

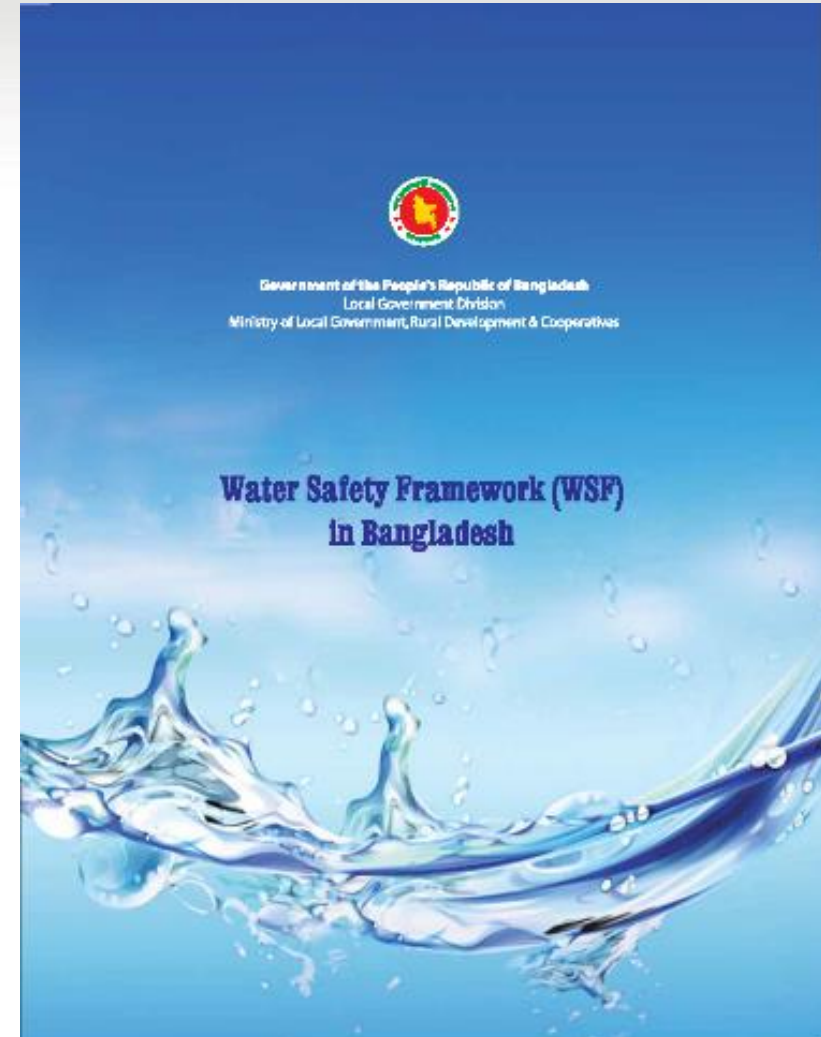
Content

- Introduction
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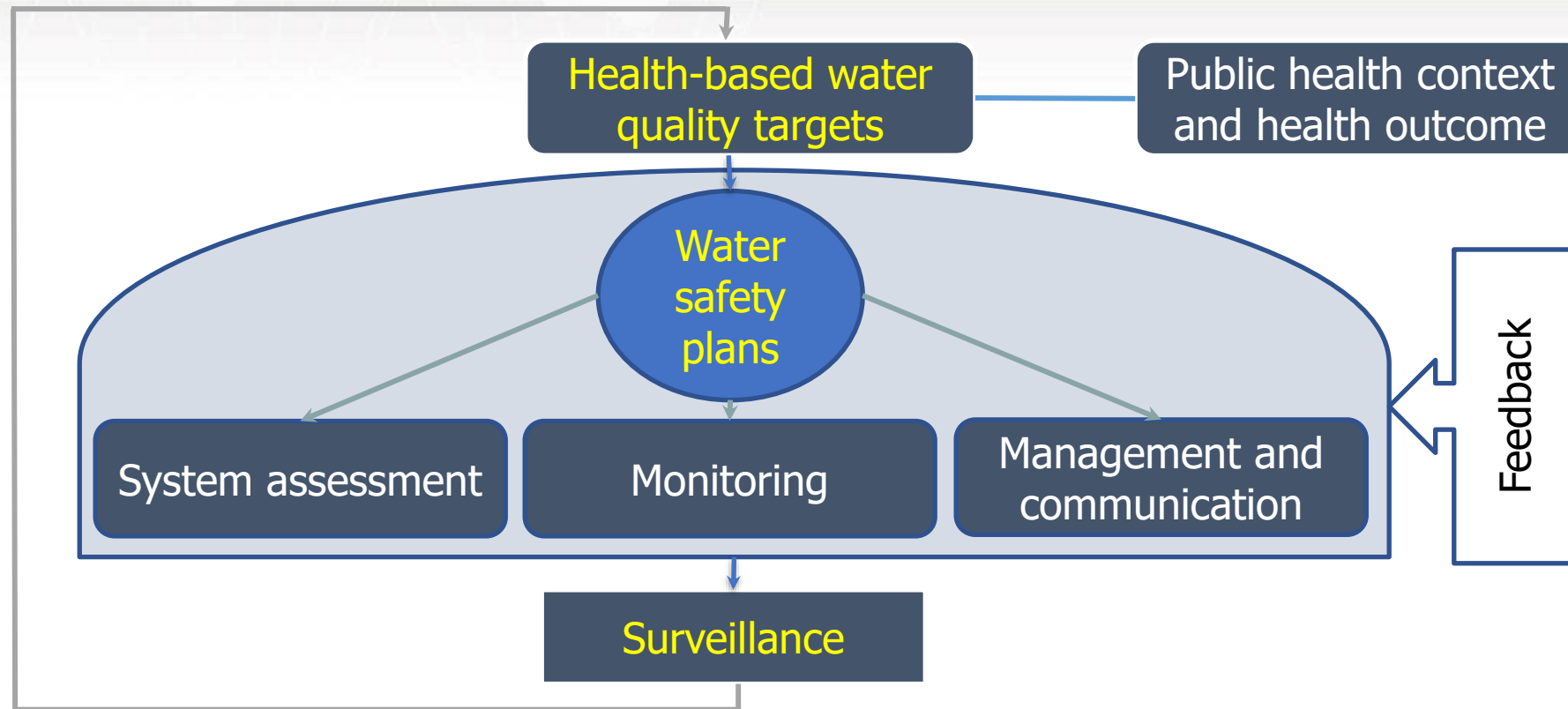


