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Preface

Sri Lanka is one of the focus countries in South Asia identified by the Regional Emergency Coordination Advisor project, facilitated by Global WASH Cluster. The RECA project, funded by European Commission Humanitarian Office (ECHO)[1], was based on preceding in-depth analysis and evaluation of the WASH cluster performance, and on the resulting Global WASH Cluster strategy 2011-2015 which identified the need to 'strengthen WASH coordination mechanisms at country level to respond effectively to humanitarian crises with predictable leadership, accountability, and collaborative partnership'.

Following upon the recommendations made in the RECA Baseline Survey Report (2012) the RECA project and UNICEF Sri Lanka supported the Ministry of Water Supply and Drainage (MWSD) for organizing a training on WASH Vulnerability Assessment in November 2012. The course outputs resulted in draft WASH Vulnerability Assessment questionnaires, focusing on three major natural hazard events faced by the country viz; Droughts Floods and Landslides.

Given the diversity in processes for assessing needs and vulnerabilities in country, it was decided that the draft questionnaires need to be further refined and contextualized to the country specific WASH situation. The issue of contextualized tool-kit was discussed by UNICEF Sri Lanka in the National Water Sanitation Coordination Meeting in June 2013. The Secretary, MWSD agreed upon the need and suggested to incorporate the views of the district level government WASH staff, involved in WASH response during emergencies. It was decided the focus would be on recurrent hazards like Drought, Flooding and Landslide while also covering the concurrent issues like Chronic Kidney Diseases.

Objectives

- Design a comprehensive toolkit for conducting community-based WASH vulnerability and needs assessment before and after a disaster.
- Establish a stakeholder-wide understanding and agreement on the design including uniformity of the toolkit.

A toolkit comprising the questionnaires, checklists, indicators alongwith the guidelines for the participatory approach would provide the humanitarian community with a uniform approach for WASH needs and vulnerability assessment.

Process

SEVA Lanka Foundation was identified as the partner agency by the RECA project and UNCIEF to work in collaboration with the MWSD officials in developing the toolkit. Work was initiated in January 2014 with visits undertaken to vulnerable areas like Batticaloa, Vavuniya, Nuwara Eliya and Anuradhapura. Focused group discussions, key informant interviews were organized to ascertain the status and derive the assessment process. Seva Lanka also field-tested the toolkit through its staff and their feedback was obtained in making the document more user-friendly.

The draft toolkit was then presented to the National Water Sanitation Coordination Meeting in November 2014 for their feedback. This toolkit has now been translated into Sinhala and Tamil and is ready to be shared with the wider WASH audience in the country.

This toolkit has been a result of collaborative endeavor between the Government (MWSD), UNICEF and NGO partner (Seva Lanka) with support from the RECA project of the Global WASH Cluster. It will initiate a uniformity in approach and process for assessing humanitarian WASH needs and vulnerabilities enabling appropriate responses in a timely manner, under the leadership of Ministry of Water Supply and Drainage in country.

[1] In Sri Lanka, ECHO's assistance for emergency relief during conflict and natural disasters focused on the sectors of shelter, non-food relief items, water and sanitation etc. with an emphasis on capacity building and coordination.

Contents

Key terms and definitions

Disaster	A serious disruption of the functioning of a community causing widespread human, material or environmental losses which exceed the ability of the affected community to cope using its own resources
Hazard	Phenomenon or situation, which has the potential to cause disruption or damage to people, their property, services and environment / there is a potential for an event to occur
Vulnerability	The conditions determined by physical, social, economic, and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards
Capacity	Positive condition or abilities which increase a community's ability to deal with hazards
Risk	The probability that a community's structure or geographic area is to be damaged by the impact of a particular hazard
Relief	Measures required in search and rescue of survivors to meet the basic needs for shelter, water, food and health care
Mitigation	Measures taken prior to the impact of a disaster to minimize its effects (sometimes referred to as structural and non-structural measures)
Preparedness	Measures taken in anticipation of a disaster to ensure that appropriate and effective actions are taken in the aftermath
Hygiene Promotion	Systematic attempt to enable people to take action to prevent water and sanitation related disease and to maximize the benefits of improved water and sanitation facilities
Assessment	A structured process of collecting and analyzing data to measure the impact of the crisis, and provide an understanding of the situation and any related threats, in order to determine whether a response is required and, if so, the nature of that response. An assessment is a time-bound exercise that produces a report and recommendations to inform decision-making at a particular point in time

Sources: WASH Cluster Coordination Handbook, 2009 & Asian Disaster Preparedness Centre (ADPC)

Abbreviations

CWS	Community Water Supply
DMC	Disaster Management Centre
HH	Household
HVC	Hazard, Vulnerability and Capacity
MoH	Ministry of Health
NAVA	Needs And Vulnerability Assessment
NWSDB	National Water Supply and Drainage Board
RWHT	Rain Water Harvesting Tank
WASH	Water, Sanitation and Hygiene

1. Introduction

Sri Lanka is experiencing multiple natural disasters with severe impacts over the past years affecting human lives, disturbing human settlements and damaging properties. The most frequently occurring natural hazards of Sri Lanka are the floods and droughts. Apart from this Sri Lanka is also prone to other hazards such as coastal erosion, landslides, cyclones and tsunami (DMC, 2012).

WASH Vulnerability and Needs Assessment tools, formats and checklists – consisting indicators, methodology and guidelines, has been divided into 4 sub categories.

