

Water Safety Plans & National Plans of Action (NPAs), In the context of communities



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Acknowledgement to:
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Outline of Presentation

- WSP
- Introduction of GWI
- Water Safety Plan (WSP) background
- WSP governing principle: quality assurance versus quality control
- Steps in developing WSPs
- Benefits of WSPs
- NPA





GWI'S MISSION AND VISION

- The Mission of Guyana Water Inc. (GWI) is to deliver safe, adequate and affordable water and to ensure safe sewerage systems for improved public health and sustainable economic development.

Vision

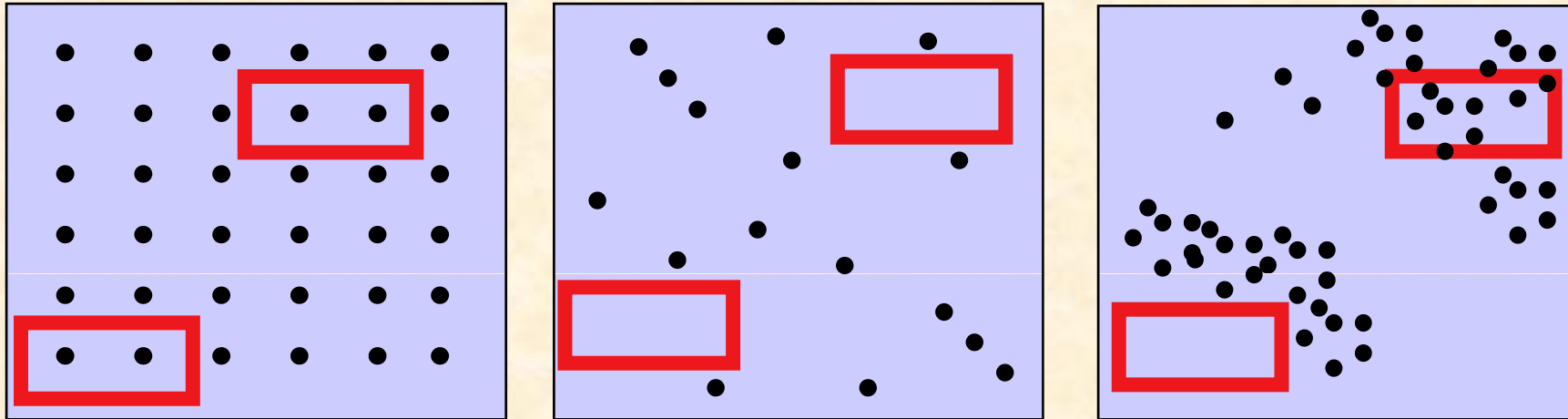
- To ensure an efficient, sustainable and financially viable water and sewerage sector delivering a high quality service to customers.

Water Quality Issues



- A sands characterized by high iron content
- GWI uses surface water in Georgetown, Linden and Bartica
- High colour and TNTC coliforms
- Old infrastructure, leaking distribution systems

GWIs Strategy



- Weakness?
- Sampling – Volume, frequency, number of samples
- Water Quality may vary rapidly and widely
- Time of results

Water Quality Control



Costly

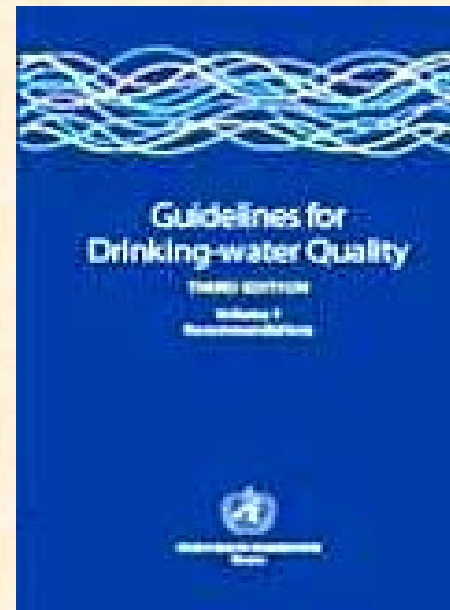
Time consuming



WATER SAFETY PLANS – BACKGROUND

➤ WHO “Guidelines for Drinking Water Quality”

- International standards for drinking water were established
- 1st Edition of “Guidelines” released (1984), providing health-based limits for microbial and chemical contaminants
 - Water Safety Plans were first described in Chapter 4 of 3rd Edition of “Guidelines” (2003). Intended to provide a systematic water safety approach