Introduction

- Following WHO's recommendation the GoB has developed the 'Water Safety Framework (WSF) in Bangladesh' that calls for implementation of Water Safety Plan (WSP) to ensure drinking water safety.
- DPHE has implemented Water Safety Plans in various Municipal piped water supply systems of the country.
- The study assessed the impact of WSP in two municipal piped water supply systems of Bangladesh



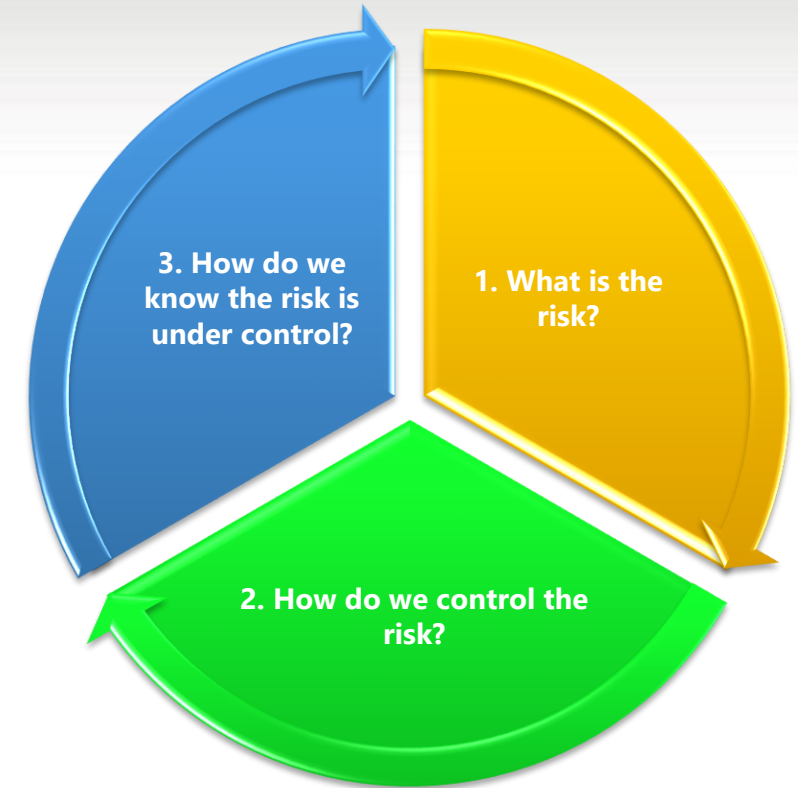
Water Safety Framework (WSF)



Framework for safe drinking-water

Water Safety Plan (WSP)

- A comprehensive risk assessment and risk management approach that encompasses all steps in water supply from catchment to consumer
- WSP is a continuous cycle of risk management to achieve health-based target



Water Safety Plan (WSP)

