Water Safety Plans

Development in Water and Wastewater Companies

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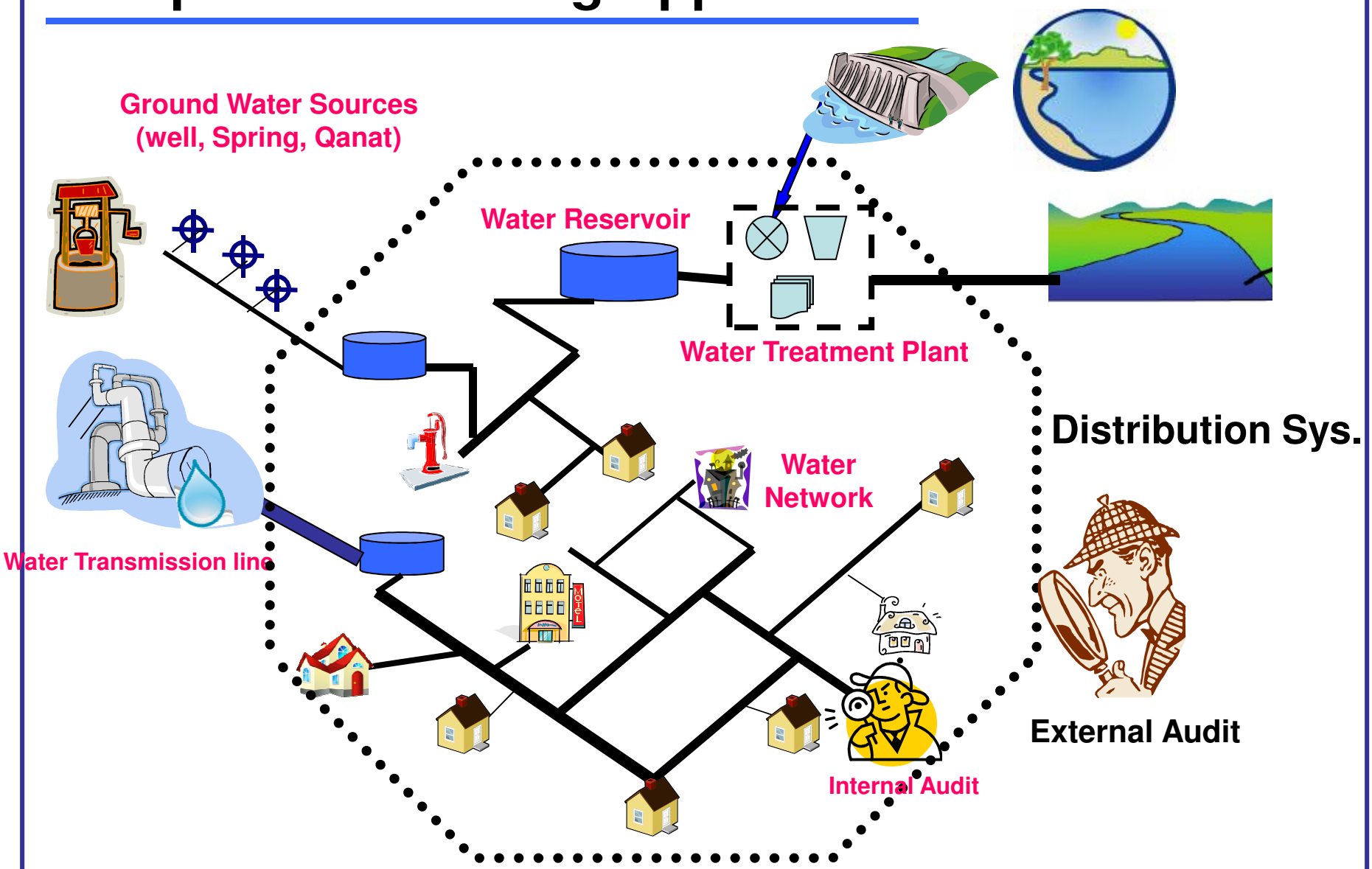
End-point Monitoring Approach