Water Safety Plans – Basic Principle

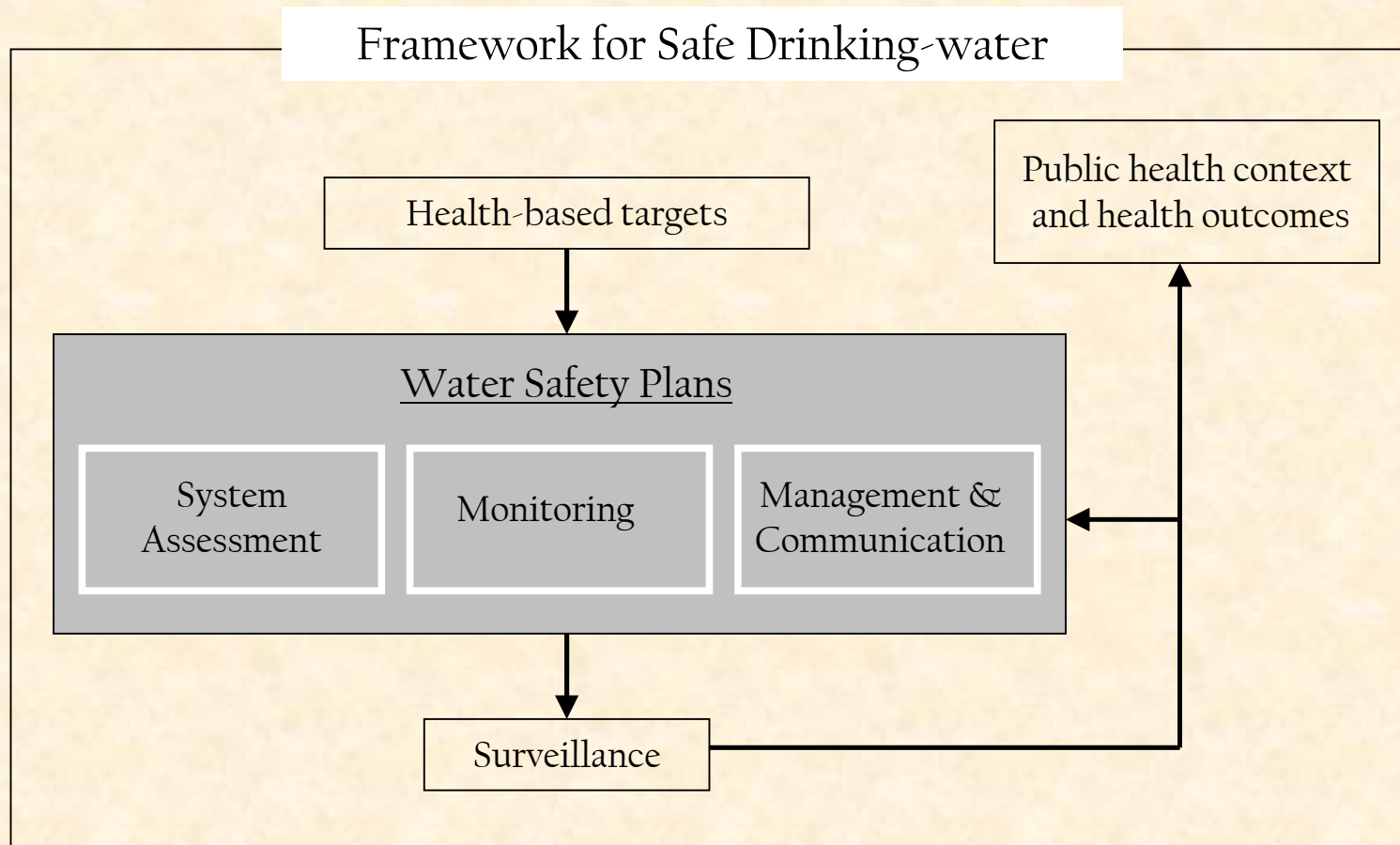
- The WHO developed the WSP approach to drinking-water safety to reflect a growing recognition that a holistic (catchment to consumer) and preventive approach to water safety is critical to ensuring a consistently safe supply.
- The limitations of the "old model" that relies on end-product testing alone are considerable.

WHAT HAPPENS IF THERE ARE NO PREVENTION MEASURES?