Know your catchment

Know your water
quality

Control the treatment

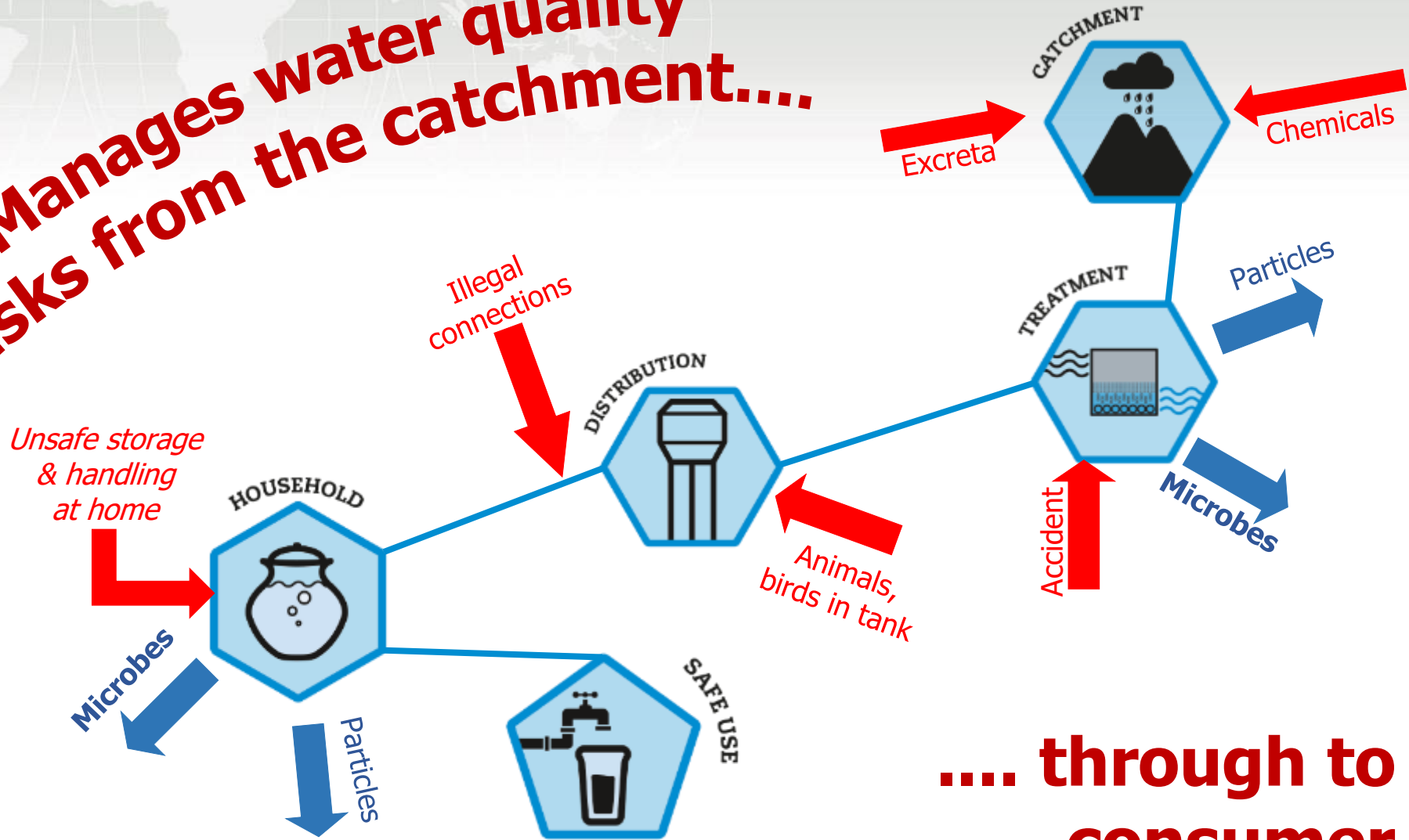
Protect your distribution

Safe drinking water

- WSP is a 'catchment to consumer' approach to risk management adopted from HACCP (Hazard Analysis and Critical Control Point) principles

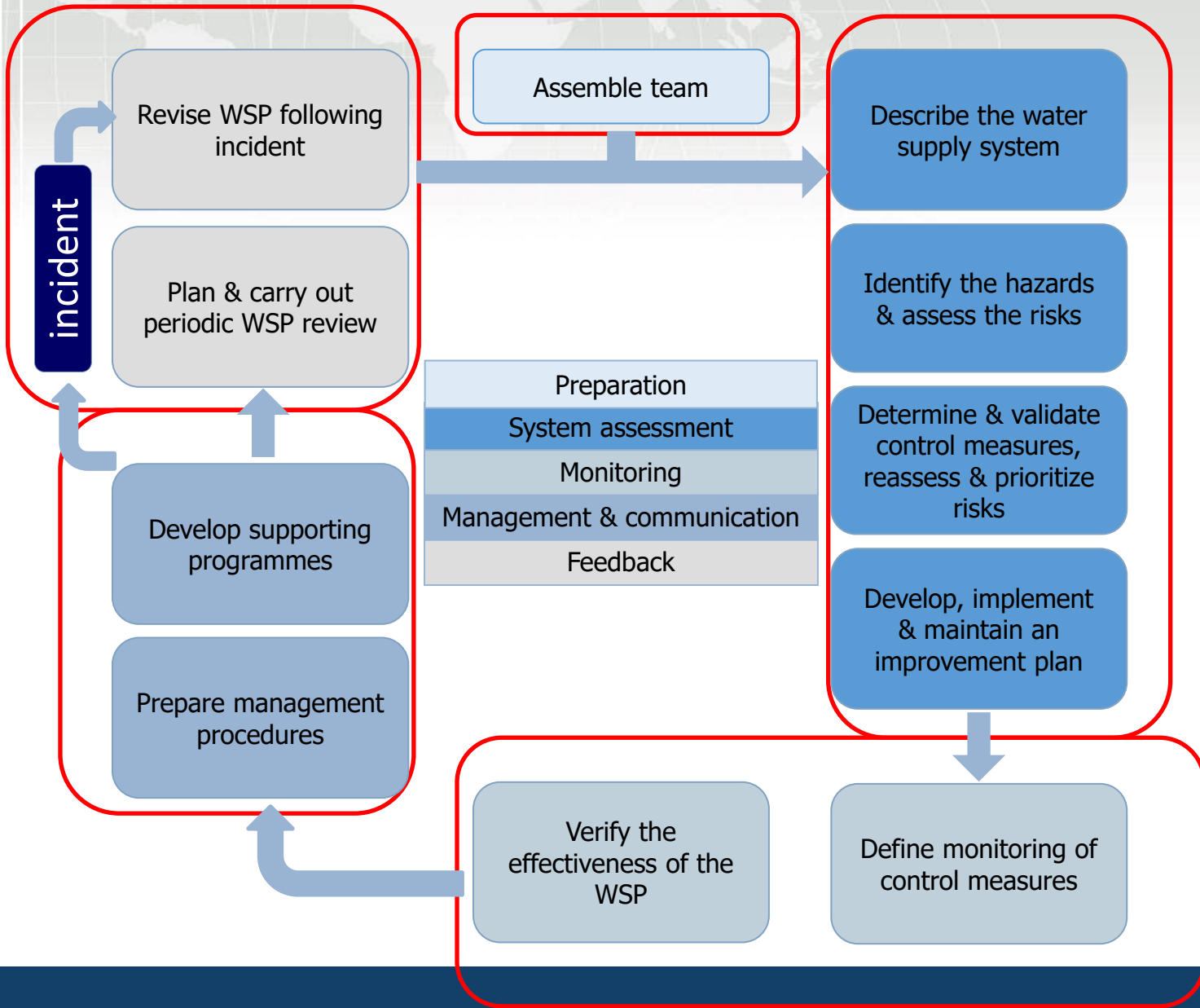
Water Safety Plans

Manages water quality risks from the catchment....