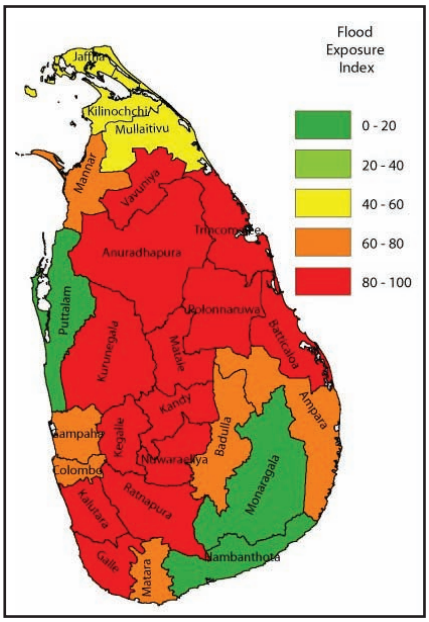
1. Water supply (Access, Quality and Quantity):
2. Sanitation (Excreta disposal)
3. Waste control and management (Drainage, Vector Control & Solid Waste Management)
4. Hygiene practices/promotion

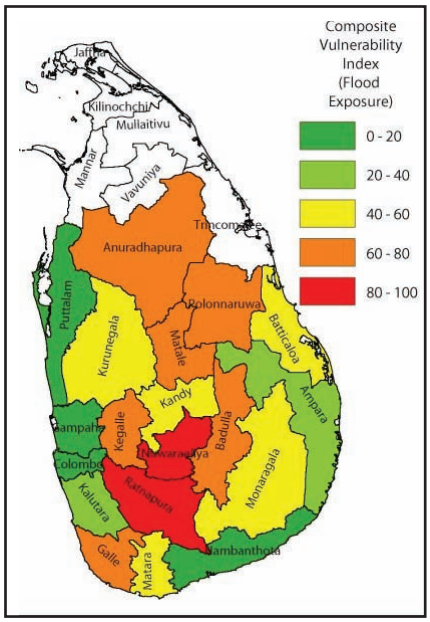
Actions in the pre and post disaster response are guided by set of principles. One of the key sets of principles for agencies working in the disaster response is contained in the Sphere Project Humanitarian Charter and Minimum Standards in Disaster Response (2012). These principles are mainly derived from the legal instruments and reflect rights based approach of the population that the WASH stakeholders serve.

Flood

In Sri Lanka, in general flood is frequent, i.e. annual during the excessive rain in North-East and South-West monsoon seasons. However the impact of the floods during this annual monsoon season is not consistent. Most of the time, it leads to temporary short-term displacement of the most vulnerable people and no-displacement in less vulnerable areas. Therefore the analysis focuses mainly on these two scenarios of displacement for the post-disaster intervention. In this study, other two scenarios - medium term and long-term displacement have not been included as the cases in the past for them were very minimal.

Two maps below shows the flood exposure index and composite vulnerability index based on districts in Sri Lanka.





2. Context and Framework

Floods are quick onset events that occur as a result of excessive rainfall, abnormal increases in ocean level (e.g. tsunamis), storm surges, and rivers or a combination of these phenomena. The effects of floods are often reinforced by poorly designed flood control measures, deforestation of watersheds, or dams constructed for electricity production. The negative impacts of floods may be greater when early warning systems fail or have not been installed. Floods can have the following impacts depending on their force on WASH facilities:

- Water and Sanitation infrastructure can be physically damaged (strong floods);
- Water supplies can be contaminated (either through increases in salinity levels in the case of sea water intrusion, or by organic material and debris carried in a flood);
- People can be temporarily displaced by standing water, usually to nearby areas.

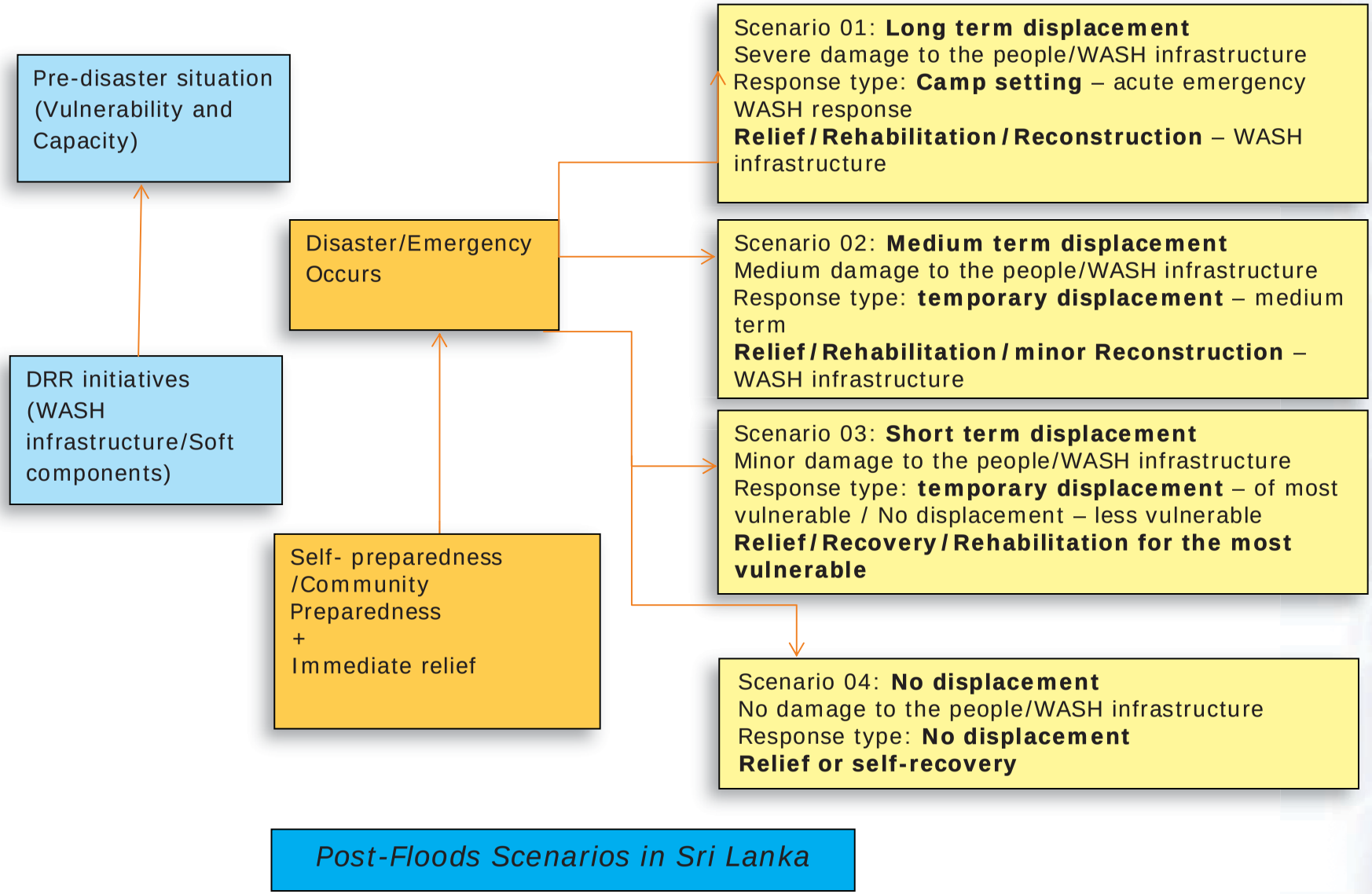
Sri Lanka is an island with a unique orographic region which acts as the hub for the radially flowing river system. There are 103 drainage basin 80% of this would not have water go dry every year and river basins with over 800 square km are considered as resourceful basins. Sri Lanka's south west region receive the highest annual rainfall rain fall in the three climatic regions, where the highest intensity is in Kalu Ganga basin with an isohyets of nearly 6000mm. Sri Lanka's most susceptible region for floods are in Kalu Ganga basin, Ratnapura district suffers due to floods almost annually.