End-point Monitoring Approach

- **Bacteriological test**
  - TTC
  - HPC
  - Turbidity
  - Free Residual Chlorine
- **Physicochemical**
- **Micro pollutant**
  - Heavy Metals
  - Organic materials
  - DBPs
  - Radio Nucleoids
- **Biological**

Monitoring Point

Ground Water
Water Treatment Plant Inlet
Water Treatment Plant Effluent
Water Network
Water Reservoir

End-point Monitoring Approach

Features Of System:

- Retrospective
- Just **Identify** The contamination **Not Prevent**
- Just quality control not quality assurance

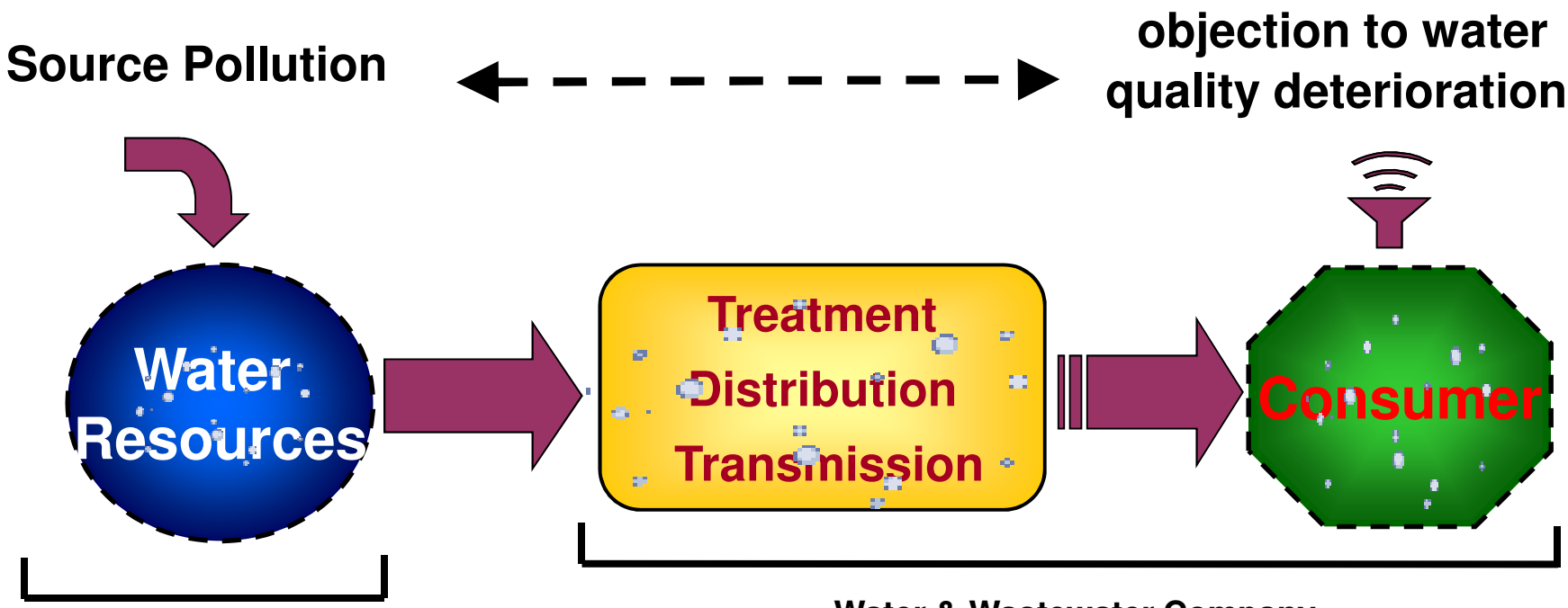
The Most Important Outcome Of This System