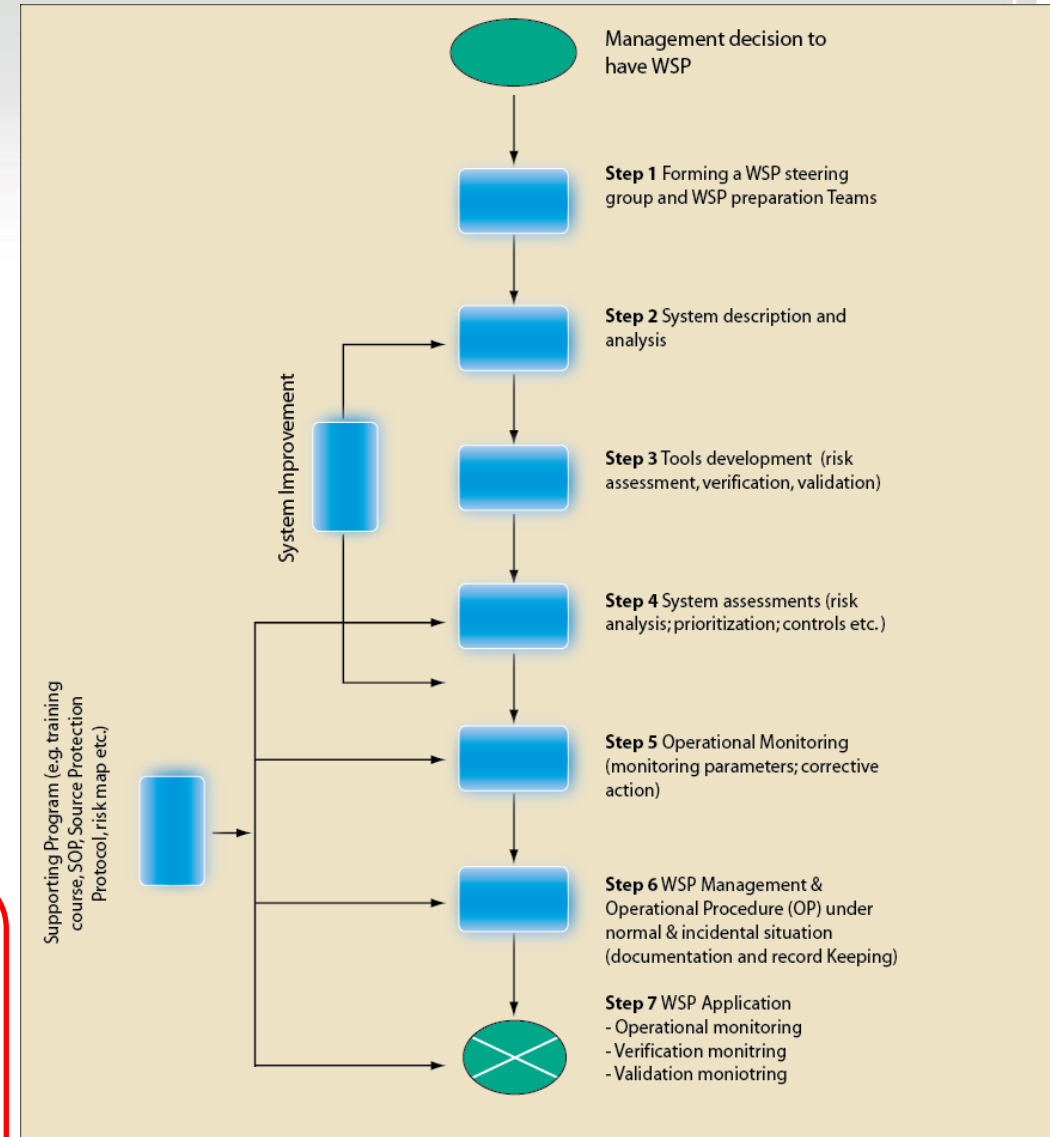


.... through to the consumer

WSP as outlined in WHO's manual



WSP Process in Bangladesh



Study Area 1: Chandpur Municipal PWS System

- Major Source: Surface water
- WSP was implemented in 2011
- The overall system comprises of
 - 3 surface water treatment plants including 1 iron removal plant
 - 2 overhead tanks with the capacity of 225 gallon each
 - 73.55 km of pipe network
- Number of service connections 5,965



Study Area 2: Chapai-Nawabganj Municipal PWS System

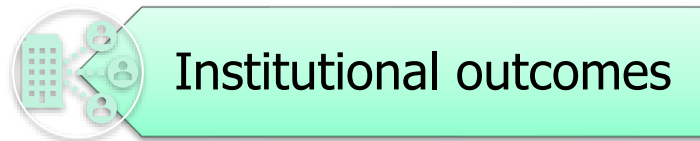
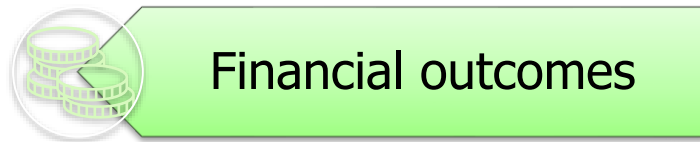


- WSP implemented in this scheme in 2011
- The main source of water supply was groundwater from unconfined aquifer with an average depth of 32 meter.
- Groundwater is abstracted by 8 functional production wells
- The number of household connections are about 3,908
- 64.7 kilometers of pipelines within the distribution network



Indicators to Assess WSP Impact

- Based on the general indicator groups outlined in the US Centres for Disease Control and Prevention's *A Conceptual Framework to Evaluate the Impacts of Water Safety Plans*



