COURSE CODE: PGD002

**COURSE NAME: POST GRADUATE DIPLOMA IN WATER HYGIENE AND SANITATION WASH Monthly**

Assignment 4

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Assignments

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.

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

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

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

1. What would you take with you?
2. Explain four things you will be looking for during your inspection.

4. Explain briefly why a Water Safety Plan is necessary

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

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.

PPP water provision service success is first and foremost dependent on the level of water exposure of the customers. That is how close the water source is for customer. As noted in Module 4, if the water source is more than 30 minutes of walking distance, the customer is less likely to use the source. This leads to another success indicator, which is - the cost recovery. If the PPP projects were inefficiently collecting revenue, this would lead to costs outweighing the benefits, thus, marking the failure of the project, rendering PPP unsuccessful. Another success measure tied to revenue in PPP projects is whether the customers can actually pay for the product. If the water costs are more than 5% of the household income (Module 4), then, it is less likely that the PPP project be successful.

Other success measures of the PPPs are tied to water quality and operational efficiency. If the water quality does not adhere to the national standards, then, it is more likely than not that, the water users get health problems. This could be very costly for the government and outweigh the benefits the PPP provides.

In terms of operational efficiency, the water supply is ought to be a 24/7 service. Water distruptions cause infrastructural problems (Module 4, GWP 2018) apart from sanitary and hygene problems that could spur within the water users.

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

**Natural Causes**

1. Drought – Caused by decreased precipitation, where water shortage occurs due to low debits in rivers, lakes, pools etc. It leads to numerous risk factors from water borne diseases to mal nutrition.
2. Floods – Unlike droughts, floods are due to abnormal increases in water level that can be due to rises in precipitation for example. However, the end results are similar to droughts, as the overflow of water can cause water contamination, disruptions in agricultural practices leading to food shortages, etc.
3. Earthquakes – Damage water delivery mechanisms that cause water disruptions. In addition, they can cause spillages of toxic chemicals leading to water contamination.

**Anthropogenic Causes**

1. Accidents – where professional workers at the water treatment plants or water sources accidentally perform actions that render water un - exploitable for humans.
2. Neglect – Often times tied to low awareness, overconsumption of water resources causing depletion. It could also be tied to the game theory – if your neighbour is using a certain amount of water, then you will use more. If there are no community based mechanisms working on the field to prevent such exploitation of resources, it could lead to major disasters as described in Module 4, where the Harar citizens suffered the consequences of water resource depletion.
3. Terrorism – Deliberate acts of water poisoning

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

If the water treatment plants are out of order during the emergency, then the distribution of bottled water is necessary. In addition, the population should undergo trainings on how to filter water themselves through cheap technological appliances such as, cloth filtration, ceramic filtration, etc.

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

What would you take with you?   
A sanitary inspection is a way for identifying risks and hazards in water supply.

* Water Samplers
* Water source inventory at the location

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

* + - 1. Fence that keeps the animals away, as they are the source of pollution
      2. Is there a deforestation in the proximity of the abstraction point? Deforestation causes mudflows that contaminates the water
      3. How effective are the water treatment devices?
      4. The human agricultural activities upstream that could be possibly contaminating the water source downstream.

4. Explain briefly why a Water Safety Plan is necessary

Water Safety Plan is essentially a risk assessment document that helps the stakeholders identify where a possible water hazard may occur (Module 4). Depending on the possible risks identified, it scopes response plans and control measures to tackle the possible disasters. The document outlines a monitoring plan on the respective area. The document maps out the water system plan that is essential for any intervention (ibid).

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

*Preventive Maintenance* – It is a planned maintenance procedure on an equipment which is to prevent the machine from failing. It comprises reoccurring costs only that requires a range of payables, from staff to replicable parts.

*Breakdown maintenance* – Breakdown maintenance occurs when the equipment is no longer exploitable. The maintenance can be still planned (run to failure maintenance).

Preventive vs Breakdown maintenances – Preventive maintenance can be regarded as superior, due to the fact that it can be cheaper than carrying out breakdown maintenance. In addition, when the equipment fails, there can be disruptions in supply or service, which, in case of water supply, can produce dire sanitary results.

References:

Georgian Water and Power, 2018

WASH Module 4