Comparison of Drinking Water Quality With Standards & Regulations

Although it is required but not sufficient

Water & Wastewater Co. Responsibility Scope

Separated Management



Management of Water resources organization

Environment protection organization

Ministries of Agriculture, Interior affairs, Oil, Industry,

Water Safety Plan in Brief

Prospective

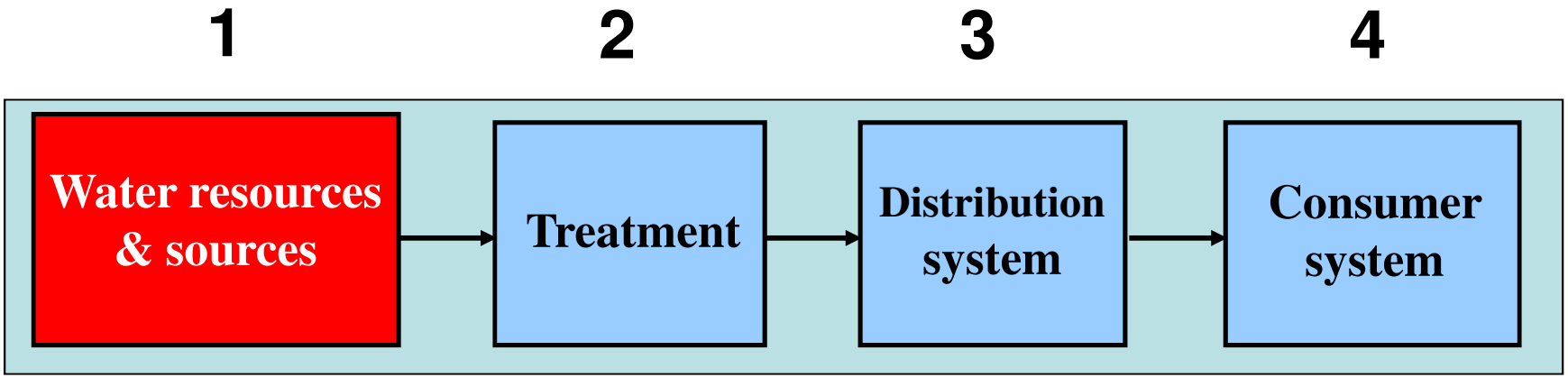
Preventive Approach

Prevention Prior To Treatment

Water Safety Plan in Brief

Integrated Management

The Water Supply Chain is Considered As a Whole



From Catchment To Consumer

WSP Development

First Step:

1. Tabriz

Second Step:

1. Ahwaz
2. Kashan
3. Esfahan

Total: 15 Cites

Third Step:

1. Zahedan
2. Mashhad
3. Gorgan
4. Rasht
5. Saari
6. Bandar abbas
7. Kermanshah
8. Shiraz
9. Tehran
10. Uremia
11. Karaj

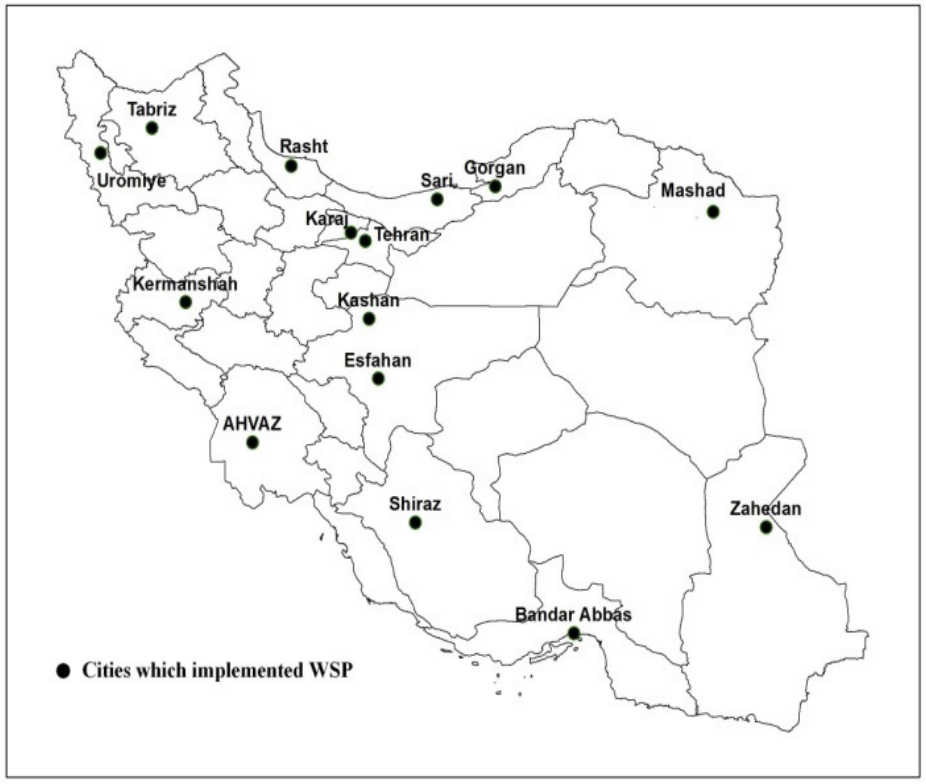


Figure 1: The locations of the cities were selected for implementing WSP

Water Safety Plan in Water & Wastewater Companies

- Cooperation with other involved organizations to consist of national committee team
- Preparing Water Safety Plan Manual Step-by-step risk management for drinking-water suppliers
- Preparing several manuals for guiding sub-companies in supplying safe water
- Set the critical points in water supply chain for testing
- Development water lab instrument
- Development water lab accuracy and precision
- Development water disinfection methods
- Introducing water safety plan for senior managers of water and wastewater companies
- Holding training courses for experts
- Obligating water & wastewater companies to implementation water safety plan in a one city in each province in first step

The number of laboratories in urban and rural water and wastewater companies to June 2015

The number of laboratories in			laboratory
total sum	rural Water and wastewater companies	Urban Water and wastewater companies	
454	**229**	**225**	Microbiology
211	**94**	**117**	Chemical - Physical
53	**2**	**51**	Biology
36	**8**	**28**	Heavy metals and organic materials and toxins
34	**34**	**-**	Mobile
788	**367**	**421**	total

Measurement equipment of heavy metals and organic matter and toxins in urban and rural Water and waste water companies

Measurement equipment, organic matter and toxins				Measurement equipment, heavy metals				Water and waste water companies
Measuring instrument TOC	**GC Mass**	**HPLC**	**GC**	**Inductively Coupled Plasma**	**Polarography**	**Ion Chromatography**	**Atomic Absorption**	
9	**7**	**7**	**11**	**1**	**13**	**7**	**18**	urban
-	**3**	**-**	**2**	**-**	**3**	**2**	**5**	rural
9	**10**	**7**	**13**	**1**	**16**	**9**	**23**	total

Number of urban and rural water and wastewater companies have been certificate of ISO 17025 and occupational health and safety management (OHSAS 18001) by the end of June 2015

The number of occupational health and safety management certificate (OHSAS 18001)	The number of ISO 17025 certification				Water and waste water companies
	total sum	Internal Water and waste water industry	National	internat ional	
182	12	4	3	5	urban
166	3	0	2	1	rural
348	15	4	5	6	total sum

ISO 17025 international certificate, in the four water and wastewater companies is extended.

Prepared manuals for guiding sub-companies in supplying safe water

- **Water Quality Monitoring Manual For Drinking Water Distribution System and Water Reservoir**
- **Water resources Quality Monitoring**
- **Manuals for physicochemical , microbial &biological parameter testing**
- **…**