STRATEGIA NETHERLANDS

POSTGRADUATE DIPLOMA IN WATER, SANITATION & HYGIENE (WASH)

ASSIGNMENT FOR MODULE 4 (WATER SAFETY & DISTRIBUTION)

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ASSIGNMENT CONTENTS

(MY ANSWERS TO ALL QUESTIONS)

1. List and briefly describe the measures by which the success or otherwise of a public–private partnership providing water supply services can be assessed.

A Public Private Partnership (PPP) arrangement refers to cooperation between the public and private sectors in providing public services. The functioning principles of private enterprise are in cooperation in public administration with a view to improving the quality and efficiency of public service delivery (Tochitskaya, 2007).

The measures to assess the success or failure of PPP in water sectors should focus on the assessment of the achievement of the PPP objectives. Therefore, we have external outcomes of PPP and internal outcomes of PPP to assess.

Externally to the PPP, the below outcomes may show the success or failure of water supply services in term of quality of service delivery to consumers.

- **The quality of water**. It can be measured in terms of physical, bacteriological and chemical characteristics of water.
- **Affordability of water**. It can be measured in terms of cost of water and the consumers' ability to pay.
- **The accessibility to water**. It can be measured using the distance from the water point, and the type of connectivity to water points.

Internally to the PPP, the below outcomes may show the success or failure of water supply project in term of quality of partnership.

- **Improvement of service delivery**
- **Improvement of financial performance,**
- **Development of a long-term investment plan**
- **Further enhance efficiency**

2. Give six possible causes of water emergencies, three due to natural causes and three due to humans.

A **water emergency** is an event that disrupts the normal supply of water. It can occur due to natural causes, when there is damage to the major infrastructure of the treatment plant, water storage or water distribution system due to natural phenomena, or it might be due to human causes of water emergencies due to accident and neglect as well as deliberate act of terrorism.

- **Natural causes**

  - **Droughts** occurs when there is a deficiency in precipitation over an extended period of time, resulting in a water shortage. The lack of rain means that the water flow in rivers is reduced, lakes and pools shrink in size or may dry up, groundwater and soil moisture are depleted, and crops are damaged. Prolonged drought can lead to a major national and regional food insecurity crisis.

- **Earthquakes** can cause serious damage to infrastructure on and in the ground. Pipes and treatment plants will be destroyed by a high-magnitude earthquake and the communication systems (such as road and rail networks) often become non-functional, making the delivery of emergency water supplies difficult. Destruction during an earthquake can also cause chemical spillage at manufacturing plants and warehouses, which can lead to widespread chemical contamination of drinking water.
- **Flooding** is an abnormal rise in the water level and may result in overflowing of streams or rivers. Flood waters can destroy infrastructure, including water supply systems, houses and roads as well as agricultural crops, which ultimately causes a shortage of food supplies in the country.

➢ **Human causes**

- **Accidental contamination of the water supply**
- **Microbial contamination of water sources due to human mismanagement**
- **Deliberate poisoning of the water supply as an act of terrorism**.

3. What are the options for safe water supply during a water emergency

The possible options for safe water supply during a water emergency are:

➢ **Delivery of water to consumers by water tanker and/or bottles**
➢ **Treatment of the water at the household to render it safe (e.g. by boiling).**

4. You are about to set off to conduct a sanitary inspection of an abstraction point at a river.

(a) What would you take with you?

For carrying out the sanitary inspection, **I need the inspection form** which should include at least a checklist of the components of the water supply from source to distribution and incorporate all the potential points where hazards may be introduced. Any problems identified during the inspection should be highlighted so that a report may be provided directly to the community and copies forwarded to both supply agency and health authority.

(b) Explain four things you will be looking for during your inspection.

While carrying out sanitary inspections for water supply system, we need to focus on four things below:

1) **The water sources**
2) **The water treatment process**
3) **The water storage and distribution system**
4) **The sanitary condition at household**

By doing so, I will identify potential sources of contamination which may threaten water quality at the source, point of abstraction, treatment process, or distribution system, etc. and quantifying the hazard (hazard score) attributable to the sources and supply, in order to provide clear guidance as well as the remedial action required to protect and improve the water supply.

4. Explain briefly why a Water Safety Plan is necessary

Water Safety Plan is an improved risk management tool designed to ensure the safety of drinking water through the use of a comprehensive risk assessment and risk management approach that encompasses all steps in water supply from catchment to consumer.

Water Safety Plan (WSP) is necessary, because it's an effective way of ensuring that a water supply is safe for human consumption and that it meets the health based standards and other regulatory requirements. It is based on a comprehensive risk assessment and risk management approach to all the steps in a water supply chain from catchment to consumer.

Therefore, the WSP enables:

- Water Supply system managers to be able to understand their system and the risks that must be managed.
- Water system operators to identify and control risks rather than just analyzing them
- Team work, planning, coordination and documentation
- Reliance on actual field sanitary inspection rather than relying just on water quality testing at laboratory

5. Distinguish between the two types of maintenance at a water utility and give reasons why one of them is Better

Maintenance refers to planned technical activities or activities carried out in response to a breakdown, to ensure that assets are functioning effectively, and requires skills, tools and spare parts (Carter, 2009).

There are two types of maintenance: corrective or breakdown maintenance and preventive maintenance

- **Corrective or breakdown maintenance**: this is carried out when components fail and stop working. Breakdown is common in many water utilities and occurs as a result of poor preventive maintenance.

- **Preventive maintenance**: this is a regular, planned activity that takes place so that breakdowns are avoided. Examples of preventive maintenance would include servicing of equipment, inspecting equipment for wear and tear and replacing as necessary, cleaning and greasing moving parts of equipment, and replacing items that have a limited lifespan. **Preventive maintenance is better and important because it ensures that the asset fulfils its service life. It also prevents crises occurring and costly repairs (in terms of time and money) being needed.**

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