1993 Waterborne *Cryptosporidium* Outbreak, Milwaukee, Wisconsin

- **Cause:** Contaminated public water due to ineffective filtration in two municipal water treatment plants
- **Number of infected people:** ~403,000 residents of Milwaukee
- **Health Impact:** Approximately 69 deaths, primarily patients with HIV
- **Cost:** Estimated at \$96 million including \$31.7 million in medical care and \$64.6 million in productivity losses

WSP Framework



Three key components



1. System Assessment

- Describe the complete water supply system (catchment to consumer); identify and prioritize threats to water quality; develop improvement plans to address high-priority threats.

2. Monitoring

- Develop detailed verification monitoring plans to ensure water quality compliance and control measure monitoring plans to ensure effective control measure operation.

3. Management & Communication

- Define procedures to be undertaken in normal and incident conditions (e.g. SOPs & emergency response plans) and supporting programs (e.g. operator training) to ensure safe drinking water provision.

WSP – Steps (1 – 5)

Assemble the team to prepare the WSP



Thoroughly describe the water supply system (catchment to consumer)



Identify threats to water quality along the water supply chain



Identify control measures and assess and prioritize risks



Develop, implement and maintain an improvement/upgrade plan

WSP – Steps (6 - 10)

Develop a control measure monitoring plan to ensure their efficacy



Develop a plan to verify WSP effectiveness (compliance monitoring & WSP auditing)



Define procedures for routine and incident operation (e.g. SOPs & emergency response)



Develop programs that indirectly support water safety (e.g. training & calibration)



Develop plans to review and revise WSP periodically and following any incident



A customized approach

Every WSP is unique,
and is developed in the context of
specific system needs and
priorities, environmental
conditions,
health concerns, setting
(urban/rural), and available
resources.

EXAMPLES



- WSP – VICOSA, BRAZIL - Goal is to perform WSP for university campus system and for greater community of Vicosa, while training university students in water system management
- WSP – TARIJA, BOLIVIA -Initiated due to community concerns about pesticide contamination
- WSP – SPANISH TOWN, JAMAICA-Concerns about diarrheal disease due to poor drinking water quality

WSP - BENEFITS

- Main objective is to improve health by increasing access to safe drinking water
- Additional benefits:
 - Increase coverage and supply
 - Increase user satisfaction and quality of life
 - Increase efficiency of water utility co. → economic benefits
 - Improved stakeholder collaboration





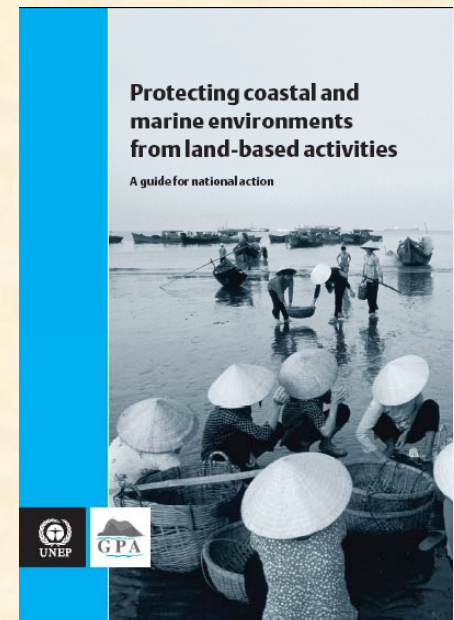
WSP-SUMMARY

“From Catchment to Consumer”

- **Source waters and the watershed** — sources of pollution and their impact
- **Treatment processes** — their efficacy in producing safe water
- **Distribution system** — infrastructure and what risks are present
- **Household user practices** — collection, storage, and handling

Background to the GPA and NPA

- The **Global Programme of Action** for the Protection of the Marine Environment from Land-Based Activities is the only intergovernmental programme that addresses the inter-linkages between freshwater and the coastal environment
- UNEP - leads the coordination effort; established a GPA Coordination Office
- Guidebook
 - Used as the design framework
 - http://www.gpa.unep.org/documents/2006_npa_handbook_for_english.pdf



GPA at the national level

- comprehensive yet flexible framework
- Assisting countries in fulfilling their duty to preserve and protect the marine environment