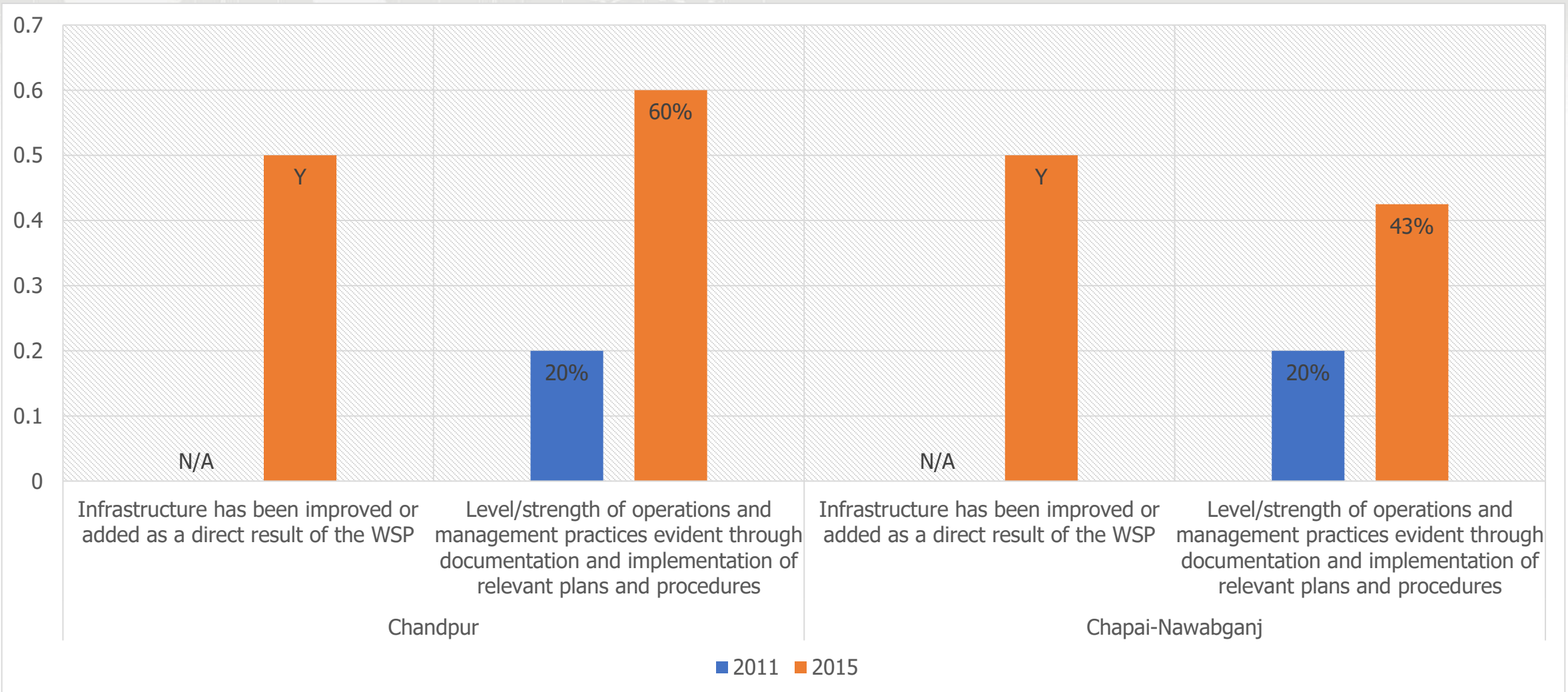
Summary of Indicators

Indicator groups		No. of indicators
OUTCOMES	OPERATIONAL OUTCOMES	
	Group O1: Changes in system infrastructure	1
	Group O2: Changes in operation and management procedures	1
	FINANCIAL OUTCOMES	
	Group F1: Cost changes	2
	Group F2: Changes in cost recovery	2
	Group F3: Changes in financial support and investment	2
	INSTITUTIONAL OUTCOMES	
	Group I1: Changes in communication and collaboration among stakeholders	3
	Group I2: Changes in water supplier knowledge and understanding	2
	EQUITY OUTCOMES	
	Group E1: Changes in consideration of equity	1

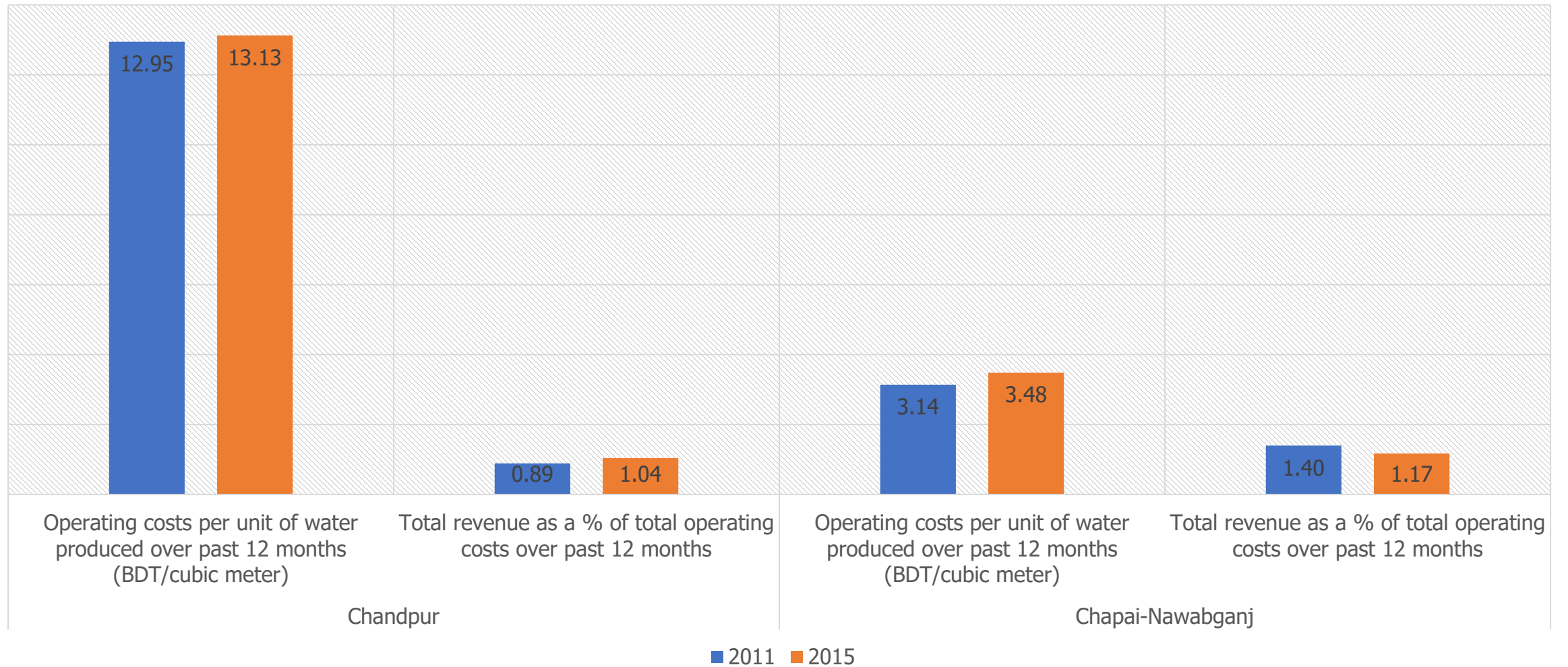
Indicator groups		No. of indicators
IMPACTS	WATER SUPPLY IMPACTS	
	Group W1: Water service changes	4
	Group W2: Water quality changes	7
	Group W3: Consumer satisfaction changes	4
	HEALTH IMPACTS	
	Group H1: Changes in incidence of water-related illness	3
Total # of indicators (between the 12 indicator subgroups) =		32

