shaping our water future

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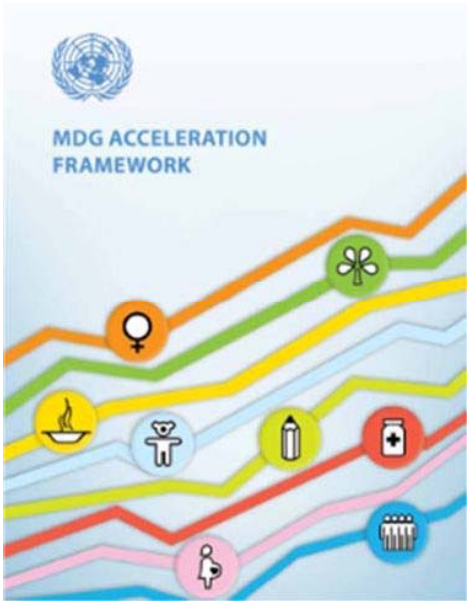
SDG 6: Exploring the role of associations and networks

JWWA GENERAL ASSEMBLY SAITAMA 22 OCTOBER 2015

Setting the context

8 MDGs



17 SDGs

SUSTAINABLE DEVELOPMENT GOALS

A SNAPSHOT

MDG	SDG
Set out to get us "half way" to the goal of ending hunger and poverty, with similar proportional goals in other fields	Designed to finish the job – to get to a statistical "zero" on hunger, poverty, and other targets
MDGs were in the context of "rich donors aiding poor recipients."	SDGs are a set of goals applicable to every country
8 goals, 21 targets, 60 indicators	17 goals, 169 targets, hundreds of indicators implied
MDGs said nothing about monitoring, evaluation and accountability	SDGs target by 2020 to "increase significantly the availability of high-quality, timely and reliable data disaggregated by varied parameters in national contexts

SDG: GOAL 6

- Ensure availability and sustainable management of water and sanitation for all

Targets include:

- 6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all.
- 6.4 By 2030, increase water-use efficiency across all sectors; ensure sustainable withdrawals and supply of freshwater to address water scarcity and reduce the number of people suffering from water scarcity.
- 6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation.
- 6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.

MDG DRINKING WATER TARGET

147 countries[1] have met the MDG drinking water target

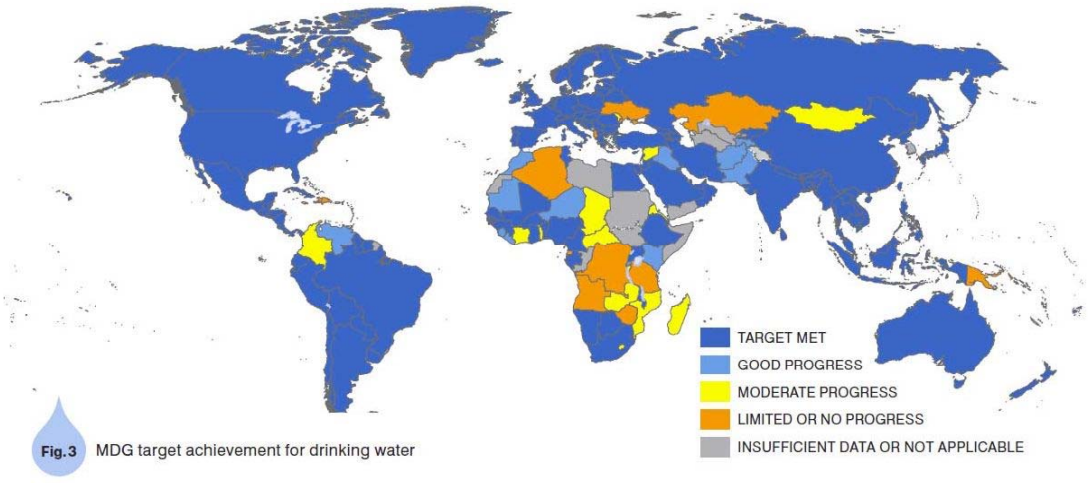


Fig.3 MDG target achievement for drinking water

Source: MDG Assessment done by WHO & UNICEF using JMP data sets

[1]The JMP tracks progress for 215 countries, areas and territories, including all UN Member States. Statistics in this report refer to countries, areas, and territories.

However there are loopholes in definitions that may inflate numbers at both national and global scale , while the ground reality may be different

SCOPE FOR ACTION…

- ✓ Proactively make efforts to understand the new context and opportunities

Uniform understanding

Developing a common language on SDG 6

Informing locally appropriate approaches

SCOPE FOR ACTION..

- ✓ Help governments to track progress with meaningful and reliable statistics

Engage proactively with design of the indicators/monitoring process at National level

Share robust and reliable data in helping governments achieve SDG 6

Retrofitting both practices and policies

SCOPE FOR ACTION...

- ✓Engage with new platforms of learning through knowledge networking
  - e.g. digital media and other forms as relevant in specific country contexts
- Communicate to Policy makers and the media on SDG 6

CHALLENGE TO OVERCOME

KEY ASPECTS TO KNOW

- Transition from MDGs to SDGs implies that monitoring activities will have to move to the national level
  - Countries will have to decide and choose from a menu of options, which indicators are most appropriate in their national context.
- Indicators and Monitoring mechanisms under development, to be ready by March 2016.
  - The One target One indicator approach may not work, given that most targets are combination of more than one issue.
- National monitoring require capacity building effort
  - key issue being monitoring approaches that allow for maximum disaggregation of datasets.

IMAGE CREDITS

- Kholtari Drinking Supply and Sanitation Project within the Bharat Pokhair community (https://www.globalpeace.org/sites/default/files/Inaug%20of%20Kholtari%20Drinking%20Water%20Supply%20Proj-1.jpg)
- 2012 Informer User Conference (ICON) http://entrinsik.com/content/uploads/2012/01/Graphcs200x200jpg.jpg
- Performance Indicators for Water Supply Services (www.iwapublishing.com)

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