In Sri Lanka, floods are the more common natural disaster. Trend analysis of floods in Sri Lanka from 1990 to 2011 reveals that the frequency of floods has been increasing, particularly since 2003. In Sri Lanka only few areas can be called flood-free and most of the flood prone areas tend to be in high rainfall areas, of low elevation and close to a stream, reservoir or sea. According to the Desinventar database in Disaster Management Centre, floods events in Sri Lanka shows that the highest number of flood events reported from the high rainfall areas; Ratnapura and Kalutara districts (See flood hazard map of Sri Lanka below, Source: Hazard profiles of Sri Lanka, DMC,2012).

Although the occurrences of floods in some districts are not the highest, high vulnerability of people made the floods more devastating, such as the recent flood in 2011 in Batticaloa district was the worst flood since 1950s.
Floods in Sri Lanka can be categorized in the following ways. They are Riverine floods, flash floods and localized floods. (See flood hazard map of Sri Lanka below, Source: Hazard profiles of Sri Lanka, DMC,2012).

Safe drinking-water is defined by the World Health Organization as water that 'does not represent any significant risk to health over a lifetime of consumption, including different sensitivities that may occur between life stages. In the meantime, the national policy document of Sri Lanka on drinking water (2009) states that the water suitable for drinking from any source whether it is from dug well, tube well, rain water or pipe borne water *(protected and/ or treated)* is considered as safe drinking water. The same policy document articulates the roles and responsibilities of different government entities involved in providing safe drinking water to communities. Under the Government of Sri Lanka, Ministry of Water Supply, National Water Supply and Drainage Board at national level and local authorities at province (Provincial Council), Municipal/Urban and Pradesya Sabah at the sub level have responsibilities to ensure the access to safe drinking water to its population. This policy also states the need for institutional arrangements for disaster preparedness and response activities.

WASH indicator development phases (Pre and post disaster scenarios for Flood):



3. Pre disaster vulnerability assessment (WASH Indicators)

In flood prone areas, pre-disaster vulnerability situation needs to be mapped out, based on the past experience of people who experienced flood as well as secondary data available about past flood.

Mapping of Temporary / Transitional Displacement Centres (TDC):

In general pre-disaster risk map for flood could be prepared using Hazard, Vulnerability/Capacity maps (HVC map). Supplementary to the flood HVC maps, it is also important to identify the evacuation centres as well as flood free areas where people and livestock can temporarily be moved to when households are flooded.

As Temporary Displacement Centres (TDC) are the key locations where the people will temporarily be accommodated until the flood water recedes from their households, it is important to prepare contingency planning for all possible TDS. This includes capacity of the TDC, available water supplying capacity, available water, and sanitation facilities needs to be mapped in resource map. (See Annex 2 for sample resource map, where community can map the TDC identified as part of evacuation places during a flood scenario)

- Access to the available water sources (from the location of TDC) (See Guidance Note 1 for different types of access indicators). A mobility map can be drawn for the distance from TDCs in a community for available and accessible (during floods) water sources.

- Available water sources in the community and also at TDC (See Guidance Note 2 for possible water sources).Quantity/yield of water from the available water sources at TDC and from the possible sources at the event of flood needs to be estimated.

- Quality of water at source can be verified at TDC using the relevant technical tests with the help of experts such as Public Health Inspectors at MoH offices or water quality experts at the NWSDB (See Guidance Note 3 and Annex 1& 3 for the format).

- Sanitation facilities at the TDC should also be included in the resource maps (See Guidance Note 6).

- Available drainage facilities at TDC need to be studied and no substantial presence of water should be ensured during the flooding time.

It is important to emphasize community resiliency strategies to flood. Based on the flood risk mapping, study of the coping mechanisms of communities for flood should be part of this exercise. They need to be identified and analyzed with the community (in Focus Group Discussions). This should lead to identify strategies and means to enhance the coping mechanisms.

Access to Temporary Displacement Centres:

If the baseline situation at TDC is characterized by dysfunctional water supply, sanitation and hygiene, the risks and impacts in a disaster situation are going to be much higher. For WASH investments to be more resilient it is necessary to identify the functionality of the WASH infrastructure at the preparedness stage and actions need to be taken.

Access to TDC for the communities during floods and also for supply services need to be mapped out and alternative routes also need to be considered in case of the proposed route is cut off due to flood.

4. Post disaster needs assessment

The most vulnerable groups (infants, children, elders, women with special needs etc.) needs to be taken care with special attention. Main concerns for them are the health risk due to poor environment (lack of proper water and sanitation facilities) at TDC, where they have access to their special needs. Immediate post flood assistance needs to prioritize this group.

Health issues are also important in flood situations. Some of the key health risks are; Increased risk of **water-borne diseases**, such as typhoid fever, cholera, leptospirosis, and Hepatitis A. However, the risk is generally low unless there is significant population displacement and/or water sources are compromised. The risk can be minimised through the provision of clean and chlorinated water and the use of safe water sources for drinking. Power cuts related to floods may disrupt water treatment and supply. In the case of short term displacement to TDC, it is important to introduce a health risk watch system to continuously monitor the risk of deterioration of water-borne diseases.