Before WSP	Year 2011
After WSP	Year 2015

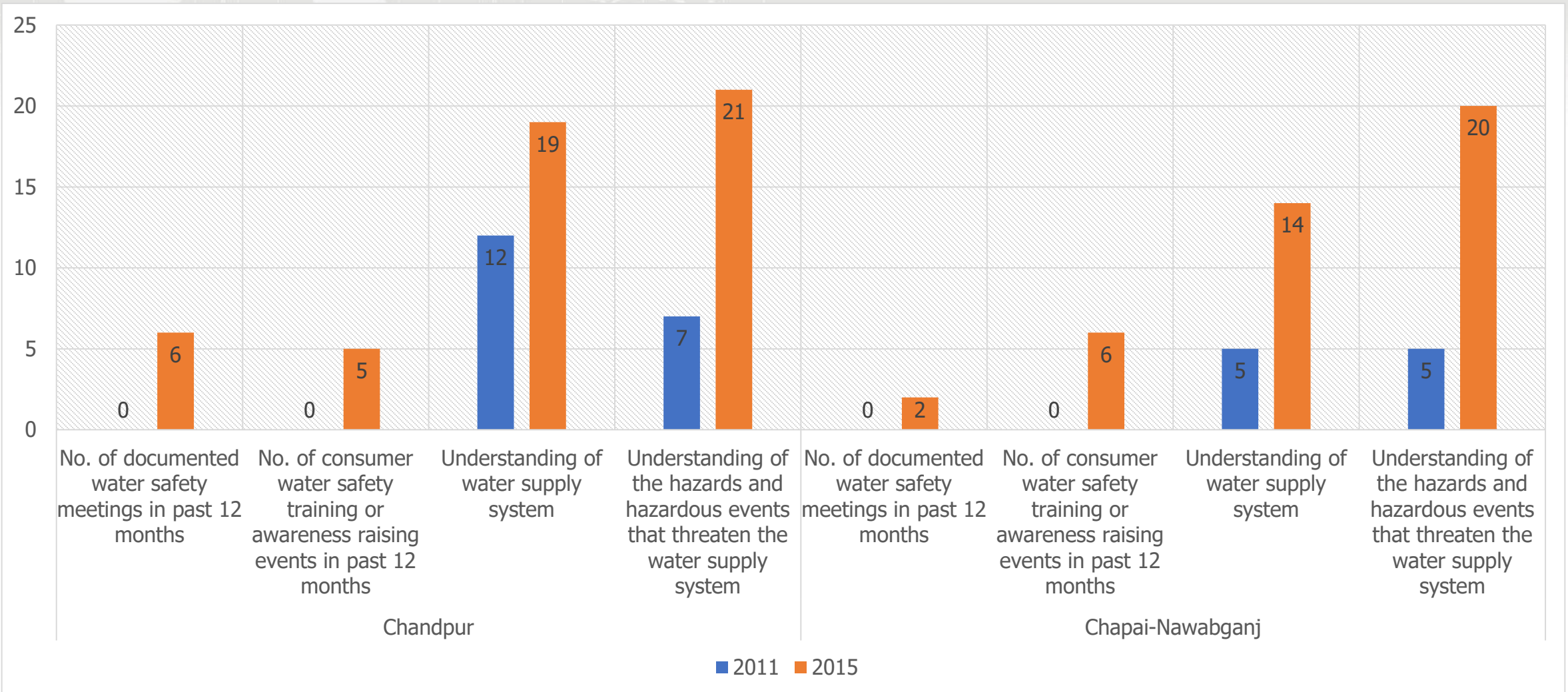
Operational changes



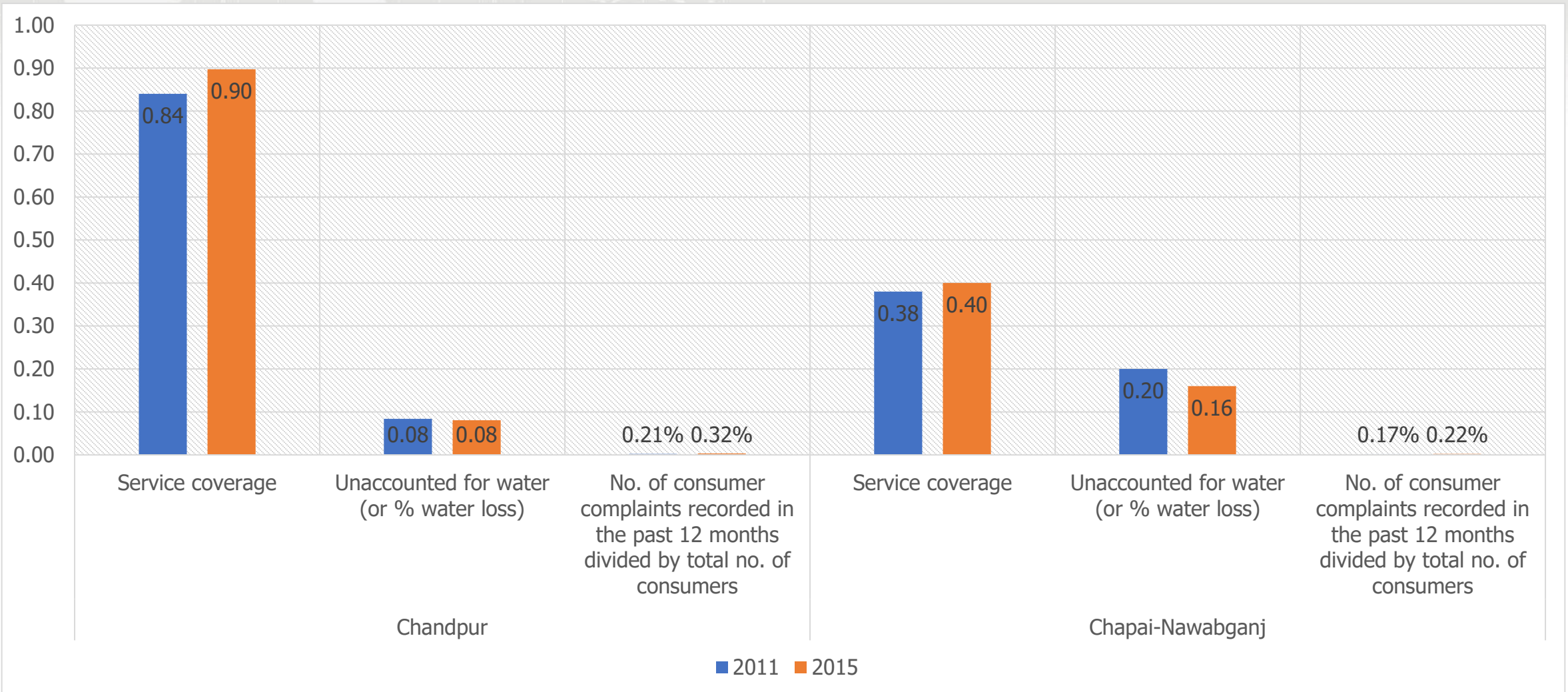
Financial outcomes



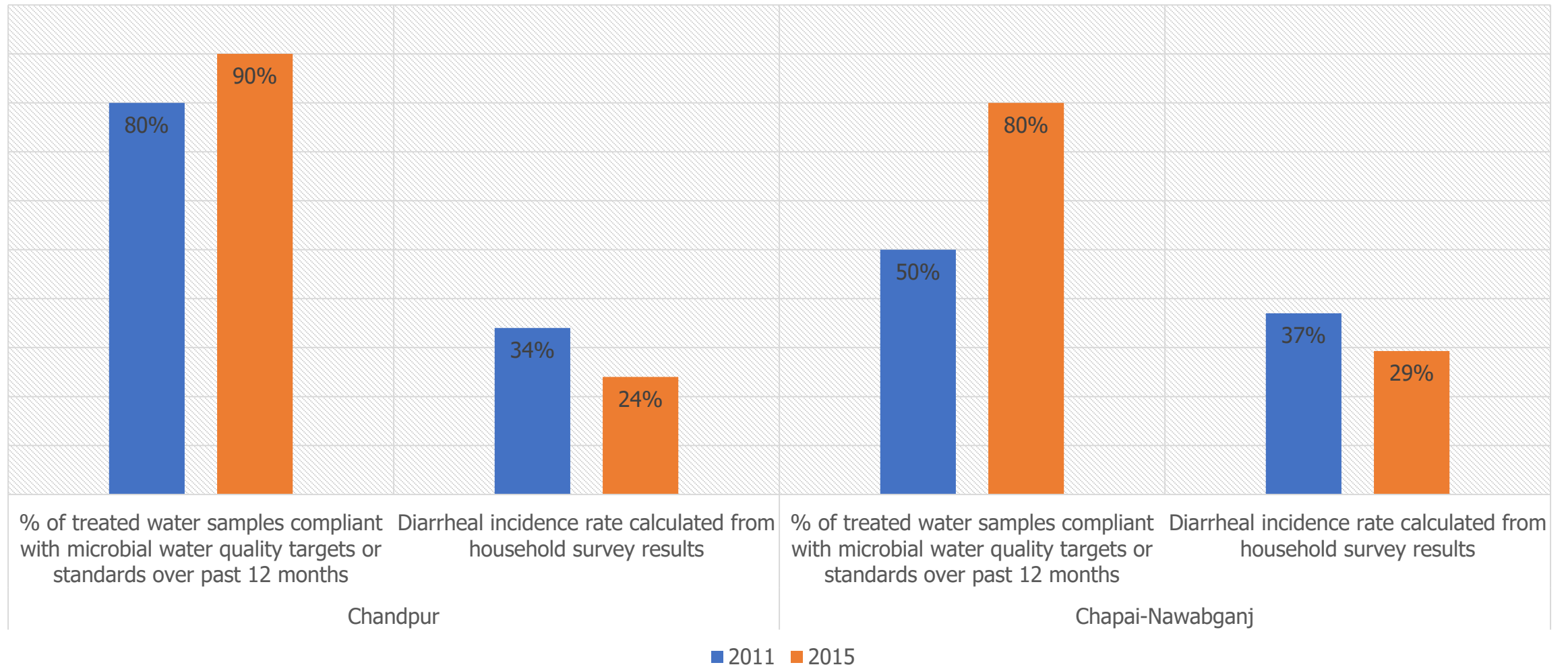
Institutional outcomes



Water supply indicators



Health indicators



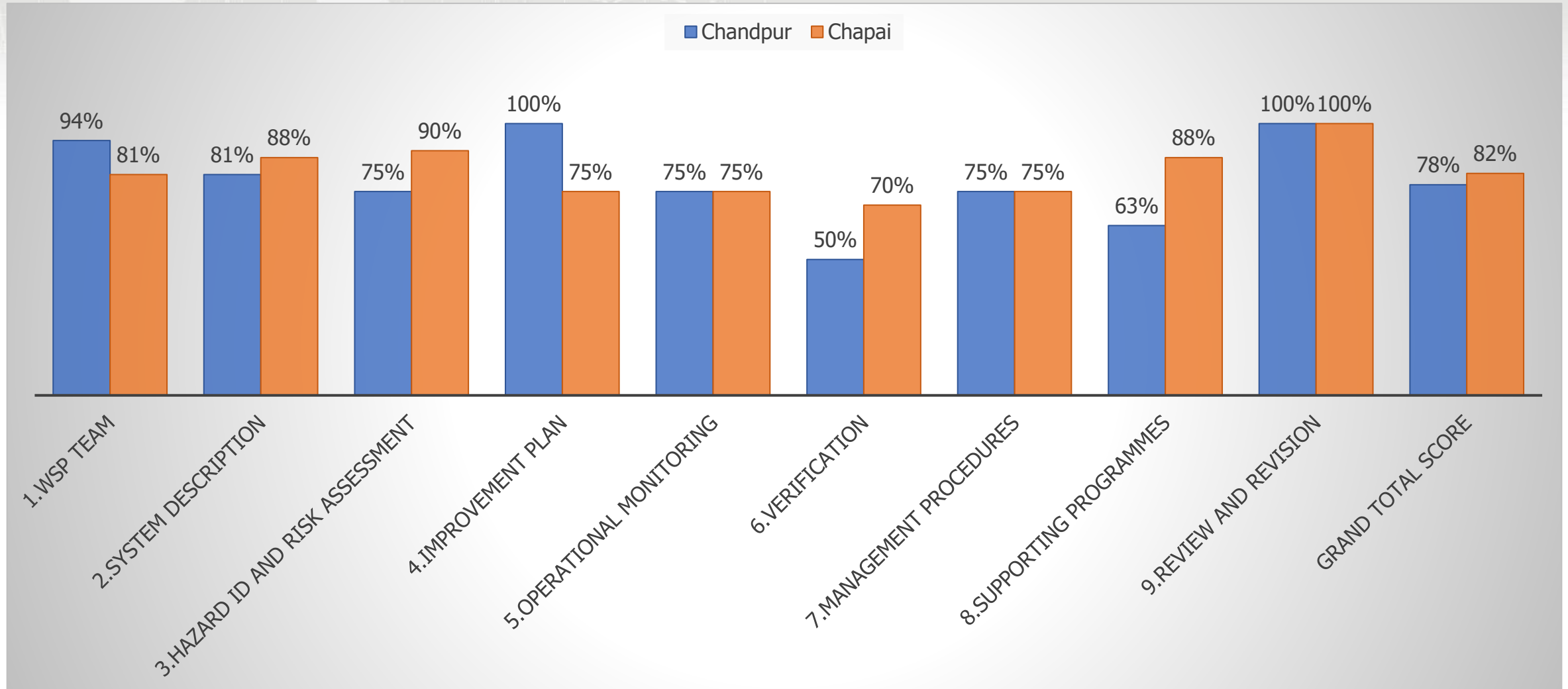
Chandpur

Assessment area / WSP element	Current assessment score	Current Grade
1. WSP TEAM	15	Very good
2. SYSTEM DESCRIPTION	13	Good
3. HAZARD IDENTIFICATION AND RISK ASSESSMENT	15	Average
4. IMPROVEMENT PLAN	12	Excellent
5. OPERATIONAL MONITORING	6	Good
6. VERIFICATION	10	Priority attention needed