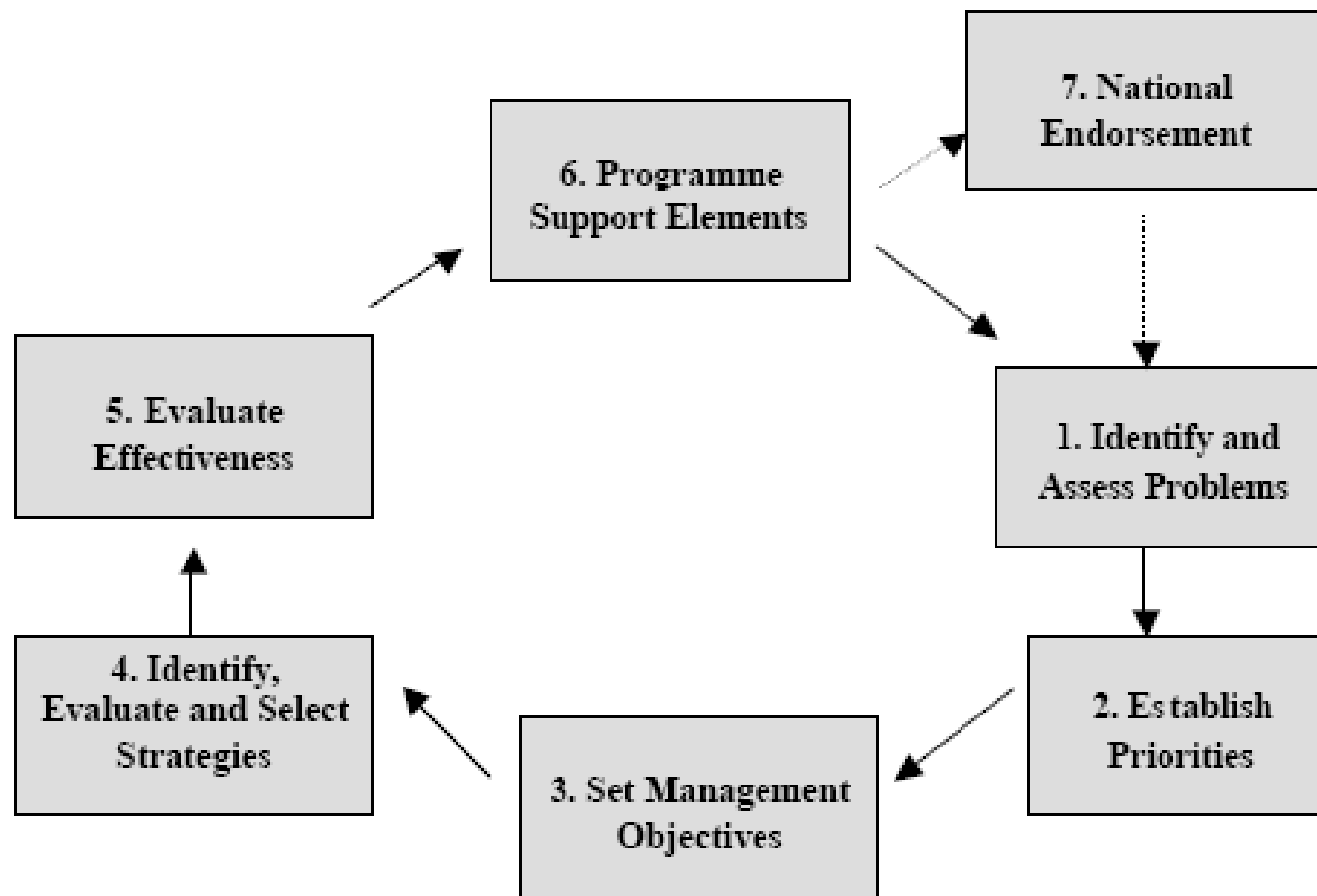
National Programme of Action

A national programme of action is a dynamic short, medium and long-term agenda for marine protection involving strategic planning, the implementation of concrete, targeted and costed projects, and periodic evaluation to improve performance



NPA cycle

The National Programme of Action Cycle



Relationship – IWRM, NPA, WSP

Millennium Development Goals (MDGs)

Access to Water, Access to Sanitation, IWRM

Integrated Water Resources Management (IWRM)

Overall enhancement in condition/accessibility of national water resources

Improvement in Human and ecosystem health/quality of life

National scope – fresh and coastal waters

National Plan of Action (NPA)

Control of LBS of Pollution into environment

Risk reduction at **watershed/river basin scale**



Water Safety Plan (WSP)

Delivery of safe water

Risk reduction at **catchment/aquifer scale**
(water supply sources);
distribution system



WSP/NPA in context of St. Cutbert's Mission

- Replicate the NPA process in the Mahaica Watershed (empties into the ocean);
- Upscale to entire watershed-other watersheds;
 - Linden NPA – links to Guyana Programme of Action
- WSP – useful to identify risks to safe water for residents –catchment to consumer
- WSP/NPA link – sources of pollution to catchment, agricultural practices and use of chemicals

Thank You