- Increased risk of **excreta-related diseases** such as diarrhoea, especially where sewage systems or latrines have been disrupted and people have no possibilities to practice safe excreta disposal. At TDC, safe excreta-disposal is the key for avoiding risk of deterioration of health conditions. Proper planning at the pre-disaster stage of TDC excreta disposal locations (toilets and places for temporary toilets) and water availability for sanitation should be part of the contingency plan.
- Increases in **vector-borne diseases**, such as malaria, dengue and dengue haemorrhagic fever, yellow fever, and West Nile Fever, through the expansion in the number and range of vector habitats. Standing water caused by floods can act as breeding sites for mosquitoes. The risk of outbreaks is increased by changes in human behaviour (increased exposure to mosquitoes while sleeping outside, interruptions to disease control measures, overcrowding). All possible ways to mitigate vector breeding locations should be ensured at TDC.
- Pollution of water sources are one of the key issues during the flood. In the pre-flood situation all possible measures should be taken to mitigate or prevent the pollution of water sources.

5. Indicators

1. Water supply (See guidance notes 1-5):

- **Identification of appropriate water sources:** Referring back to the pre-vulnerability mapping to identify alternative water sources and also to refer the contingency plan at the divisional or district level to find out a mechanism to ensure that the community is supplied with safe and sufficient quantity of water for minimum survival need.

- **Prioritize the affected population based on the pre-disaster vulnerability analysis**: Most vulnerable groups need to be identified and the access (with appropriate quantity) to water for their basic survival needs as well as for their special needs to be met.

- **Access to water collection and storage facilities:** Affected families have water collection and storage facilities to collect and store water enough for the period until the next distribution or collection.

    - Maximum distance from the TDC to the nearest water collection point is 500 meters.

    - Queueing time at a water source is no more than 30 minutes.

- **Communal washing and bathing facilities are made available at TDC:** Affected population needs water and space for bathing purposes at TDC. If this is not available at TDC, temporary communal washing and bathing facilities need to be set up. The location should be central and accessible equitably to all families at TDC.

- **Wastage of water is minimized at all communal water sources at TDC and also in health centres:** A proper mechanism and regular awareness programmes are arranged to minimize the water wastage at communal water sources.

- **Risk of health hazards is minimized**: Particularly for children at TDC. All measures should be taken also in the schools and at the health centres to minimize the health hazards.

- **Monitoring of the deterioration of water availability:** This should be carried out to avoid adverse effects and planning should be adapted to the changing situation.

- **Well cleaning:** Well cleaning should be started once the water has receded and well water needs to be purified.

2. Sanitation (See guidance note 6-7):

- **Adequate number of latrines is available at TDC:** As part of the contingency plan for flood, all possible TDC should be equipped with sufficient number of toilets for the population that it can accommodate. Planning figure is at least 1 latrine for 20 people. Temporary latrine modules (mobile latrines) can also be bought and stocked for use during floods. Gender separated latrines (for male and female) should be made available.

- **Adequate water is available at the excreta disposal facilities:** Consultation with the community to ensure safe excreta disposal is the key to reduce the excreta-related disease transmission. People wash their hands after using toilets and before eating and food preparation and sufficient water for this purpose are available for all family members at the TDC. There should be a constant source of water near the toilet for this purpose.

3. Hygiene Promotion (See guidance note 8):

- **Special hygiene promotion programmes need to be designed and carried out:** As a result of flooding, water sources and the environment are easily contaminated. Therefore, affected population to be reminded with the following some critical messages.

4. Waste Management and control (See guidance note 9):

- **Solid waste is minimized and appropriate facilities are available for collection and disposal of solid wastes from TDC:** An effective Solid Waste Management system is created to ensure that TDC is free from wastes so that the health hazards are minimized.

5. Drainage facilities:

- **Presence of stagnant water around TDC should be minimized:** Stagnant water may include wastewater, rainwater, natural water bodies and standing water that remains after flooding. The presence of substantial quantities of standing water in and around a site, particularly near living areas and drinking water sources creates a risk to public health.

6. Vector Control:

- **Risk of vector-borne disease is minimized:** All possible measures are taken to control the vector breading sites, so that the risk of vector-borne disease is minimized. In the meantime, people take necessary actions to protect from vector-borne diseases such as using mosquito nets etc. Environmental cleaning is a key task to control the vector breeding sites.

6. hecklist

WASH Assessment Checklist for pre/post flood condition:

INDICATORS		Quantitative status	Qualitative status	Assessor remarks	
				Level of vulnerability (Scale 1-5)	Risk of deterioration (High to Low)
1.1 Water Access	1.1.1. Source of drinking water at household level/TDC				
	1.1.2. Distance to water source from household/TDC				
	1.1.3. Average time required (minutes) for one water-collection journey, including travel in each direction and queuing from household/TDC				
	1.1.4. Proportion of households/families with access to a source of safe drinking water in the village/TDC				
	1.1.5. Access to appropriate bathing facilities with privacy (Separate facilities for men and women) (households in the village/Number of families at TDC)				
	1.1.6. Access to appropriate laundry facilities in the village/TDC				
	1.1.7. Distance of water source from the sanitation point at household/TDC				
	1.1.8. Maximum users/water source (Households in the village/families at TDC)				
	1.1.9. Number of water collection containers per household/family at TDC (Minimum 2, one for storage and one for transportation)				
1.2.Water Quality	1.2.1.a. Water quality at source for households/at TDC				
	1.2.1.b. Water quality at delivery for households/at TDC				
	1.2.2.a. Risk of contamination at distribution points in the village/TDC				
	1.2.2.b. Risk of contamination at collection points in the village/TDC				
	1.2.2.c. Risk of contamination during transportation in the village/TDC				
	1.2.3.a. Available treatment at household level				
	1.2.3.b. Available treatment at TDC or in the village				
	1.2.4. Proportion of households where only safe water is used for drinking and cooking				
1.3.Water Quantity	1.3.1. Available quantity at the source and period of availability at household/village and at TDC				
	1.3.2. Used per person per day for drinking, cooking, hygiene and laundry (liters per person per day) – Average value				
	1.3.3. Water availability for livestocks per day in the village/household				
1.4 Sanitation	1.4.1. Access to latrines (No of HHs have latrines) or Number of Latrines available /Availability of stock of temporary latrine modules at TDC				
	1.4.2. Type of latrines used by households (Individual/communal)/available at TDC				
	1.4.3. Distance of latrines from house premises/from the TDC				