7. MANAGEMENT PROCEDURES	9	Average
8. SUPPORTING PROGRAMMES	5	Average
9. REVIEW AND REVISION	8	Excellent
GRAND TOTAL SCORE (Outof 120):	93	Good

Chapai-Nawabganj

Assessment area / WSP element	Current assessment score	Current Grade
1. WSP TEAM	13	Good
2. SYSTEM DESCRIPTION	14	Good
3. HAZARD IDENTIFICATION AND RISK ASSESSMENT	18	Very good
4. IMPROVEMENT PLAN	9	Average
5. OPERATIONAL MONITORING	6	Good
6. VERIFICATION	14	Average
7. MANAGEMENT PROCEDURES	9	Average
8. SUPPORTING PROGRAMMES	7	Very good
9. REVIEW AND REVISION	8	Excellent
GRAND TOTAL SCORE (Outof 120):	98	Good

Audit Score Comparison



Conclusions

- The WSPs has positive impact on all the stages of a water supply systems and the operational procedures get improved due to WSPs.
- The indicator-based impact assessment results assist in improving institutional level outcomes through
 - Increased understanding of the hazards and hazardous events in the systems
 - Preventive management of those by water supply operators
- The impact assessment findings can be further validated by WSP auditing using QA tool
- Regular impact assessment and auditing of WSP is necessary for its growth and long-term sustainability.

Thank You