	1.4.4. Distance of latrines from the nearest ground water source at households/TDC				
	1.4.5. Availability of water/cleaning materials for sanitation purposes at households/families				
	1.4.6. Gender separated latrines at TDC				
	1.4.7. Access to hand washing facilities (including cleansing material such as soap)				
1.5 Hygiene	1.5.1. Hand washing practices (Culture) and available facilities at TDC				
	1.5.2. Safe disposal of children's faeces and available facilities at TDC				
	1.5.2. Use of basic hygiene items (for washing. bathing and menstrual)				
	1.5.3. Cultural practices using personal hygiene items				
1.6 SWM	1.6.1. Availability of disposal of solid waste containers/locations at TDC				
	1.6.2. Distance to solid waste containers/locations from TDC				
	1.6.3. Removal of remains of animals and other environmentally harmful waste				
1.7 Drainage	1.7.1. Existence of drainage facilities at TDC and its capacity to drain the water during the flooding time				
1.8 Vector Control	1.8.1. Beneficiaries live in an environment at TDC in which vector increases due to the floods are controlled.				
	1.8.2. People/families living at TDC adopt protection measures for health risks due to vector borne-diseases.				

Guide to fill the checklist: (Should be completed with the help of Indicators and Guide Notes)

During pre-flood vulnerability assessment and during the post-flood response needs assessment:

"*Quantitative status*" means wherever possible, give the number, for example – number of different type of available water sources in a community. If there are two different types of sources, you may write '2'. If not possible to give a number – a quantitative figure, mark as N/A – Not Applicable.

"*Qualitative status*" means just to say "OK", if the qualitative status of the indicator is OK. If not say "No", if it is not reached. Wherever possible, elaborate in bullet points, for example – what are the type of water sources available in the community. If there are '2' types of sources, write them down. For example; 1. Open dug well, and 2. Rain water harvesting tank.

"*Level of vulnerability*" in scale of one to five. 1- "Very Low Vulnerability", means community is less vulnerable to this indicator. For the same example 1.1.1., if assessor thinks that the water sources in the community is less vulnerable to flood, and then can mark as 1.
Similarly with the increasing gravity of vulnerability up to five. 5 means water sources available in the community are highly vulnerable to flood.

"*Risk of deterioration*" – the possibility that the status can deteriorate further. If the assessor thinks that the chances are low, then it is marked as "Low", or if it is high, then mark as "High".

7. Guide Notes

1. Water access: Water source at the Temporary Displacement Centres (TDC) could be;

    - A source already installed at TDC
    - Temporarily installed tank at TDC
    - Supply through a water bowser
    - Common/Community source outside TDC

    A water capacity resource map should be drawn to show the different water accessibility before and after the floods at TDC. (See Annex 1 for sample map). During and after the floods;

    - Rapid implementation of new, or upgrading of existing water points may be required at TDC
      (e.g. install new tanks, increase the number of taps); and
    - Most of the cases water tankering may be necessary as the ground water sources are contaminated.
    - If flood situation long lasts, additional water sources and points should be located, some water carrying containers may be needed to issue to the community.
    - Water storage at TDC should be continuously monitored as part of the contingency plan for the use immediately after the flood. Therefore it should be included in the pre-flood plan of the TDC.
    - Water collection containers should be made available to the families at TDC. Number of water collection containers per household/family at TDC (Minimum 2, one for storage and one for transportation).

2. Water source:
   Following water sources may be available at the TDC or water may be tankered to TDCs from the following sources.

    - Open Dug Well (Protected/Unprotected)
    - Tube well (Shallow/Deep)
    - Pipe borne (NWSDB/CWS)
    - Other sources (River, streams)
    - Rain water harvesting tanks (Pre - disaster capacity)

    However, after floods, it is not possible to use open dug wells as a source as they are contaminated by flood. If there is no water source at the TDC water should be transported using trucks and tanks. Bottled drinking water could be also possible source if no other feasible options are available and if it is economical.
    A water resource map can be drawn to show different water sources in the community at the pre-flood condition and this map should include water sources at TDC (See Annex 1 for example).

3. Water quality: Following parameters of water at source should be measured.

    - Feacel Coliform
    - Hardness
    - Turbidity
    - PH value

    Increase in turbidity and contamination of surface waters may occur due to increased contaminant concentrations as a result of flood water.
    Refer the sample form in Annex2 to measure the water quality parameters

4. Water quantity: Amount of water used per person per day should be measured for the following purposes.

   - Drinking
   - Cooking
   - Personal hygiene
   - Laundry purposes
   - Other purposes

   Pre-flood condition: Quantitative survey, Semi-structured interview or Focus Group discussion can be used to find out the quantity of water used in the community.

   Post-flood response: For the scenario displacement of people to TDC due to flood, minimum quantity of water for drinking and personal hygiene for all displaced population should be ensured as an immediate response, where most of the time cooked food is served to the people displaced. However if the displacement continues for several days, supply of minimum quantity of water should consider the needs of cooking and laundry purposes in addition to drinking and personal hygiene for all the displaced population.

5. Water safety plan: This includes number of water points developed, repaired, or rehabilitated at the TDC. As part of pre-disaster planning, TDC should be equipped with water points taken into consideration of the capacity of the people that it can accommodate in the event of flood.

6. Excreta disposal: could be different methods or different types of latrine usage. In the pre-flood situation, people may have the following practices and methods.

   - Open defecation
   - Safe excreta practice using any method which safely isolates excreta from the environment (e.g. VIP latrine, pit latrine, cat hole).
   - Latrine usage could be pour flush latrine connected to a pit, septic or sewer.

   In the post-flood conditions and at the TDC, latrines may exist. Similar to water capacity enhancement of TDC for disaster response, latrine facilities should also be constructed taken into account the capacity of the people that TDC can accommodate, if feasible. However if this option is not possible, TDC should be equipped with stocks of latrine modules that can be used during the floods.

7. Hand washing facilities: These facilities having water and soap at the hand washing location closer to the toilet at households and also in TDC.

8. Hygiene promotion: Hygiene promotion messages through handbills, posters and awareness programmes need to be conducted to avoid spreading of diseases.
   Some of the key hygiene promotion messages include;

   - access to safe water (water treatment supplies and equipments)
   - appropriate hand washing facilities
   - safe food preparation and food handling practices
   - sleeping under effective insecticide-treated mosquito nets, particularly the most vulnerable group

9. Solid Waste Management: An effective solid-waste management system is created at TDC that ensures: 1) people have a convenient and hygienic place to deposit waste at TDC; 2) waste does not create a significant nuisance or health risk during the period before collection; 3) waste is collected regularly (at least daily); 4) waste is disposed of at a site and in a way that does not create a nuisance or a health risk.

8. Further Reading & References:

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Annex 1

Available community participatory or survey tools for WASH assessment:

1. Direct Observation: Example of a direct observation checklist.

Questions	Yes	No	Comments/details/ observations
Is there queue at the common water points?			
Do households have suitable clean covered water storage containers? (Ask to see HH water storage in several households)			
Is there a problem with garbage/waste around where people are staying?			
Are there latrines at the site?			
Are the latrines functional? (Visit the latrines)			
Other (Specify) _____			

2. Opening and area-specific questions:

Is there a serious problem in your community, because people do not have enough water that is safe for drinking or cooking?

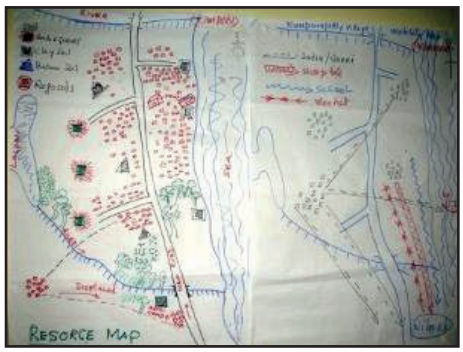
Yes	No	Do Not Know

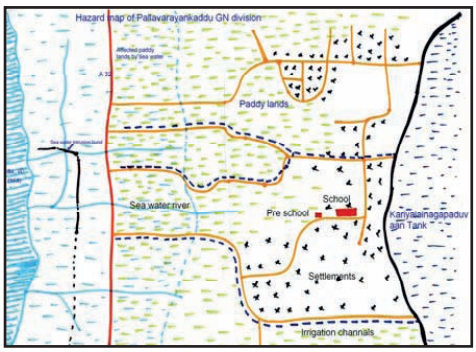
What are the main sources of water in your community (tick all that apply)?

- Tube well with functioning motor pump
- Tube well with functioning hand pump
- Protected open well
- Unprotected open well
- Piped water
- Surface water
- Traditional water sellers
- Humanitarian assistance
- None

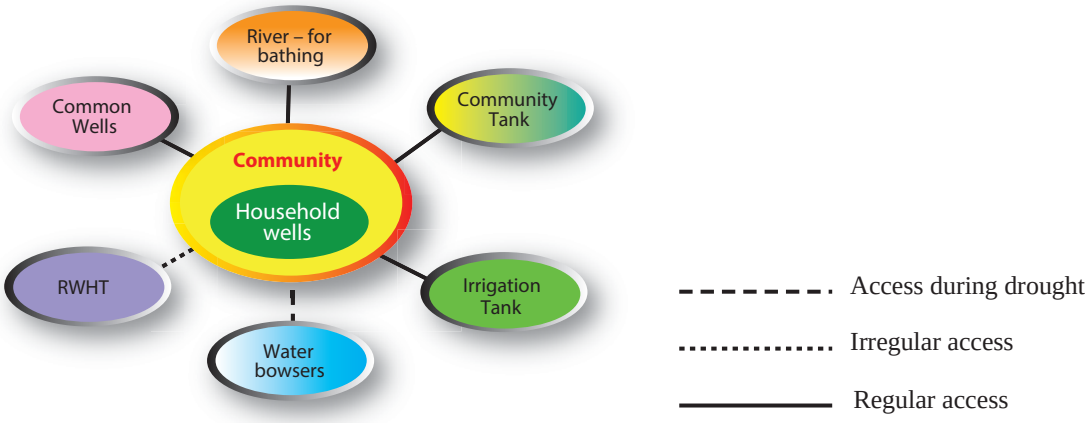
3. Mapping exercise:

3.1 Example of a resource map; existing water points can be indicated in a map.





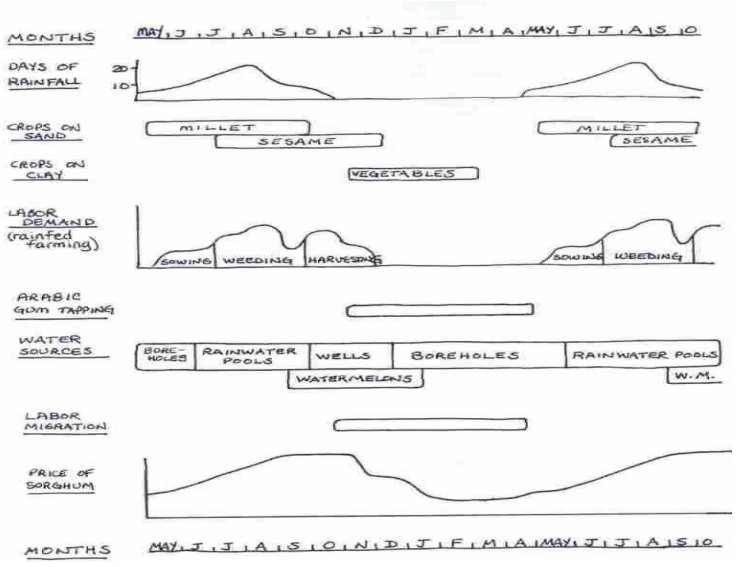
3.2 Example of a mobility map for water supply/collection



4. Other useful participatory tools (Source: RedR training manual).

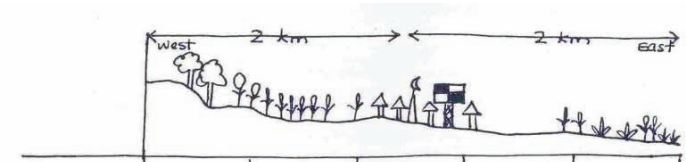
4.1 Seasonal Calendar

The seasonal calendar contains a lot of information about seasonal changes and related hazards, diseases, water availability, community events and other information related to specific months of the year. Using ten stones (ten being the highest score) indicates degree, severity or extent of the change.



4.2 Transect

Transect is a highly enjoyable activity since this involves walking in the community following a certain path or direction. This helps to identify the water points in the community and experience the real testing of what is indicated in the map. Sample of transect walk output is given below.



SOIL	rocky	gravel	gravel	sand	clay
LANDUSE	forest	farmland grazing	village	farmland grazing	farmland
CROPS AND VEGETATION	trees, bamboo	grass, shrubs, millet, sesame		sesame, beans, hibiscus	sorghum, groundnuts
PROBLEMS	erosion	drought, pests		drought, pests, low soil fertility	drought
OPPORTUNITIES	fuelwood, timber, bamboo	pasture, rainfed farming	market, transport, water, credit, health-care, school	pasture, rainfed farming	flood-recession farming

Annex 2

GUIDELINES FOR DRINKING-WATER QUALITY

The parameters most commonly measured to assess microbial safety are as follows:

• ***E. coli****:* The objective of zero *E. coli* per 100 ml of water is the goal for all water supplies and should be the target even in emergencies; however, it may be difficult to achieve in the immediate post-disaster period. This highlights the need for appropriate disinfection. Thermotolerant coliforms may provide a simpler surrogate.

• ***Residual chlorine:*** Taste does not give a reliable indication of chlorine concentration. Chlorine content should be tested in the field with, for example, a colour comparator, generally used in the range of 0.2–1 mg/litre.

• ***pH:*** It is necessary to know the pH of water, because more alkaline water requires a longer contact time or a higher free residual chlorine level at the end of the contact time for adequate disinfection (0.4–0.5 mg/litre at pH 6–8, rising to 0.6 mg/litre at pH 8–9; chlorination may be ineffective above pH 9).

• ***Turbidity:*** Turbidity adversely affects the efficiency of disinfection. Turbidity is also measured to determine what type and level of treatment are needed. It can be carried out with a simple turbidity tube that allows a direct reading in nephelometric turbidity units (NTU).

Water of Acceptable Quality

No pathogens	Free residual chlorine content at discharge points 0.5mg/l (pH < 8) minimum 30 minutes contact time 0.5-1.0mg/l (pH > 8) minimum 60 minutes contact time Or no presence of E.Coli/100 ml at discharge points if chlorination is really not possible (=> water filters highly recommended)
Low turbidity	<5NTU
Acceptable to users	No colour, taste or odour, and not salty

Safe water is defined as water that: (1) comes from a protected and/or treated water supply and/or is treated at household or point of use; (2) is collected and stored in clean covered or narrow-necked containers; (3) is transferred safely during collection at the water point, when transferring from collection containers to storage, (4) containers and when transferring to containers used for drinking or cooking (Global WASH Cluster indicators).

Annex 3:

Comprehensive WASH Assessment in Drought Context

Definitions

- **Assessments** – these are rapid surveys carried out in wide areas to target the most vulnerable communities and identify WASH response activities.
- **Baselines** – these are more in-depth surveys carried out in the communities that were selected after the rapid assessment.

Key Principles

1. **Water assessments need to focus on the change from a "normal" year in comparison to this year where there have been deficits in rainfall.**
2. **While donors have different response priorities, if water is a serious constraint at community level, it should be proposed to the donor in the initial stages of proposal discussion** and the importance of water related interventions should be explained.
3. The **locations for assessments** should be selected by the Assessment team. However if there are areas which are experiencing acute water shortages, assessments may also be carried out there to collect data.
4. **Multi-sectoral Assessments should be integrated and carried out at the same time.** This means that WASH and other teams travel to the field together and carry out integrated assessments in order to identify response activities.
5. **For the household survey –** only a few houses need to be visited in each community (at least 4) in order to establish a general picture of hygiene practices at household level and to determine average domestic water consumption.
6. **These questions are WASH specific and it is assumed that the rapid assessment will be carried out jointly with other teams who will collect key information on livelihoods, food security situation, etc.** More detailed questions on infant and child feeding practices (breastfeeding, weaning, etc) can be carried out during the more detailed baseline survey process.

Note: for data collection on the amount of time it takes to reach water sources or the distance it may be necessary to use alternative approaches to quantifying time or distance.

For example:

- Based on a known distance (i.e. to health center, to market) – ask people how long it takes to reach the water point in comparison to the time it takes them to reach point where the distance is known
- Ask people what time they depart and return in relation to prayer times
- People may know how the shadows (trees/houses/etc) change from when they depart to when they return
- Determine whether or not people are going by foot or cart, etc

The following are proposed questions, methodologies, and formats that can be adapted according to the context.

General

- How many people are affected (by what) and why? Where are they? How are they distributed? Settled or mobile?
- What are the current or likely water and sanitation-related diseases?

Water

1. What is the current water source?

2. How much water is available per person per day, and do all groups (e.g. men, women, caste's, etc.) have equitable access to it? *(Minimum Standard 15L/p/d).*

3. How much water available at the source. Is it enough for short term and longer term needs? *(Minimum Standard flow at each collection point 0.125 l/s & at least 1 water point per 250 people).*

4. How far are water collection points from where people live? *(Minimum Standard, shelter to water point 500m).*

5. Is the current water supply reliable? What may effect this? How long will it last?

6. What are people using to transport water? Do people have enough water containers of the right size and type? *(Minimum Standard –each household has 2 10-20 L collecting vessels plus a 20L storage vessel)*

7. Is the water source contaminated or at risk of contamination (microbiological and chemical/radiological)?
   If so, what is the contaminate*? (Minimum Standard not > 10 faecal coliforms per 100ml at collection point)*

8. Is treatment necessary? Is treatment possible? What treatment is necessary?

9. Is dis-infection necessary, even if supply is not contaminated? If so, why? *(Minimum Standard for residual free chlorine 0.2-0.5 mg per litre and turbidity below 5 NTU, TDS no more than 1000 mg/l)*

10. What and where are possible alternative sources?

11. What are the legal obstacles, if any, to using available supplies?

12. Is it possible for the population to move if water sources are inadequate? Who makes this decision?

13. Is it possible to tanker water if water sources are inadequate? From where?

14. What are the key hygiene issues related to water supply?

15. What means do people have to use water hygienically in this situation?

Sanitation

Excreta disposal

1. What is the estimated population and how are people distributed across the area? *(Minimum Standard - Max 20 people per toilet).*
2. What are the current beliefs and traditions concerning excreta disposal especially regarding women's habits and attitude towards child excreta? What material/water is used for anal cleansing. Is it available?
3. Are there any existing facilities? If so are they used, are they sufficient and are they operating successfully? can they be extended or adapted? Do all groups have equitable access to these facilities? (*Minimum Standard – toilets no more than 50m from dwellings or no more than 1 minutes work).*
4. Are the current defecation practices a threat to health . If so, how? *(Minimum Standard – latrines > 30m from any ground water source).*
5. What is the current level of awareness of public health risks? Are there hand washing facilities?
6. Are both men and women prepared to use defecation fields, communal latrines or family latrines?
7. Is there sufficient space for defecation fields, pit latrines etc?
8. How does the land slope and what are the drainage patterns?
9. What is the depth and permeability of the soil, and can it be dug easily by hand
10. What is the level of the groundwater table? *(Minimum Standard – bottom of any latrine pit is > 1.5m above water table).*
11. What local materials are available for constructing toilets?
12. Are there any people familiar with the construction of latrines?
13. How do women deal with menstruation? Are there materials or facilities they need for this?
14. When does the seasonal rainfall occur?

Vector-borne disease

1. What are the vector borne disease risks and how serious are they?(i.e. Any obvious problem of flies, mosquitoes, rodents, cockroaches, fleas, lice or bedbugs?)
2. If vector borne risks high do people have access to individual protection?
3. Is the affected population used to dealing with these risks? Which vectors in particular?
4. Has the affected population travelled through an area infected with certain insect vectors?
5. Which groups of the population are most affected-children/men/women/new arrivals/old residents
6. Is there evidence of overcrowding. - Do people have previous experience of communal living?
7. Do people have any livestock – where are they/ types/ where do the livestock defecate etc?
8. Is there any evidence of vector breeding sites – stagnant water/ uncovered pit latrines/water containers etc.

9. What changes could be made to the local environment (by drainage/ scrub clearance/excreta disposal/refuse disposal) to discourage vector breeding?

10. Is it necessary to control vectors by chemical means? What programmes, regulations and resources for vector control and use of chemicals are there?

11. Is there a National Public Health/Vector Control Programme?

Solid waste disposal

1. Is solid waste a problem?
2. How do people dispose of their waste? *(Minimum Standard - refuse container 15m from dwelling or 100m from communal refuse pit).*
3. What type and quantity of solid waste is produced?
4. Can solid waste be disposed of on site, or does it need to be collected and disposed of off site? *(Minimum Standard - 1 100L refuse container is available per 10 families where 5m from dwelling where refuse must be taken off-site).*
5. Are there medical facilities and activities producing waste? How is this being disposed of? Who is responsible?

Drainage

1. Is there a drainage problem? (flooding shelters and latrines, vector breeding sites, polluted water contaminating living areas or water supplies)

2. Do people have the means to protect their shelters and latrines from local flooding?

INFORMATION SOURCES
Observation,
Interviews with women and community representatives. Local authorities.
Ministries responsible for sanitation, water and the environment. Local and International NGO's and agencies. Hospitals, clinics and health outposts.

Rapid Assessment on the Flood

Sector: WASH

DS Division:.....

GN Division	Water Source (# Families)			Mode of Water	Need of Supplying Drinking	Number of Wells Contaminated	Physical Damage to Water Supply	
	Pipe born	Wells	Other	Supply After Floods	Water from Outside (# Families)		Wells	Other Supplies

Source: OXFAM CHECKLIST FOR RAPID ASSESSMENTS IN EMERGENCIES

Annex 4

SANITARY SURVEY FORM FOR THE ASSESSMENT OF RISKS OF CONTAMINATION OF DRINKING WATER SOURCES

Source Type: **Date of survey…/…/…**

A. Location District : DS Div.:

GN : Site code:

Owner/care taker: Conductivity/TDS: …… µS

B. Specific Diagnostic Information for Assessment

		Yes	No
1.	Is there any defecation area or human waste within 10m of well?	☐	☐
2.	Is there any other source of pollution within 10m of the well? (e.g. animal excreta or rubbish)	☐	☐
3.	Is the drainage inadequate that causes stagnant water within 2m of the well?	☐	☐
4.	Is the well without a wall or an inadequate collar, which would allow surface water to enter in to the well?	☐	☐
5.	Does the well have minimum 1m wide concrete apron round the well?	☐	☐
6.	Are the rings or walls of the well inadequately sealed at any point 3m below the ground level?	☐	☐
7.	Are the lifting rope and bucket left in such a position that they may be contaminated? or not clean?	☐	☐
8.	Is the well flooded with polluted water recently, which has not been cleaned?	☐	☐
9.	Is there any debris or rubbish inside the well?	☐	☐
10.	Is any of using the well water for drinking having diarrhoea?	☐	☐

Total score of risks, Yes ……. / ……

Contamination Grade-circle below appropriate grade box

a=0-2 yes	**b=3-5 yes**	**c=6-7 yes**	**d=8-10 yes**
Low risks, no action required	Intermediate, need follow up	High risks, need review and action	Very high risk, need immediate action or discard source

C. Result and recommendations:

The following important point of risk noted and authority advised on remedial action

Note/recommendations:

Signature of surveyor: _____